Usability Study of SCIPP, the Self-Control Training App
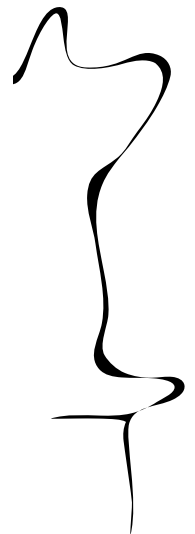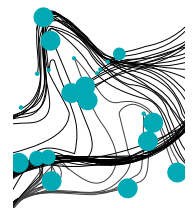
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Master Thesis

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Abstract

Introduction

Self-control is nowadays an important factor in social but also in personal problems. According to this, low self-control, especially in students, provides an increased risk of drug addiction and significantly poorer academic performance. Due to the rapid development of technological healthcare services, there are now several mental healthcare applications that aim to deliver fast and effective care to its users. However, a lack of usability in those apps may cause significant use to its users. In this study, 'Scipp', the self-control training app was tested on a student sample of five participants to look for any present usability issues.

Methods

Five Dutch-speaking university students participated in a total of two qualitative interviews. The first interview took place on the first day of app use, immediately after registration. After the participants had five days to use the app, the second interview took place.

Results

The results indicated good usability in terms of clarity of information, comprehensiveness, length of text, and navigation. However, some improvements could still be made. Two major issues were found in the clarity of information and navigation. In addition, some participants expressed suggestions to improve the app in terms of motivation and personalisation. Furthermore, a few bugs were detected that needed to be resolved to improve the usability.

Conclusion

This study has made a great contribution to the scientific literature because, despite the general satisfaction in terms of usability, some issues have also been identified. These issues and their possible solutions add knowledge to mobile healthcare development. Moreover, it added value to the relatively small field of usability testing among students with low self-control.

Keywords: self-control, usability, eHealth, students

Contents

Introduction

'You have power over your mind - not outside events. Realize this, and you will find strength." - Marcus Aurelius

Self-control and Students

Nowadays, self-control is viewed as a solution for societal issues since it is a key determinant for self-regulation and goal attainment (Cretacci, 2008). Self-control can be generally defined as promoting one's ability to counteract impulses by overriding undesired thoughts and behaviours (Muraven, Baumeister, & Tice, 1999). It is an executive function that is influenced by different factors such as parental management techniques, genetics, and biology (Beaver, Wright, & DeLisi, 2007).

Low self-control is generally seen as a key determinant in societal and personal problems (Muraven, Baumeister, & Tice, 1999), including students. An example of societal issues that result from low self-control specifically in students may be irresponsible credit card use and the resulting poor financial management. Studies have shown that students with low self-control had risky credit card use and high depts consequently (Limerick, & Peltier, 2014). Furthermore, according to Ford and Blumenstein (2013), students that are generally low in self-control are also at greater risk to consume substances such as marijuana and great amounts of alcohol or prescribed drugs. Moreover, previous research has established that a high level of self-control is a predictor of academic success (Duckworth, White, Matteucci, Shearer, & Gross, 2016). According to Muraven, Baumeister, and Tice (1999), low self-control has a negative influence on academics, especially for high school and college students. Thus, students need high levels of self-control to be academically successful. For example, self-control helps students put more effort into important tests and perform better (Duckworth, White, Matteucci, Shearer, & Gross, 2016; Setzer, Wise, van den Heuvel, & Ling, 2013). In all the studies reviewed here, self-control, especially for the target group of students, is recognised as a major predictor of academic success. Additionally, a lack of self-control can be summarised as having multiple negative consequences such as increasing risky drug consumption, lack of academic success, and irresponsible credit card use.

The strength model of self-control by Baumeister, Vohs, and Tice (2007) shows that the increase of general self-control also leads to an increase of self-control in various specific domains such as food intake control or attention control (Friese, Frankenbach, Job, & Loschelder, 2017). In this case, self-control is compared to a muscle. According to this analogy, exerting self-control first leads to a temporary feeling of exhaustion. Nevertheless, over

repetitions, this will lead to a strengthened and trained self-control muscle (Friese, Frankenbach, Job, & Loschelder, 2017).

