



## **Young people and smartphone use**

**A study on young people's experience of their smartphone use and motivations to decrease screen time**

MA Thesis

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## 1. Introduction

Throughout the years, we have lived through different kinds of revolutions. For example you can think about the ‘golden age’, ‘industrial revolution’ or the ‘scientific revolution’. With the explosive growth in the use of digital media and digital devices, it is not surprising we are now living in the so-called digital age. This age started with the widespread use of the internet (Beck & Hughes, 2013), and in this age social, economic and political activities are more dependent on the information which is offered to us through digital media platforms.

In the digital age our human behavior is not only shaped anymore by our activities in our offline lives. The online life has created a new dimension in which we too need to profile ourselves, which leads to behavioral expectations as well (BBC, 2019a). Recent research (Reeves et al., 2019) states that *“It is increasingly difficult to imagine any attempt to assess the course of individuals’ thinking, feeling or behavior without recourse to information obtained from digital media.”*

Especially for social activities we can see there is more pressure to maintain a social life both offline as well as online through digital media platforms. The constant stream of information does not make it difficult in our current age to keep your brain active. The fact that there is a technical device within reach each moment of the day makes it more difficult to give your brain some rest once in a while (Wokke, 2016). Moreover *“there is now more information available to more people from more sources than at any time in human history.”* (Reeves et al., 2019). As stated by Reeves et al. (2019) our basic human activities have changed as a result of the coming of the digital media and devices.

With digital media, we have found new possibilities in terms of finding people with the same interests; think about using hashtags on Instagram or joining a Facebook group. With the current technologies it is even possible to share your location real time via WhatsApp, thus people can see whether you have almost arrived at your destination. Digital media has made us more connected in many ways and especially social media platforms have played a big role in being connected on a global scale. Our digital lifestyle and the way we display ourselves on the several social media platforms and instant messengers are becoming more important, for especially the younger generation, who have grown up with social media from their childhood onwards. For young people born from 1995 onwards, not having internet or a smartphone is almost unthinkable.

As digital media is more present in people’s lives these days and the current young generation grows up with digital media from a young age onwards, the issue of increasing ‘screen time’ has become a topic of discussion. That is, debates are ongoing on the topic of whether people, often especially young people, spend too much time on their screens. This research aims to find out how young people, in this case students from Tilburg University, The Netherlands, experience their smartphone behavior. The research also aims to find out what might motivate the students to decrease their screen time. In order to research this, the participants in this research were asked to track their screen time for a total of 2,5 weeks. The data tracking was first done for one week and after this first week the respondents were asked to set a limitation on their screen time (explained in more detail in Chapter 3: Methodology) for themselves for 1,5 week, to see whether that would have an influence on their smartphone use and behavior. After the total of 2,5 weeks the respondents were interviewed, in order to see how their behavior might have changed quantitatively, but also qualitatively. In the next chapter, the theoretical framework for the study is presented, with a focus on the issue of screen time.

## 2. Theoretical framework

### 2.1 Are we more social or are we just connected?

While digital media has given us the opportunity to be more connected with people on a global scale, it can also be stated the social media platforms have made us less social, instead of more. As van Dijck (2013) stated in 'The culture of connectivity: a critical history of social media', our networked communication has transformed to a 'platformed' sociality. The rise of social media platforms, and the emergence of multiple platforms offered us endless possibilities to maintain more social contacts on a global scale as well. Thus it is the case that we are in fact more connected on a global scale; however van Dijck (2013) states it has made us less social in the sense that we communicate less in-depth offline because our communication has moved to online platforms. In 2014, Sultan already researched the effects of instant messengers like WhatsApp and stated that they cause serious social and personal problems such as addiction to the smartphone and social anxiety. Lanier (2018) even took this one step further, by providing ten arguments to delete your social media accounts. One of the arguments literally says *"social media is making you into an asshole"* (Lanier, 2018). He underlines this argument by for example the concept of 'trolling', where people assault others for their own entertainment. Not only the online assaulting can be experienced as troubling, but it also seems that people are less capable to have an in-depth conversation with their interlocutors as van Dijck (2013) already stated. As Lanier (2018) describes it, the main reason for this is that our communication is shifting towards online platforms mainly out of convenience. Banning this way of communicating can also not be done overnight (Newport, 2019). Due to our busy schedules these days it is easier to maintain your social contacts via social media and instant messengers, instead of meeting with people in the scarce spare time we have.

### 2.2 Increasing screen time

Although the term 'screen time' is too broad, because *"it cannot remotely capture the fragmented, ever-shifting torrent of images that constitutes digital experience."* (Carey, 2019), we do use this term as an overall term for the amount of time we spend in front of a screen, whether this is a television, tablet or smartphone. In 2010 research by Strasburger, Jordan & Donnerstein (2010) already showed that the average screen time for children from 8 to 18 years old was more than 6 hours per day. Note here that the amount of screen time back then still mainly consisted of watching the television. Already in this research it was shown how this average amount of time watching the screen affected the children's sleep or time spent on schoolwork. However, it also influenced the beliefs and behavior of the children. As mentioned by Strasburger et al. (2010): *"According to social learning theory, children and adolescents learn by observing and imitating what they see on the screen, particularly when these behaviors seem realistic or are rewarded."* More recent research by Donnelly (2019) even states that children now spend twice as much time on their smartphones, than talking to their parents.

Recently the New York Times published an article with the title: 'Screen time is over' (Carey, 2019). Whereas the research by Strasburger et al. (2010) showed that the screen time for children consisted mainly of watching the television screen, the article from the New York Times refers to the fact that over the years the time spent on a screen has shifted to the smartphone. Children start to use a smartphone from a younger age nowadays and by the time they are teens, they have an average screen time of 6-9 hours a day (Anderson, 2018; Donnelly, 2019; Hymas, 2018). Several studies have been done already to find out what the physical and psychological effects are of this constant exposure to digital screens. Research by Domoff et al. (2019) focusses for instance on parent-reports of their children's possible 'screen media addiction' and research by Twenge (2017, as cited in Newport, 2019)

showed how amongst young people born between 1995 and 2012 the *"rates of teen depression and suicide have skyrocketed."* Twenge (2017) states that these rates could clearly be linked to the rising popularity of smartphones and the fact that people nowadays have easier access to a smartphone than a couple of years ago. Also, for both younger people as well as for adolescents, not giving your brain a chance to get into a train of thought can make you less creative and less capable to come up with solutions to a problem (Baird et al., 2012). This last point is related to the possible distractions caused by smartphones and other devices and their possible consequent effects on concentration and development.

Kuss et al. (2018) researched the different purposes of using a smartphone for the younger generation who were born after 1980 and compared this to the smartphone usage of the generation born before 1980, to see whether there were signs of problematic behavior that could be caused because of their smartphone usage. Although several researchers have already tried to find out what the exact health effects are of the extensive exposure to screens and the use of smartphones (Anderson, 2018; Baird et al., 2012; Donnelly, 2019; Domoff et al., 2019; Hymas, 2018; Strasburger et al., 2010), it is difficult to find that out exactly.

Although the effects of the increasing screen time are not completely clear yet, there are indications in the research that more and more younger people are affected by the extensive exposure to screens as mentioned above. The rates of teen depression and suicide are blamed upon the fact that young people experience social pressure online amongst other reasons (BBC, 2019a; Kuss et al., 2018). Lanier (2018) and Newport (2019) mention the 'fear of missing out' as a problematic aspect of why people use smartphones and especially social media platforms. Many younger people even experience feelings of loneliness, being upset or feeling anxious when they do not have their smartphone with them, afraid to miss notifications (Anderson, 2018). The social media platforms feed our need of social belonging by giving us constant feedback (Lanier, 2018).

Recently BBC (2019b) and RTL nieuws (2019) released an article in which it is explained how our skulls are growing a new bone. This development is attributed to excessive smartphone use, caused by people tilting their heads forward when engaging with their phones. The result is a so-called 'smartphone skull'. Especially younger people seem to grow this new bone in the back of their neck. Researchers expect it is caused by having too much pressure on our neck, when bending it forwards to take a look at our smartphone. Psychological effects of smartphone use such as a decrease in the quality of sleep were already known (Strasburger et al., 2010), but less is known about these kinds of physical changes in our bodies supposedly because of the smartphone, and also the causal relationship to smartphone use remains a hypothesis. There have been no studies yet specifically on the smartphone use of the individuals who grew the so-called 'smartphone skull' bone, and the hypothesis was based on demographics of frequent gadget users as mentioned by Ducharme (2019). However, such discussions in the media are an indication of the interest in the topic and possible detrimental consequences of what is considered excessive screen time.

### 2.3 Previous research as foundation to the current study

Not only the health, developmental and cognitive reasons mentioned above, but also the fact that we might be becoming less social and the effects this might have, are important factors to keep in mind when using one's smartphone. Anderson (2018) refers to research done by the Pew Research center, which states that 54% of the teens in the United States experience themselves spending too much time

on their smartphone. For 41% of the respondents in this research, especially the use of social media platforms is experienced as being too extensive. However, as will also be seen in this research, many younger people are actually not that aware of how much time they spend in minutes on their smartphones (Sullivan, 2016). In the research done by Reeves et al. (2019) they recorded smartphone use data from several dozen people. There were screenshots taken of the participants' screens every few minutes from periods ranging from a day to several days. The research by Reeves et al. (2019) tried to discover what people use their screens for, and presented quantitative results on this. However, they did not make use of qualitative data which is why they are not able to explain why people make the choices they make on their digital devices and how the shifting patterns of smartphone use shape the daily experience of the users. Also important to keep in mind is how the usage and patterns can vary from day to day.

This is why this research aims to explain the qualitative aspect of young people's smartphone behavior. The research focuses on how young people experience their own smartphone behavior. To be able to do so, the respondents were asked to track their screen time for one week by using an application on their smartphone. By getting an insight in their smartphone use and behavior, awareness can be created regarding the amount of time the participants spend on their phone and perhaps motivate them to find ways to decrease their screen time. This is why the students were asked to set a limitation for themselves on the amount of time they were allowed to spend on their smartphone screen after the first week of data tracking, in order to see whether they can find ways for themselves to limit their screen time.

Although the research reviewed in this chapter presents a rather negative picture of both young people's amount of screen time and its possible consequences, it is important to note here that not every respondent in this research themselves saw their screen time as problematic behavior or 'something bad'. Furthermore, as mentioned in the research by Reeves et al. (2019), smartphone usage and patterns can vary from day to day which means that in practice individuals can for instance experience some periods of what they see as 'excessive' use or problematic screen time behavior, while otherwise they would not view their behavior as excessive or problematic. This is why in addition to collecting data about their actual smartphone usage, the participants in this research were also interviewed after they had tracked their data for 2,5 weeks in total. This research will offer new insights in the qualitative aspects of why young people use their smartphone, what they use it for, how they view their own smartphone use, and what might motivate them to use the smartphone less to decrease their screen time. Finally, the research can help young people themselves to get an insight in their smartphone usage, in order to assist them in deciding for themselves whether they experience their own behavior as problematic and want to change it.

## 3. Methodology

### 3.1 Design and procedure

The study uses qualitative analysis in order to find out how young people experience their own smartphone use and behavior. 16 respondents participated in this research and they were all students at Tilburg University, The Netherlands. The respondents first tracked their social media and smartphone use by installing an app on their phone (Quality time for Android, Moments for iPhone or Screen Time on iPhone). The respondents did this for a total of 2,5 weeks. The apps tracked their screen time, app usage and how many times they picked up and unlocked their phone. The respondents sent screenshots of the data provided by the app to the researcher, either every day or all the data together at the end of the first eight days of the research. The respondents started at different dates, between the period of April 22, 2019 and April 29, 2019.

After the first eight days of tracking the respondents' smartphone use and behavior to get a picture of their patterns and amount of use, they were given the task to set a limitation or goal for themselves, in order to limit their screen time based on the data from the first week. It was considered important that the participants were able to influence the exact shape of the limitation or goal themselves, based on their own perception of their behavior and what they themselves found important. This is why the respondents were asked first whether they could think of a goal or limitation themselves. Suggestions were only given when asked for by the respondent or when they could not think of a goal or limitation themselves. From the 16 respondents, one opted out of the experiment. There was no reason given for this. From the 15 remaining respondents 9 of them thought of a limitation themselves. The other 6 were provided with a goal or limitation by the researcher, because they experienced difficulties in thinking of one. This second period with goals or limitations was a little longer than the first one; it lasted for 12 days, in order to give the respondents the chance to get used to their new habits. During this period the respondents again sent, either every day or at the end of the entire 12-day period, a screenshot of their screen time and number of pick-ups of the phone per day to the researcher.

As the screenshots from the respondents provides us with quantitative data only, interviews were scheduled with the respondents after the entire twenty-day period of data collection regarding smartphone use. The data gathered during the interviews was done by using semi-structured interviews. Interviews were conducted in English and recorded by using a smartphone and a digital voice recorder. During the interview the respondents were asked about the following topics:

- Daily life (e.g. age, studies, leisure time)
- Communication in daily life
- Smartphone use before the experiment
- Social media use
- Smartphone use during/after the experiment
- Extra (anything the respondents themselves wished to add)

The full structure of the interview can be found in Appendix I. Since three of the respondents were not available for the interview during this period, the respondents filled in a questionnaire, using a Google document with the same questions as were asked to the other respondents during the interview. In designing the interview questions, work by Buckingham & Willet (2013), Davies (2016), Gregg (2018) and Petersen (2019) was used in addition to the literature mentioned in the theoretical framework and introduction.

Before the start of the interview, a consent form was given to the respondents, in order to guarantee their privacy and be certain of the fact that they knew they were being interviewed on a voluntary basis, that they knew they would remain anonymous, and that they knew the purpose of the interview. For the online questionnaire the consent form was copied in the questionnaire, asking clear permission to use the data and answers from the respondent. It was also made clear in the consent form that the respondents could opt out of the research whenever they wanted to. The interview started with the researcher introducing herself and giving general information about the questions that would be asked. After this the respondents introduced themselves and they were asked questions divided into the different categories mentioned above. The answers were repeated (echoed) by the researcher sometimes to make sure the respondents' answers were interpreted correctly. All the interviews were conducted by one researcher and transcribed afterwards using the program 'Amber script'. The program generates a transcript from uploaded audio files. After the automated transcript was generated, the researcher checked the full interview transcript.

### 3.2 Participants

The participants were recruited by approaching them via Whatsapp or Facebook Messenger through the researcher's personal networks. Also some of the participants reached out to other students from Tilburg University. The researcher thus used convenience and snowball sampling as the participants were almost all acquaintances of the researcher or of the participants. A total of nineteen respondents were approached; however three of them could not run the screen time tracking app on their smartphone due to technical limitations. This resulted in the total number of sixteen respondents at the beginning, with as mentioned one of the respondents opting out of the research after the first one-week tracking period. The respondents are students from Tilburg University, The Netherlands, studying in different faculties and with different numbers of years of study behind them. The primary criteria in recruiting the participants were that they:

- Are a student at Tilburg University
- Owned and were using a smartphone
- Are willing to track their social media and smartphone use for twenty days
- Are willing to install the Quality Time or Moments app and share screenshots from these apps regarding their smartphone use
- Had to be available between April 22, 2019 and May 27, 2019 for the data tracking

The data tracking started for some of the respondents on different days; however all of the respondents tracked their smartphone and social media use between April 22, 2019 and May 16, 2019. The interviews started on May 14, 2019. All the interviews were held in a public space, mainly at one of the Tilburg University buildings. The purpose of the interview was to find out how the respondents experienced their own smartphone behavior. The participants consisted of 15 females and one male, between 18 and 28 years old. The respondents have different nationalities, making this also a reason to conduct the interview in English.

### 3.3 Method of Analysis

After transcribing all the interviews, they were coded. In the analysis of all the data collected, the focus was on the qualitative data produced by the respondents during the interview, as the main focus of the research is on how students experience their own smartphone use. Based on the data collected and the coding, there were three main categories which allow presenting an overview of not only the respondents' smartphone use and behavior, but also their experience of it: their daily usage of the



smartphone, their attitude towards smartphone use and online communication (specifically instant messengers and social media platforms), and the results of the participants limiting their screen time.

## 4. Results

Based on the data collected, we can derive three main categories of analysis, namely: smartphone usage overview, the respondents' attitude towards online communication and smartphone use, and the results of the participants limiting the screen time. As will become clear below, the analysis of each of the three main categories also includes subcategories, all of which contribute to providing an answer to the main question of the research, namely how students experience their smartphone use and what might motivate them to decrease screen time.