Potential benefits of self-control have gathered interest in self-control training among students. Previous research introduced that self-control can be trained by using interventions. These interventions generally consist of tasks that require self-control such as completing daily tasks with the non-dominant hand (Friese, Frankenbach, Job, & Loschelder, 2017). Thereby, the user replaces the automatic response with a non-automatic response (Friese, Frankenbach, Job, & Loschelder, 2017). The advantages of these interventions are that they consist of simple tasks which can be fulfilled without a high level of cognitive skills (Kip, Da Silva, Bouman, van Gemert-Pijnen, & Kelders, 2021).

Scipp: de Zelfcontrole Application

To enhance self-control, the self-control training app called 'Scipp' has been developed by the University of Twente in collaboration with Panton, Appbakkers, Dimence Groep and GGz Centraal (Kip, Da Silva, Bouman, van Gemert-Pijnen, & Kelders, 2021). This app consists of 14 challenges in which each challenge asks the user to override an automatic response by using the non-dominant hand. For example, opening all doors with the non-dominant hand for one day. By doing this for two weeks, the app aims to train and improve the user's self-control. Previous study findings showed that the self-reported self-control of the users improved over time. However, the study did not show any effect on aggression among the student sample. This could be explained by the relatively low impulse control deficits and aggression among students, thus, a sample with lower impulse control and higher aggression should be used in future studies.

eHealth

Interventions such as Scipp belong to the category of eHealth which is fast becoming a key instrument in mental health services. According to Maramba, Chatterjee, and Newman (2019), the number of eHealth applications that are now available on the app stores is around 325.000 excluding PC software platforms and websites. Especially in times of Covid-19 where digitalisation is constantly gaining importance, eHealth is a major area of interest within the field of healthcare. Generally, eHealth mobile interventions have several advantages such as significant behavioural changes and improvements in well-being due to features and concepts that increase user engagement and persuasiveness.

For example, previous studies identified that mobile health applications are helpful tools in increasing self-control and improving undesired behaviour such as unhealthy alcohol use (Song, Qian, & Yu, 2019). Moreover, literature has shown that especially product design impacts the level of user engagement. Thus, persuasive design techniques were frequently used in eHealth applications to increase user engagement and strengthen therapeutic alliances and persuasiveness (Baumel & Kane, 2018). Concepts of eHealth applications such as gamification, where non-game concepts are delivered with the help of game design elements, are frequently used to increase user engagement and effectiveness (Sardi, Idri, & Fernández-Alemán, 2017). Furthermore, the efficiency of treatment is increased by eHealth applications since, compared with face-to-face therapy, mobile interventions require less time and effort (Garcia-Perez et al., 2017)

eHealth and Usability

Despite its promises, offering SCT via a mobile app can also have disadvantages. Perhaps, the most serious disadvantage of eHealth is that a poor design or implementation might cause significant harm to its users (Catwell & Sheikh, 2009). For example, a poorly designed intervention could give its users unsuitable advice and cause harm (Catwell & Sheikh, 2009). The study of Fernando et al., (2004) showed that there has been an eHealth intervention that prescribed medication wrongly to its users. This shows that even small problems in usability can cause major issues (Pagliari, 2007). In addition, unclear information within the implementation can confuse users which may result in a decrease in satisfaction with the app (Fang, 2019).

Thus, the proper usability of the SCT application must be assured to help its users properly and achieve the desired effect. Usability consists of several components. Firstly, the written information should be clear, brief, and understandable to the user (Monkman, Griffith, & Kushniruk, 2015). Secondly, the fulfilment of tasks within the application should be simple with consistent navigation (Monkman, Griffith, & Kushniruk, 2015). Otherwise, users could quickly lose interest in completing certain tasks and the adherence would decrease rapidly (Pagliari, 2007). This means that poor usability would decrease the user's level of engagement (Pagliari, 2007). The last point is specifically applicable to students, as they have difficulties with adherence, for example, when participating in interventions that aim to increase healthy nutrition (Stroebele-Benschop, Dieze, & Hilzendegen, 2018).

This Study

When considering the importance of self-control in students, especially regarding their academic success, a self-control training application could help students acieve higher levels of self-control. However, earlier investigations showed that in order for such an app to be effective, it needs to be usable. Good usability depends on several factors such as clear information, simple navigation, and good comprehensiveness regarding language (Monkman, Griffith, & Kushniruk, 2015). Insufficiency in these areas could result in a decrease in adherence since the population of students already has difficulties in adhering to health interventions (Stroebele-Benschop, Dieze, & Hilzendegen, 2018). Since the Scipp aims to improve self-control, this study will focus on the population of students with relatively low self-control because they are specifically at risk for problem behaviour in their academic achievement due to their low level of self-control.

Aim

The aim of this study is to evaluate the usability of the self-control training app for students low in self-control. In addition, it seeks possible explanations for identified usability issues and to formulate design recommendations to improve usability.

Methods

Study Design

This study was a usability test that consisted of two qualitative semi-structured interviews per participant. Moreover, there was a think-aloud method used during the first interview. This method was especially useful since it allowed the researcher to follow the cognitive processes of the participants since they shared all their thoughts while completing the task (Van Someren, Barnard, & Sandberg, 1994). By doing that, even small obstacles that the participant faced while using the app could be identified. Additionally, it provided the reasoning behind certain difficulties, therefore, it was simpler to find a proper solution for this problem. These interviews were conducted to check whether Scipp was usable for the target group of students with low self-control. Furthermore, the aim was to identify barriers and facilitators to improve usability.

Participants

Participants were recruited by convenience sampling, using the SONA system of the University of Twente. The inclusion criteria for taking part in this usability study were: being a student with sufficient knowledge of the Dutch language. Moreover, the participants had to own an Android smartphone since Scipp was only available on Android devices. Additionally, the participants had to be low in self-control. The level of self-control was self-reported by the participants. The total number of participants that took part in the interviews was five of which females represented 60%. The age range of the participants was between 19 and 26 with an average of 22 (SD: 3.08). The nationality of the participants was Dutch (N=3), German (N=1), and French (N=1). All participants were right-handed and had to use their left hand for all challenges.

Table 1

Participant Information

Participant Number	Age	Gender	Nationality
Participant 1	19	Female	Dutch
Participant 2	24	Female	German
Participant 3	19	Male	Dutch
Participant 4	26	Female	French
Participant 5	22	Male	Dutch

Materials

One main material of this study was the self-control training app. This app consists of 14 challenges. Normally, users complete one challenge per day for a total of 14 days. However, as this study only took five days, the participants had to complete four tasks since the first day was used for the registrations. In general, this app challenged the participants to complete different tasks by using their non-dominant hand.

Moreover, two semi-structured interviews were used for the data collection. The first interview included four questions to check the first impressions of users concerning the usability of Scipp. It includes questions about difficulties and possible improvement such as 'Did you have any difficulties in understanding while completing the task?' or 'How did you perceive the length of the written text?' or 'Do you recognise anything you would change to make the application more usable?'.

Moreover, the think-aloud method was used while the participant completed the registration. This method enabled the researcher to get insight into the cognitive processes of the participant (Van Someren, Barnard, & Sandberg, 1994). It included asking the participant to think aloud while completing a task, in this case, the registration. Participants could have provided incomplete or incorrect information when recalling memories, therefore, the think-aloud method ensured that no information gets lost or manipulated. By using this method, the researcher could follow the thoughts of the participant and be able to identify problems more easily.

The second semi-structured interview included similar questions about the usability of the app within the last five days. However, they included additional questions such as 'How did you perceive the clearness of the written information?' or 'Did you use it every day? If not, what hindered you from using it every day?' to check the level of engagement the participant perceived while using the app. Moreover, questions were asked about possible improvements that could be made to increase the level of adherence. For example, 'Do you have something in mind that would have increased your motivation to use the app daily?'.

Procedure

After the overall study and ethical conduct were approved by the ethics committee of the University of Twente (Case number: 211304), the study was published on SONA system. After the participants were recruited, they were asked to share their first name, dominant hand, and email address for the researcher to create an individual code for their registration. Additionally,

participants were asked to download the 'Zoom' app on their phones. After that, participants were informed about the content of the study and signed informed consent (Appendix A). Finally, the first appointment was scheduled with each participant to meet via google meet.

At the start of the first interview, participants were asked to first open the zoom invitation link on their phone that was sent to them by the researcher before. After they joined the zoom meeting, they had to share their screen with the researcher so she could see the participant's face and actions performed on the mobile phone simultaneously. After participants shared their screen with the researcher, they were asked to download the Scipp-app on their mobile phone from the google play store and register. During the registration, the participants were asked to think aloud to ensure that small obstacles during usage were recognised by the researcher. After the task had been completed, the researcher continued with the first semi-structured interview. At the end of the interview, a question concerning final concerns and considerations was asked.