### 4.1 Usage overview

#### **4.1.1 At what age did the respondent start using a smartphone?**

In order to get a clear picture of how strongly the smartphone is incorporated in the respondents' lives, they were asked when they started using a smartphone and when they got their first smartphone themselves. On average the respondents have had a smartphone for 7 years by now. Among the respondents, the age at which they acquired their own smartphone varied quite a lot, with the youngest age at which a respondent had her own smartphone being 12, and the latest one 21. Out of the 15 respondents, 5 of them started using the smartphone of a friend or a family member on a regular basis before they got one of their own. This means that for 10 of the respondents having their own smartphone was the first time they got in touch with one on a regular basis.

#### **4.1.2 Use of social media platforms**

Since one of the main activities for smartphone users is the use of social media platforms and instant messengers, it is interesting to see how the 15 respondents use these platforms. All of the 15 respondents who joined the experiment used social media platforms in one way or another. Social media platforms here refer to platforms like Facebook, Instagram, and LinkedIn, and others including mainly Chinese versions of the aforementioned social media platforms. Mainly the social media platforms Facebook and Instagram were used by the respondents, but also LinkedIn and Snapchat were mentioned several times by the respondents. All 15 respondents use Facebook, but not all of them as active users anymore as they used to. The platform is mainly used by the respondents for getting notified about upcoming events and people's birthdays. Facebook also is used for entertainment, by scrolling their feed for funny videos and memes.

Out of the 15 respondents, 12 of them use Instagram. The purposes for using this platform differ among the respondents, as some of them use it mainly for entertainment and scrolling for entertainment, while others use it as their own visual diary and as a platform to display themselves. Snapchat is, just like LinkedIn, quite popular amongst the respondents. Snapchat is used by 8 of the respondents and LinkedIn by 6 of them. However, the purposes for using them vary quite a lot. Noticeable is that respondent 3 was the only one who considered Snapchat more as an instant messenger, instead of a social media platform, especially since the respondent mentioned she uses Snapchat mostly for giving real time updates about her life for specific persons. LinkedIn is not used as extensively as Instagram or Facebook. However, the respondents who do use it find it important to make updates on this platform and make connections for especially professional activities, as mentioned by respondent 10.

Among the respondents only two of them used Twitter as a social media platform, and they use it mainly to follow political discussions. The respondents with a different nationality than Dutch, were also using other social media platforms to stay in touch with people. For example respondent 8 and 11 used a Chinese version of Twitter and besides using Facebook, they used a Chinese version of this

platform as well.

#### **4.1.3 Use of instant messengers**

To get a clear understanding of the purposes for which the respondents use different platforms, the platforms were divided into 'social media platforms' like Facebook and Instagram, as discussed above, and 'instant messengers' like WhatsApp and Facebook Messenger. The main difference between these two is that through instant messengers, as the name already implies, people have the possibility to send a message to someone and the apps are designed in such a way that people can easily and quickly reply to this message. Platforms like MSN were the first ones to count as instant messengers; however, there was never a solid option to use this platform on one's smartphone as well, once the smartphone got on the market. Throughout the years instant messengers like WhatsApp and Facebook Messenger became more and more developed, by giving the users options to share different media from pictures to PDF documents and by building in a video calling function and the possibility to send people voice memos.

While conducting the interviews, it became clear how popular the instant messaging platforms are. All 15 respondents used WhatsApp extensively and only one of the respondents did not use Facebook Messenger in addition to WhatsApp. For the respondents the main purpose of using these platforms is to stay in touch with their loved ones, both through individual conversations as well as so-called group chats. Also conversations about their studies with their fellow students have moved to take place through instant messengers, because of the quick responding time of peers. Apart from WhatsApp and Facebook Messenger, some of the respondents used other platforms as well for communication purposes. For example respondent 12 uses Telegram for communication as well, mainly as an alternative for WhatsApp. However, she still uses WhatsApp mostly, since not many people use Telegram. Respondents 8 and 11 also use WeChat, the Chinese version of WhatsApp. This app is used mostly to stay in touch with their acquaintances in China.

## **4.2 Attitudes towards online communication and smartphone use**

### **4.2.1 Attitude towards online communication**

All the respondents experience online communication as a positive phenomenon. As for most of the international students who participated in the experiment, they look at online communication as a positive phenomenon to stay in touch with their loved ones on a global scale. However, it is not the most ideal solution to stay in touch with them, as respondent 3 mentions:

*"I think yeah, it's really convenient. Like of course I would love to like live in the same city as my parents or my best friend but I'm like... You know it's also the thing of like I would love to be able to like video chat with them more. But yeah it's just not realistic you know."*

Someone who had mixed feelings about communication online is respondent 11. As she is also an international student, she mainly uses online communication to, as said, stay in touch with her loved ones. However, she also sees some down sides to online communication:

*"Well I think it's is always two sided, because in the beginning I feel like it's really useful and effective to get to talk to people that you might not really often see in your physical life. So it's nice to keep in touch with some old friends, but with time passing by I feel like I don't really want to spend too much time on social media or checking friends, like profiles or something."*

The reason she feels like this is mainly because she spends many hours per day on her phone, while she actually could use this time in a more efficient way to for example study as she mentioned herself. Also respondent 15 experiences online communication as positive, although she does sometimes *“feel pressured to answer fast as well.”*

For respondent 7 it depends per situation how she feels about online communication. In general she feels like it is good to have a quick and direct way of communicating, although she considers it as being *“fatiguing”* as well. She feels like online communication stays too much on the surface sometimes and it is also sometimes difficult to determine what the interlocutor means. It can make one doubt whether one is on the same page with the other person, so to speak.

Respondent 10 also mentions misunderstandings as a negative aspect of online communication, although he does experience online communication as positive, because it has made us more connected. However, it can also get ‘awkward’ as he mentioned, when people misunderstand each other because of the lack of intonation and non-verbal aspects:

*“If you get really technical about it for example, I obviously like written texts, that will be different from having people speaking to you. There's no intonation and stuff. You can look at my face and then you just see kind of how I feel. Basically you have to rely on anyone understanding the same concept behind the same emojis if someone has a different understanding, well then that's just kind of awkward because you have a misinterpretation. It is a lot faster or more instantaneous and I can contact old friends that I haven't seen in a while with a simple message really. So in that sense it's definitely made us a lot more connected.”*

While the respondents also point out negative aspects of online communication, they overwhelmingly experienced online communication as a positive phenomenon. In the next section it will be discussed how the respondents experience the differences between online and offline communication. This will give a more in-depth idea about the participants’ views on these positive as well as negative aspects.

#### **4.2.2 Online vs offline modes of communication**

As respondent 3 mentioned, she would love to live in the same city as her parents and best friend; however this is not a possibility for her at the moment. When asking her how online communication changed our ways of communicating she mentions the following:

*“The first time I went overseas was like... It was like five years ago, five or six years ago... I think the first time I went to France I texted my parents like once a week because it was expensive to text. And now here I don't buy like text messaging or like phone minutes I just buy data and it's all on these instant messengers... Like I do call my parents once a week but... I think there was definitely a time when we as a society did more of like you called or you were writing on like a more frequent basis, but you have more content versus like now I feel like it's more spread out.”*

Respondent 4 also feels like our way of communicating changed drastically because of the possibilities to communicate online. She makes a distinction between more and less personal ways of communicating, with online communication belonging in the latter category. This is apparent in that she mainly feels like people use the more ‘personal’ ways of communicating as a last option:

*“I think it's less personal now and the people meet less and less face to face and calling is not*

*that popular anymore. I think people prefer messages instead of giving a call or meeting. I think meeting face to face is like the last option."*

However some of the other respondents do not feel like this at all. Respondent 10 for instance uses his phone for almost everything and he looks at his phone as an extension of himself; however, he tries to mainly meet up with people in person instead of using online communication to stay in touch although this is not always possible because of everyone's busy schedules nowadays. Also respondent 2 considers her smartphone as being very important in her life, saying about her smartphone: *"It is my life. Which is it sad? No it's not. It's the age that we're living in. And I don't really care about what's right. It's convenient. So I'm going to not stop doing it."*

The opposite of this is respondent 12, who uses online communication not that extensively as she explains herself:

*"I am generally talking a lot. I have a lot of... I have a big like close social network I would say. Especially since I have friends right now all over the place. Two different places already. I use the phone a lot to catch up with them. However not in a very extensive way. But what I prefer in communication is direct communication: face to face, calling or writing with one person. So all these group chats and social media in general I don't use."*

Respondent 13 experiences online communication and especially WhatsApp as a *"very handy addition."* However she still uses her phone to call as well for longer conversations and meet in person for more in-depth conversations. This is also how most respondents feel about the online communication nowadays. Although it can be less personal, it is mainly a convenient way to stay in touch with many people at the same time. This brings us to the following section.

#### **4.2.3 Use of smartphone for convenience**

When asked what a smartphone adds to their life or how they feel about online communication, the main word used by almost all the respondents was 'convenience'. The respondents experience their smartphone as a convenient way to stay in touch with people, but also experience their smartphone as a convenient tool for practical purposes such as an alarm, to make real-time notes, or using Google maps. Respondent 12 is one of the many respondents who mention the convenience of using a smartphone, using her smartphone as a tool *"to maintain social ties, but there is also a practical thing. I'm not doing it to entertain me, but to communicate."* Furthermore she uses her smartphone for other purposes:

*"Well on Spotify I'm listening to a lot of podcasts, especially like news and stuff. Also a lot in German because that is my way to also keep up with what's going on in Germany. Facebook, that is really in my opinion turned into a waste of time now. YouTube sometimes. And then just internet to look up stuff. Then it's really comes down to practical stuff and notes and alarm and whatever."*

Respondent 8 was the oldest one to start using a smartphone before getting one of her own and started to use a smartphone at age 21. Not only then, but also now she still uses her smartphone mainly for practical purposes (e.g. setting an alarm, using Google Maps, etc.) and secondly for maintaining social contacts, especially with her friends and family back in China. This respondent would say she uses her smartphone 60 percent for practical use and 40 percent for maintaining social

contacts. The social activities mainly consist of staying in touch with her parents back in China. This she does not even necessarily do via instant messengers, but rather by sending them emails.

As mentioned before, respondent 2 describes her smartphone as *'being her life'* which also comes back in the following quote:

*"I use it for like I said: calendar. I don't use an agenda. And you know... just having Apple products in general like you know because my computer is an Apple product and my phone is also an iPhone so it's really like it's nice and synced. So I do my grocery list, grocery list on there you know. I write my list on my computer and then it pops up in my phone when I'm at the grocery store. You know I can like do like calendar stuff all around. So I have my own personal agenda in there. I use it as a timer a lot when I'm making pasta. I use it for everything. I use it as my alarm clock. I've never worn a watch ever in my life. I use it as my watch. So everything."*

The only respondent who mainly sees her smartphone as a tool for entertainment is respondent 1. She uses her smartphone rather for social purposes than practical purposes (e.g. Google maps, alarm, calendar, etc.). Overall the respondents thus consider their smartphone as mainly being a convenient device. As discussed in the next section, they were also asked whether they could live without social media platforms or instant messengers. This is a relevant issue to discuss, as all the participants had social media applications and instant messengers on their smartphones, and they are thus part of their smartphone use behaviors.

#### **4.2.4 Could you live without social media platforms?**

The respondents use not only their smartphone, but also social media platforms mainly for convenience. Apart from this general tendency, the exact purpose differs per respondent and platform. However, Facebook gets used in general for staying updated on events and birthdays and is also mainly used as a platform for entertainment by scrolling through one's feed, looking for funny memes and videos. Respondent 1 for instance uses Facebook mostly for *"spending some time I have when I'm bored. I use Facebook to scroll on my timeline to see what's new and what's happening."* Also respondent 9 uses Facebook mainly to scroll through her feed, although she does see herself doing this less compared to the amount of time she spent on the platform in earlier times. Respondent 6 and 10 also consider Facebook as a platform which is not used that much anymore and therefore they see it as easier to ignore messages they get there and the scrolling also has become less interesting. Respondent 13 even feels like *"nobody cares anymore"* about what is posted on this platform. In this sense it is striking, as seen in the first section, that all of the respondents still use Facebook. However, this could be explained by the fact the respondents still use Facebook to keep themselves updated about events and join groups on the platform as well. Although used less for other purposes, Facebook thus still seems to have practical, informative uses for the respondents.

Instagram is for some of the respondents used as platform to display themselves and look for role models, whereas for others it is used as their visual diary which is open for other users to see. For respondent 13 the way she uses Instagram has shifted throughout the years:

*"Instagram is fun and I check it when I need a break. Instagram is fun when you have a creative plan. Few years ago I became nervous when I posted something on Instagram and I looked every ten minutes to see who liked it, so I can really see how it also has negative effects and that it can be damaging if you have a low amount of likes. I am glad I don't care that much about that"*

*anymore. Now I use Instagram, among others, as my own personal photo album.”*

Knowing the purpose of the social media platforms for the respondents, they were asked whether they could live without them. As instant messengers would still exist, all of the respondents said they would be able to live without social media platforms like Facebook and Instagram. However, they do mention they would have to get used to this and for them to be able to live without social media platforms, that should be the case for all people, not only for them individually. As respondent 4 mentions, she would feel disconnected if this would not be the case for all people. Living without social media platforms would also save the respondents a lot of time; some respondents mention they would read more when they would not spend their time anymore on scrolling through Facebook or Instagram:

*“If all the social media just like disappeared. I think it would be like a period for a couple of days and then I'd kind of go back to doing more of what I did as kid like reading. Going out for walks hanging out with people.” (Respondent 3)*

Other respondents, like respondent 8 and 12 could maybe see a problem in having to find an alternative source of information and respondents 1, 2, 10 and 13 mention that they would be afraid of losing the contacts they have made in other countries. Thus, while it would be possible for the respondents to not have social media platforms anymore, they do mention it would affect their lives in one way or another. However it would not affect their lives in a way that they would lose all social contact, only the ones that are geographically distant.

#### **4.2.5 Could you live without instant messengers?**

As mentioned before, all 15 respondents use WhatsApp and almost all of them use Facebook Messenger as well. Apart from these messengers, some of the respondents also use other instant messengers as well, like WeChat. The main purpose of using instant messengers for the respondents is to have easy and direct contact with people through individual conversations as well as in group chats. Some of the respondents also mentioned how instant messengers made going abroad easier for them, because the threshold for staying in touch with the people back home becomes lower. Therefore, almost all the respondents consider instant messengers in their life as being more important than the social media platforms. When asking the respondents if they would be able to live without instant messengers, only 7 of them would not be able to live without them. The other 8 respondents would only feel this way if they could not text people like in the old days (with a more limited amount of characters available for writing a message) or if they would not be able to call them. As respondent 15 mentions: *“I like being able to be instantly linked to my relatives, but I wouldn't mind if it was only through SMS or calls.”*

Only one of the respondents would rather have social media platforms than instant messengers, mostly because he believes it is less difficult to find someone on social media platforms as for instant messengers one needs their personal number in order to find them and contact them:

*“Well I mean people could still contact you, with a limited character message. It would still be pretty easy to ask for their number. I guess in that sense it would be easier than if it was the other way around, like if you had the instant messaging, but no social media. Because you can use social media and find people on basis of having nothing except for their names. Whereas for messengers you can only find someone based on having a number which is a bit more of a specific need. Yeah. So I guess in that sense it will be easier to keep in touch if you only have*



*Social Media but no messengers.”*

Another reason why for example respondent 9 would not be able to live without instant messengers is because she feels like one would miss out on many details in people’s lives:

*“I don't like this, because you only have the picture that people are presenting on social media platforms and you don't have the personal contact. So maybe they post a lot of happy pictures and videos, but maybe they are very sad. Of course you can ask about it. You can see them or you can call them. But then I think that there will be more fake information available.”*

On the other hand, one respondent would even feel like it would be freeing to have no instant messengers anymore:

*“I would love that. I would love that so much. It's just such a burden to me honestly. I feel like I'm strangled by it. Because there's always like... over my phone over WhatsApp are there like sixty five notifications from whatever.” (Respondent 3)*

Thus as a solution for not having instant messengers anymore, all the respondents mention they would call more or have a face to face conversation. However, almost all of them like having instant messengers to keep people updated and experience it as a convenient way to stay in touch.

#### **4.2.6 Experiencing smartphone use as a habit or addiction**

We can see the respondents would be able to live without social media platforms and some of them even without instant messengers. Still they see themselves using their smartphone many hours a day, using all the different social media platforms and instant messengers. This brings me to the question: do the respondents experience their smartphone behavior as an addiction? The answers to the question differed among the respondents. Some of them would consider their smartphone behavior more as a habit and others would say it is an addiction, however according to the respondents this does not necessarily mean it is an unhealthy addiction. Respondent 6 for instance thinks that everyone is addicted to their smartphone:

*“Yeah I definitely think it is [an addiction]. Maybe also for myself. But that's always hard to say. I mean you say to yourself: No I don't have it. But I think everyone does, because you keep wanting to be updated and keep checking your phone so I guess everyone is addicted.”*

Some of the other respondents would say it is an addiction as well, although as respondent 12 mentions it is not necessarily an unhealthy one:

*“No it's also an addiction for me, you know even though like I'm not sure if an addiction is necessarily only bad. Like if you manage to control it. But you need to be aware of this addiction and need to find a way to deal with it.”*

Many of the respondents mentioned that being aware of this ‘addiction’ is important to be able to change something about one’s behavior. At the same time, they only realized how much they were using their phone after the data tracking experiment.

Some respondents mentioned one specific aspect of their smartphone use, rather than the smartphone



in general, as being the cause for their addiction. Respondent 3 mentions how not only her smartphone, but even more the social media platforms are a cause of addiction. She sees herself posting things for attention and she always wants more of this as well. During the interview respondent 5 even mentioned she felt the urge to look at her phone while being interviewed: *“Now like when my smartphone is laying here I just have the intention all the time to just look at what time it is. And yeah if someone messaged me.”*

However not all the respondents would consider their smartphone use as an addiction, but rather more as a habit. Respondent 10 states the following:

*“If I will say no I don't really know if that's an appropriate answer or not, because I personally wouldn't call it an addiction, because I know I just need it for lots of things. I guess I would call it more of a habit, because I think when I don't have a phone I don't really miss it. It is a bit annoying to think like okay people might be texting me that I might need my help or something right now, but aside from that I got some more practical things as part of the work I'm supposed to be doing. So I guess I would call it more of a habit than addiction if anything.”*

Also respondent 13 looks at her smartphone behavior as a habit, rather than as an addiction, because if she wants to, she can live without it: *“I can go without social media when I am on holidays and have no Wi-Fi. I think it is more like a habit, I wouldn't like to change. I like to scroll Instagram when I go to sleep.”* This is also stated by respondent 3, who would also be able to live without her smartphone and experiences having no smartphone as mostly ‘different’.

*“But it's also in the realm of like... I've traveled in the past to places where I just don't have service for a couple of days. And eventually you just stop looking at your phone. It's not really difficult or uncomfortable. It's just different.”*

As mentioned most of the respondents do experience their smartphone use as an addiction, however they do not necessarily experience it as an unhealthy one. This is because if the circumstances so require, they are able to live without their smartphone, although they do not prefer this. Given these results it is interesting to see how the respondents experienced limiting their screen time. This will be discussed next.

### 4.3 Results of limiting screen time

#### **4.3.1 The kinds of limitations the participants set for themselves**

The aim of the second part of the tracking period was to find out whether the respondents would decrease their screen time by setting a goal or limitation for themselves after they had tracked their screen time for one week. The expectation was that by giving the participants an insight in how much screen time they had after one week, they would be able to consciously decrease their screen time. Using the tracking app to get specific data about the quantity of their screen time was expected to lead to awareness and a reason to change their behavior. To encourage themselves and make it easier to decrease their screen time, they were asked to set a limitation or goal for themselves in order to quantitatively decrease their screen time, keeping in mind that ‘too much’ screen time is a subjective matter for every person. This is the reason why in this research there is more focus on the qualitative data instead of the quantitative data, in terms of how many hours or minutes the respondents spend on their smartphone.

For 6 of the respondents a limitation was set by the researcher in consultation with the respondent. The limitation that was set by the researcher meant for 3 of the respondents (respondent 6, 10 and 11) that they had to switch off their notifications from social media platforms Facebook, Instagram and Snapchat, which were the social media platforms they mainly used. Respondent 11 did however not use Snapchat.

For respondent 11 this limitation helped her to spend less time on especially Instagram and therefore she would say her smartphone use and especially use of social media platforms changed. Because of the experiment she realized how much time she spent on her smartphone and how she could spend her time better for example for her studies. Respondent 10 also turned off the notifications from the platforms Facebook, Instagram and Snapchat. He decided to do this because *“those are like my other primary platforms, like apps, on my phone I use a lot but that aren't going to impact my daily productivity. For example if I were to turn off WhatsApp I would have a problem.”* On the one hand he would say he did not miss the notifications, however on the other hand he does describe checking the platforms for notifications as a habit and did see himself checking the platforms, because there were no notifications popping up. For this reason he did not really see himself changing his behavior. Also for respondent 6, who set the same limitation, it did not work out the way she wanted.

*“What I really noticed was that I actually checked the platforms more because normally I just had the notification and then I just knew like: oh that person sent me a message or a photo or whatever and it will be fine. I knew that I had a message or something to look at. There wasn't like a... A need to check it at that moment because I already knew, it is that person, I can check it later. So I just kept checking to see if I'd have something.”*

For the three other respondents for whom the researcher set a limitation, it was a limitation based on their screen time. Respondent 1, 4 and 9 all wanted to keep their screen time under 2,5 hours a day and respondent 1 had as an addition to that to keep her times of unlocking her phone at under 150 times. For respondent 1 it was very difficult to keep up with her limitation. The first few days she saw herself doing a good job, however *“then it became weekend and then I did not manage anymore and then again when it wasn't weekend again, I managed almost every day like maybe like 5 or 10 minutes over. And then there was weekend again and I didn't manage.”* Also for respondent 4 and 9 it was difficult to keep themselves to the limitation. Respondent 4 even described it as a *“complete failure”*. It even scared her to be confronted by the fact she is this dependent of her phone on a daily basis. This was also the reason why the limitation did not work out for her. She describes this as follows:

*“I think mostly because it was just a habit and another reason is maybe I didn't realize how much I'm dependent on the usage of my phone. Not necessarily social media, but the phone like the screen time. In general I didn't realize that I'm actually really dependent on my phone for more than two hours on average per day. And I was kind of expecting that I can just reduce it to two hours and that will cover all my let's say necessary needs. But actually it doesn't. So I felt a lot more dependent on the phone than I thought.”*

The other respondents decided on a limitation for themselves, sometimes based on proposals by the researcher. Respondent 2 for instance wanted to keep her screen time between 1 and 2 hours a day, and respondent 15 set a limitation on her phone to not let her use social media platforms anymore after she had reached a screen time of 2 hours a day.

Respondent 5, 7, 8 and 13 mentioned as a motivation for how they set their limitations that they did not want to use their phone while studying. This also meant that they were not allowed to use their phone when going to their lectures. The respondents who set this goal for themselves all managed to keep themselves to their limitation, mainly because they saw themselves working better and faster on assignments, because they were less distracted.

*"It was really strange but I guess I didn't expect it to be so easy. But yeah I was focusing on studying. Maybe it was also because I saw the first days the hours I was spending on my social media and then it was like: OK I have to change something. And it was easy to do that. I was working a lot on my thesis and then I just had way more ideas on how I could do things."*  
(Respondent 1)

While getting used to a limitation was not easy for any of the respondents, respondent 7 did see herself struggling with her limitation. The main reason she gives for this is having the feeling you need to do *"like a million other things."* It was difficult for her to keep focused on studying, when she knew there were still many other things she needed to do. Thus she found herself looking at her phone many times to take care of a little task, which would otherwise stay in her head.

For respondent 14 the goal was to not use social media after 11pm. She did not find it that difficult to keep herself to that limitation: however she did not manage to keep herself to it all the time:

*"When I was at home I went sleeping more early. I only did not manage to keep my limit when I was not yet home at 23:00. I am more aware of what impact the use of smartphones have late at night. Especially for the condition of the eyes and overall feeling during the next day."*

Maybe the most drastic limitation was set by respondent 12, who allowed herself to use her social media platforms and instant messengers only for one hour a day. However she did not keep up with the limitation, because she realized how difficult it was to make appointments or stay in touch with people.

*"The only applications I did not block was mail and Spotify. Because mainly I really have to use for my work. And Signal because that I used for communicating with my boyfriend. But he was then actually the only one I was communicating with. So that was fun. Of course sometimes I had to cancel this blockade of all the applications because I got lost in Uni. Had no clue where all the other people were and I had to text them or I had a group meeting and I was too late. In the applications you can see how many times basically I open my phone and then it was blocked so there was like, I don't know, 100 times a day I wanted to do something, then I had to stop myself and then that got less. I think I did the extreme blockade for twenty three hours for like three days, but then I was off four days. I noticed this 23 blockade was nice because it really like made me aware of how much I am using my phone and how unnecessary I'm using my phone. And then I also got the feeling I might not need these blockades actually, because I already have this kind of awareness and this is really nice because from this experiment on I have been using my phone so much less."*

Finally respondent 3 had a different approach for limiting her screen time. When asking her what her limitation would be, she asked the researcher whether she could set a goal for herself that would not involve her smartphone, but that would automatically reduce her screen time because she would be

preoccupied with working on that other goal. A rather positive approach, in which she would not limit herself, but just set a goal to give herself more time to do something different. In this case the goal was to read a book for one hour every day or to take a long walk to reduce her screen time.

*“So the first couple days I wanted to walk more because I just need to get more exercise. And it's nice out. And I wanted to read more for fun. Over the past week I've been walking back to school every day and that's like 20 ish minutes each way. And I actually really enjoy that and I listen to a podcast or some music which is technically using my phone but not as in screen time.”*

However, the goal did not work out every day:

*“I think it was mixed success. Like there's definitely days where I think I definitely do less of the constant checking. I've got a little bit better with that reflex, but there's definitely days where I'm like: I can't 'people'. And my brain is tired from doing school stuff. So I'm not going to read and I just like mindlessly scrolling. I'm just like my brain needs a break. It's just kind of mindless. I definitely have been reading more but not consistently every day. And I also found that the biggest chunk of time that I was using my phone, and my goal here was to reduce screen time, was on like a stupid puzzle game.”*

Although not all the respondents were able to stick to the limitation, they did have more awareness about how much they used their smartphone and for which purposes. In the next section this will be discussed in more detail.

#### **4.3.2 Did the respondents limit their screen time in minutes by setting a goal or limitation?**

For most of the respondents there was no big difference in how much screen time they had in minutes between the first week of tracking their behavior and the 12-day period during which they had a limitation for themselves. The differences the respondents experienced in their behavior can in fact be described as more qualitative than quantitative.

Respondent 3 for instance did not see any change in her behavior when looking at the number of minutes she spent on her smartphone. However, qualitatively she did feel a difference in how she used her smartphone, as will be explained in a later section. Respondent 6 on the other hand felt her screen time was increasing after she had set a limitation for herself. As she explained:

*“What I really noticed was that I actually checked the platforms more because normally I just had the notification and then I just knew like: oh that person sent me a message or a photo or whatever and it will be fine. I knew that I had a message or something to look at.”*

Turning off the notifications for Facebook, Instagram and Snapchat made her feel like she had to check the platforms more, in order to not miss a notification. However, in practice it turned out her screen time did not increase, yet it did not decrease either.

One respondent who did really see a difference in her screen time in minutes was respondent 12. She set a limitation in which she could only use social media and instant messengers for one hour a day through a blockade with which all the platforms she uses on her phone were disabled for 23 hours a day. Although she could not keep up this limitation for 1,5 week and she still picked up her phone around 100 times a day, she did see her screen time decreasing. The difference was mostly seen in the

fact that while she still did pick up her phone as often as before after setting the limitation, she now became aware of the fact that she did not actually need to use the phone at that specific moment. She became aware of this before she actually proceeded to unlock it. This participant is representative of the general picture found here, which is that most of the respondents did not see a significant difference in their amount of screen time in minutes, but noticed a qualitative difference in how they used their smartphones.

#### **4.3.3 Qualitative changes in behavior**

Although it was not for all the respondents a significant difference in minutes, there were 9 respondents who saw their screen time going down in minutes. Only for respondent 6 and 10, the experiment did not contribute to their screen time being decreased, either quantitatively or qualitatively. Thus while 9 of the respondents did see a small difference in their screen time in minutes, 13 respondents also felt like they were more consciously using their smartphone and social media. This latter group of respondents would thus describe the change in how they use their smartphone as mostly qualitative.

A respondent who saw both quantitatively and qualitatively a change in her smartphone behavior was respondent 15. Respondent 15 felt good about herself being conscious of her behavior: *“It mostly helped me realize time flies when I am using my phone. Therefore it helped me work on putting my phone away and I realized it wasn't too bad not to use my phone as much. I feel good telling myself I spend less than 2 hours a day on social media. I would consider a larger time too much.”*

Also respondent 3 mentions how setting the limitation helped her to qualitatively change her behavior: *“So qualitatively I feel like I have brought back in some old hobbies and habits that I enjoy and I'm giving more time to that.”* One of these hobbies included reading, which is an activity in which respondent 12 saw herself engaging more again as well:

*“Yeah I'm using it so much less also especially these times I will just look if something came in. I definitely use it now less I would say also in general. Also I kept on reading in the morning and in the evening. Sometimes I still feel like... on the phone that once you start and then it's just the hours fly by which is stupid because a book is so much better mostly.”*

For respondent 11 the experiment was a *“self-realization”*.

*“I also found out that I used to read more books. I also read something before, that even though you're studying some information online, it's not as organized and useful as that you can see books or something. So I think I would try to spend more time on reading books instead of just randomly checking different things on my phone. And also like the Big Data and also the data exchanged by all different apps kind of scare me. So like if it's not for practical use I think I really want... To go more to the basic like not depending on the phone for information.”*

These quotes show the interview was necessary: if the researcher would have only depended on the quantitative data, useful information about the respondents' motivations and behaviors would have been completely missed. As shown above, it turned out that overall the respondents saw positive effects from joining the experiment by changing their smartphone and social media behavior in a qualitative way.

#### 4.3.4 Keeping the limitation

From the 15 respondents, 11 of them said they would keep the limitation which they had set for themselves. However, it should be mentioned that some of them use it in a 'revised' way, meaning that they keep the limitation in mind, but they are not too strict about it.

Respondent 14 will keep her limitation (not using social media after 11pm), because *"I noticed that I feel much better when I get to sleep more early by not using my smartphone anymore."* This also accounts for respondent 5, who restricted herself from using her smartphone while studying and going to lectures; as mentioned before she could work more easily on her thesis and she felt more creative while writing her thesis. However, she also mentioned the following:

*"I started early working on my thesis. Yeah I felt quite nice about it. And just some more rest for myself. Less stress. I didn't want to see everything, keep in touch with everything and everyone. Yeah. Because I noticed that I didn't have to."*

Respondent 13 saw herself having more free-time because she did not allow herself to use her smartphone while studying: *"I saw myself working harder, so being done faster to do fun things in the evening."* Respondent 6 and 10 both had as a limitation to turn off their notifications from social media, and it is worth mentioning here that this was a limitation set by the researcher, because they could not come up with one themselves. After the experiment they both turned on their notifications again, which meant they were not keeping the limitations. Respondent 10 explained his reason for turning on the notifications again as follows:

*"Honestly at this point I mostly I don't want to lose anymore Snapchat streaks. But if I do end up losing them for example due to travelling or something then I'll just leave it at that. And on Instagram. This is just force of habit really. I guess I'm not really missing much on Instagram but sometimes actually people do point out things like all the committee work I do. It is shared so I'm not the only one managing the Instagram page. Sometimes a committee member makes like a really dumb mistake. If someone calls it out on it in the comments or using a DM which would then be pretty important for me to correct it because I'm the fastest acting of the rest of the committee. So in that sense I turned it back on because I figured if something happens again which it has a surprising amount in the last few weeks we can correct it. Yeah. And then Facebook. It's just good to know whose birthday it is honestly. Oh yeah I missed this reminder."*

As mentioned, some of the respondents will keep themselves to their limitations in a revised version. Respondent 1 for example will try to keep her limitation of staying under 2,5 hours of screen time during weekdays:

*"During the week I would. But on the weekends not because it's also a way of relaxing like just watching a little video or something and in the weekend I need to relax. So when its weekend I wouldn't set that limitation but during the week yes I think."*

Respondent 9 will not keep herself to her limitation; however, she will keep the limitation in mind when using her smartphone:

*"I will not be too hard for myself like if there was a day that I go over it. But yeah in general I don't want to spend that much time that I was doing. It was nice to get more awareness about it"*



*but right now I deleted the limitation. The tracking app as well, because you don't want to be constantly checking your behavior because then you're creating a problem. Like if you see oh shit today I spent four hours. That's bad, but then there are more labels around it."*

As this respondent mentions she deleted the app and will not keep the limitation, because she felt like she already became more aware of her behavior. The other respondents who did keep the limitation, did this to mainly maintain this awareness, although they sometimes continued with a 'revised' limitation compared to the one for this study.

#### **4.3.5 Keeping the tracking app on the phone**

As mentioned, respondent 9 will not keep the tracking app on her phone, and neither will respondent 10 who deleted the application right after the experiment was finished. Among the other respondents there were some differences in how they went forward. Some of the respondents use an iPhone where a screen time application is pre-installed and it collects screen time data and gives you notifications automatically. However, respondents mentioned they never actually looked at the data before they joined the experiment. They would swipe away the notifications, without looking at them. They now feel like it is good for them to see whether they went over their average on a weekly basis.

Respondent 4 mentioned the following:

*"The iPhone has the app already installed. I have to be honest I never looked at it before. Before this experiment it was there but I never really check the app. So I think it's good to have it and to maybe tell people that you can look at the app and see if that's something you like or maybe you have a concern that it's too much screen time."*

Respondent 4 felt like she was more mindful about her smartphone behavior, although it also scared her that she needs her phone for at least two hours a day. Respondent 1 did not know how long she would keep the application on her phone and respondent 5 wanted to keep the application on her phone at least until finishing her thesis: *"Especially the coming weeks. Then I can push myself a little bit further in this I think. Yeah. Because it really helped me get some more insights on it."*

The respondents who installed an application on their phone to track their data specifically for this research will keep it on their phone at least for some time. This is because they experienced having an insight in their behavior as pleasant and mentioned how the awareness they got about their usage was an eye-opener.

#### **4.3.6 Awareness is enough to change one's behavior?**

As described before, the respondents had to track their smartphone usage data first for one week and after this they had to set a limitation or goal for themselves to decrease their smartphone use. During the interview which was conducted after the experiment, I also wanted to find out whether being aware of their screen time and smartphone behavior was enough to change their behavior.

All the respondents stated awareness was the key to change both their smartphone use, and their social media behavior. While tracking one's smartphone usage is one possible way of gaining more awareness regarding one's actual behavior, some of the respondents also experience this data tracking as ironic, since it has to be done through an application as well:

*"I mean ironically here we have to use an app to track everything else. But I think I would definitely recommend the app just like even if you don't want to change anything it's nice to*

*know a little more like: okay you could have gone to bed like 20 minutes earlier if you weren't scrolling Tumblr.” (Respondent 3)*

For respondent 6 awareness can be reached with a data tracking app, because it gives one notifications about one's behavior, especially when one is exceeding one's average usage time as she describes:

*“I guess it creates awareness, only from seeing how much time I spend on my phone. Like if I see it's more than average then I'm really aware and I'm trying to use it less so... Yeah I guess just having this overview really does help.”*

For respondent 4 having this overview and being aware of how much time one spends on one's phone helped her being more mindful about her smartphone behavior. This is also something she would like to continue to do in the future. However, she does mention that she would not force herself to stick to the goals she has set for herself. Also she feels like being conscious about how to spend one's time is enough in general and the smartphone is just a big part of this time. This respondent was not the only one who felt like setting a goal is not needed in order to be more aware of one's behavior. For example respondent 11 believes the app is *“a very good starting point but for people to stick to it... I think more things have to be done. Like more participate in daily life activities.”* This is related to what respondent 10, who underestimated his amount of screen time, mentioned about his screen time probably decreasing from next year on:

*“Once you see the actual numbers and you see the actual statistics you're like: Oh God I'm so screwed up. And then that might cause people to change their behavior and indeed we might go back to the old, you know, like face to face and get the proper interactions and speak. I think it could do some people good but I do think there are more people out there like me for example who, just again, kind of wave it off because we might look at it from a different way so to speak. For example next year I want to work behind a bar at IESN [International Exchange Erasmus Student Network]. I can't really use my phone that much behind a bar. Then that will be simply committee work, but that would mean no screen time.”*

Respondent 10 is thus an example of how one's life situation can influence one's smartphone behavior, as sometimes one's screen time is also influenced by the degree to which the professional or hobby networks one is part of rely on e.g. instant messaging as their form of communication. Respondent 10 was also not the only respondent who mentioned he underestimated his smartphone use. The majority of the respondents were happy to join the experiment, because they were not aware of their actual screen time before. Respondent 15 mentioned she underestimated it and would recommend other people to spend less time on their phone as well, because *“it would help them realize how time goes by fast when we are using our phones. I would also emphasize the fact that while using our phone, we might be missing out on nice things in life such as just staring outside, smiling at people, having a small-talk with a stranger, and so on.”*

Also respondent 11 mentioned she would like to see less people walking on the street with their smartphone in their hands because she believes you miss many things happening around you when you are looking at your screen. Furthermore, almost every respondent mentioned they would read more books for fun if they would not spend their free time on their smartphone as much anymore or take a walk in nature when having a break.



## 5. Discussion

As Twenge (2017) stated in her article in the 'Atlantic', the generation born between 1995 and 2012 grew up with smartphones and *"have an Instagram account before they go to high school, and do not remember a time before the internet."* As the respondents in this research were aged between 18 and 28 years old, a big part of the respondents are part of this category of younger people, or as Twenge refers to them, the 'iGen'. From the 15 respondents who joined the experiment for this research, 10 were born in 1995 or later.

Several articles report on research which has shown children start to use a smartphone from a younger age on nowadays (Anderson, 2018; Carey, 2019; Donnelly, 2019; Hymas, 2018). In this case this meant that the respondent who was the youngest when getting a smartphone was 12 years old. On average the respondents have had a smartphone for 7 years now and for the 10 respondents who are born after 1995, only two of them were aged 16 or older when they got their first smartphone. Although this is a small target group, there is a clear overlap in the age when the respondents started to use a smartphone. While the smartphone only started to gain its popularity around the time this generation was born, it has now been fully accepted in our society as a part of our daily life. It will be interesting to see what smartphone usage will look like in 5 years, for the generation who is now growing up in a time where not having a smartphone is unthinkable.

The respondents all used social media platforms and instant messengers to maintain their social lives, but also for practical purposes. They mainly described their smartphone as being a convenient tool, not only to stay in touch with their peers and communicate with them, but as a tool for basically everything in their lives as they mention. The multi-functionality of smartphones and their use 'for basically everything' is naturally one explanation for the amount of screen time that many of the participants have based on the tracking. In this research the respondents do also consider online communication as convenient, although the respondents also look at online communication as being less personal and experience their communication is more shallow online. In face to face communication, still the respondents' preferred way of communicating, they feel like they can get more in depth in conversations. It adds more layers to the conversations, because there are more non-verbal aspects present, such as body language and facial expressions (van Dijck, 2013; Lanier, 2018).

Whereas we can now see there are more smartphone users than ever, we can also see a counter movement rising. Several books and articles have already been written to motivate people to use their smartphone less or to delete their social media accounts, but also to raise awareness about the effects. Books like 'Digital Minimalism' (Newport, 2019) and 'Ten arguments to delete your social media accounts right now' (Lanier, 2018) give reasons and examples of how and why to live with less digital media and devices in our lives. Articles like for example the one from Twenge (2017) and Hymas (2018) are showing us the numbers of how much time we spend on our smartphones on a daily basis. However the question is: how can we also motivate the younger generation to do something about it?

Unlike the research by Reeves et al. (2019) as discussed in the theoretical framework, this research focused mainly on the qualitative effects of decreasing screen time. The aim of this research was also to find out what might encourage the respondents to decrease their screen time on their smartphone. During this research it became clear the respondents experienced their behavior as mainly a habit, and the ones who did see it as an addiction explained that it was not necessarily a bad one or they felt like they did not want to change much about it.

The respondents did see how much time they spend on their smartphone and felt like they could use this time better in a different way. As requested by the researcher, the respondents set a limit for themselves after one week of data tracking and although not all of them were able to keep themselves to the limits, they did qualitatively see their smartphone use change. The respondents felt like they were spending the time on their phone in a more 'thoughtful' way and mentioned how the awareness provided by the data tracking app made them think more about what they wanted to use their smartphone for when picking it up.

Most of the respondents believed that changing one's behavior starts with awareness. It can be stated that having awareness about your smartphone use is therefore the way to bring change in the smartphone use and behavior of young people. In order to get this awareness the participants believe the data tracking app is a very helpful tool. They did not however believe that setting a limitation would necessarily help in accomplishing this. The experience of looking at their own screen time and realizing how much time they spend on their screens was for some of the respondents experienced as troubling, as Anderson (2018) also mentioned in his article. Based on these results it seems therefore that raising awareness is best done by presenting young people with the cold facts of their smartphone use through for instance a tracking app, however not on its own. Other ways of raising awareness could be done by spending time on other activities such as spending time outdoors or picking up old hobbies as done by respondent 3, which automatically decreases the screen time.

Looking at the numbers as mentioned in the theoretical framework (also see Anderson, 2018), as one would expect also in this research social media platforms are indeed the main cause for the high amount of screen time. Moreover, based on the interviews one would also expect to find this to be the case, as the respondents report these as platforms that cannot be missed anymore. However when asking the respondents whether they could live without social media platforms or instant messengers, most of them stated that they would be able to do that. They experience their smartphone usage as a habit, and think they would feel like giving up social media would be difficult at first, but over time they believe they would get used to it. Note here the respondents would only be able and willing to not use social media platforms anymore, if this would account for everyone and not only for them. Terms like 'disconnected' and 'missing out' were used several times when the respondents were thinking about the consequences of not having social media platforms anymore for only themselves. This 'fear of missing out' is a negative effect according to Newport (2019) and Lanier (2018), as the social media platforms feed our need of social belonging by giving us constant feedback (Lanier, 2018).

The participants found instant messengers more difficult to miss, especially the international students and students who have studied abroad. For this group of people it would be difficult to stay in touch with family and friends abroad if there would be no social media platforms or instant messengers anymore. Also here we can apply the reasoning by Lanier (2018) and Anderson (2018) of why it is that difficult to miss these messengers: they give us a feeling of social belonging and as Lanier (2018) mentioned they give us constant feedback.

One effect of decreasing the screen time which was seen among the respondents, mentioned by Baird et al. already in 2012, was the feeling of being more creative and concentrated. Respondent 5 for instance mentioned how she felt more creative and concentrated when she started using her smartphone less than before. Furthermore, Anderson (2018) already found how teenagers experience their screen time as troubling and how their smartphone gives them the feeling of belonging and to be respected, which leads to a social pressure to maintain their online lives. Another effect which was mentioned by the respondents as well, was how they felt less of a social pressure to be online every moment of the day when they had set the limitation, as mentioned for example by respondent 2 and 12, it gave the respondents a valid reason to use their phone less. These examples show the positive effects the respondents experienced by decreasing their screen time.

## 6. Conclusion

The smartphone has gotten an important place in our lives in the last couple of years, both on a practical level as on a social level. Previous research (Carey, 2019, Donnelly, 2019, Strasburger et al., 2010) has shown how especially for the younger generation the average daily screen time has increased throughout the years. While a couple of years ago there was still a generation of children who still remembered how life was without a smartphone, we can now see there is a generation growing up for whom having a smartphone is part of their lifestyle from a young age onwards.

The difficulties in this are that research shows how they get a distorted view on what happens in the world and what is expected of them (Strasburger et al., 2010). Research also showed how teens suffer more from depressions at a young age, because of social pressure to maintain a social life as well online as offline (Twenge, 2017). The younger generation is starting to see the problem of their extensive screen time more and more (Anderson, 2018), however based on this research they are most of the time not aware of their exact screen time.

This research aimed to find out how young people experience their smartphone use and behavior and how they perhaps can be motivated to decrease their screen time. The methods that were used helped gain factual insight in the participants' screen time on a daily basis. While this quantitative data helped the researcher understand, and the participants themselves become aware of, how much time they spend on their smartphones, it did not say anything about how they experienced their smartphone use themselves. Thus in order to find out how the respondents felt about their screen time they were interviewed by the researcher in a semi-structured interview. The qualitative data which came out of these interviews shows how that the participants became aware of their behavior by using the tracking app and how setting the limitation made many of the respondents more aware about their reasons for picking up their phone.

Although the limitations did not work for every respondent, they did all feel like they were more aware about their smartphone behavior. Although not all of them experienced their behavior as problematic, they did feel like it was good to see how much time they exactly spend on their phone. The extent to which decreasing one's screen time is realistic also depends on several factors; like one's life situation, and our screen time is also influenced by the degree to which our professional or hobby networks rely on online communication.

When asking the respondents what would motivate them to decrease their screen time, getting more awareness would be the main solution. An application on their smartphone like the one they have used during the experiment could be one tool to do that. While every individual should decide for themselves whether to change something about their smartphone use and behavior, having awareness regarding one's patterns of use could be the extra motivation to do so.

For future research, I would recommend conducting similar research with a bigger target group of young people and younger children, in order to research whether screen time awareness is motivating enough to change their behavior qualitatively and quantitatively. This is especially important for the generation of younger people who grew up in the digital age, in order to maintain social contacts and be a part of the society both online as well as offline. Because although digital media has developed extensively in the past couple of years, not all ways of online communication offer the same communicative aspects that offline communication still offers us (e.g. body language, tone of voice, facial expressions, etc.). Finally, the health effects extensive screen time causes are starting to be revealed more and more, research connects the extensive screen time to for example the increasing depressions rates amongst teens and less quality of sleep. The health, developmental and cognitive

effects extensive screen time possibly has, are reason enough to try to raise awareness about people's smartphone use and perhaps motivate both adolescents as well as younger people to decrease their screen time.

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## 8. Appendix

### Appendix I

# The interview

#### Briefing

Introducing yourself

Explain the goal of the interview

Ask for consent (audiotape – note taking)

Establish good contact with your interviewee

#### Tips

Phenomenology → Understanding how the interviewee perceives the topic. See what they know about the topic and how they experience their own behavior.

Repeat the answers and the meaning to be sure you understood it correctly

#### During the interview

Ask open questions (let interviewee talk)

Respond to body language

Give cues for deepening the conversation (how, what, why, etc.)

#### Topics

- Daily life
  - How old are you?
  - What do you do in daily life?
  - What do you study?
  - Besides from this activity, what do you do in your free time? E.g. Hobby's
- Communication in daily life
  - How do you communicate with people in your life?
    - Which one of these ways do you use mostly?
  - When do you communicate most with these people (part of the day or all day long)?
  - Do you use social media platforms to keep in touch with people?
  - How do you feel about communicating via social media platforms?
  - Do you feel like social media platforms changed our way of communicating? How?
  - Do you feel more pressure to have a social life online because of social media platforms? How?
  - What way would you prefer to communicate with people close to you?
  - What would motivate you to apply this way of communicating more in your daily life?
- Smartphone use before experiment
  - When did you start using a smartphone (e.g. from others)?
  - When did you get your first smartphone?
  - What activities do you use your smartphone for?
  - How much time did you think you spend on your phone before you started the experiment? How did you feel about that?
    - How do you think the time you spend on your phone should be used different?
  - Did you ever feel like you had a problem with this media?
  - Do you feel like it is an addiction?
  - Did anyone ever mention they think you have a problem by using these apps? The amount of screentime?
  - What would you do with your time if you would not have your smartphone anymore?



- What would it mean to you if you would not have a smartphone anymore?
- What does a smartphone add to your life?
- Social Media
  - Do you make use of social media platforms like Instagram, Facebook and Snapchat?
    - On which devices do you use these platforms?
  - What do you use these social media platforms for?
  - Do you make use of instant messengers like WhatsApp, Facebook messenger or WeChat?
    - On which devices do you use these instant messengers?
  - What does using all these social media platforms add to your life?
  - How much time do you spent on social and connective media?
  - How much of this time do you spent on your phone and how much on other devices?
  - What would it mean to you if there was no social media anymore?
  - What would it mean to you if there were no instant messaging apps anymore?
- Smartphone use during/after experiment
  - What kind of limitation did you set for yourself to decrease your screentime after the first week?
  - Why did you set this specific limitation?
  - Did you feel like you managed to limit your screentime?
  - Was it difficult for you to keep up with this limitation? Why (not)?
  - Did your way of using your smartphone change? How do you feel about that?
  - Did you already want to change something about your smartphone and social media use before joining the experiment?
  - Will you keep the limitation you set for yourself? What would motivate you to do so?
  - Would you recommend other people to limit their screentime and smartphone use? Why (not)?

### **DeBriefing**

Ending interview: is there anything you would like to add?

Thank you etc.