Five days after the first interview, the second semi-structured interview was conducted. The specific timeframe of five days was chosen since, especially young adults, have a relatively high drop-out risk in mental health services due to disengagement over time (Kim, Munson, & McKay, 2012). However, in this study it is important to check whether the app is usable to the target group, therefore, a shorter period of use with a higher level of engagement is of greater importance than a long period of use with low levels of engagement. Furthermore, this interview included similar questions as the first one. However, there were additional questions that checked for the level of motivation that the participants had while using Scipp and how they experienced using the app for five days. Additionally, it was asked if they had any ideas of how to remove barriers and include facilitators to improve the usage.

Analysis

For the data analysis a thematic analysis (TA) method was used (Braun & Clarke, 2014). This TA involved (1) a familiarisation with the data which included re-reading the transcribed interviews several times to become familiar with its content. Based on the content and regarding the aim of the study, (2) codes were created. While creating the codes an inductive approach was used. This means that the gathered information determined the general usability of the mobile intervention Scipp. These codes represented the most important features of the interviews. In the third step, related codes were connected and categorised into broader (3) themes. The broader themes were then (4) compared to the dataset to check whether they represented the information that was collected during the interviews and if they answered the research question. The next step of the data analysis involved (5) defining and naming themes.

Thereby, each theme was analysed by investigating its scope and focus to create proper names. The final step included (6) the comparison between the researched literature and the analysis to check if the participants experienced issues that are covered by literature. In the end, the analysed data were compared to the research questions to formulate design recommendations based on these findings.

Results

After the participants had used the app for five days, the transcribed (see Appendix B) interviews were put into a coding scheme (Table 1 Appendix D). The thematic analysis of the transcripts resulted in five main themes: (1) Clarity and length of information, (2) Navigation, (3) Aesthetics, (4) Motivation, and (5) Personalisation.

Clarity and Length of information

During the first part of the study where all participants had to complete the registration in the app, there was an overall satisfaction about the clarity of information. On one hand, participants praised the simpleness of the written information *'It was very simple and uh yeah a good narration, not overly complicated it's just like yeah okay let's see now you can do that's it right, so it was clear'* (Participant 4). However, on the other hand, two participates criticised that some things would have needed more explanation or could have been mentioned earlier *'I would want a bit more explanation… Also with the timeframe... when it said that you will do these tasks every day... I mean every day for how long? (…) Afterward, it was made clear that they mean for two weeks but that should have been mentioned earlier'* (Participant 3).

Furthermore, the length of the text was perceived positively. Participants praised the short text passages and the division of the text on different slides. *'What I liked was that there were multiple slides with relatively short texts… that was better than having a lot of text on just one slide'* (Participant 2). Moreover, all participants found the app understandable during registration and further use. Participants appreciated the use of visualizations such as the dog and images regarding the challenges *'Yeah, it yeah, it's quite integrative and yeah, I don't see anything that could be complicated'* (Participant 4). Additionally, the non-technical language led to a good understanding of the information *'It was really understandable so there was not even one word which I questioned'* (Participant 1).

However, there was a sense of uncertainty amongst participants concerning the challenges. Four out of five participants could not clearly recall that the daily challenges will only concern their non-dominant hand. Some participants had a feeling that it would concern their non-dominant hand because they could recall the examples, *'I am not sure if each challenge will be related to my left hand… I think it would make sense because I also had to fill in if I'm left or right-handed but… yeah… it was not 100% clear to me'* (Participant 2) but were not completely sure. Others could not recall why the app asked for their dominant hand *'Maybe the way the things are gonna be organised on the screen? I don't know, nowadays, the phones are really big, and I have really small hands and I sometimes use both my hands… maybe to*

make it more easy… when the things are more organised on the right or on the left?' (Participant 4).

Furthermore, there was confusion among four participants when giving feedback since the bar turned redder instead of greener when giving positive feedback (see Figure 1) *'(…) when you put in 'good' the bar was turning red and then I was thinking 'oh am I doing a good thing?''* (Participant 4). Participants recommended improving this feedback bar by making it turn greener when giving positive feedback *'(…) maybe if the bar was just getting more green when I rate it as good that would be more clearer (…)'* (Participant 4). Additionally, one participant recommended dividing the feedback bar into seven parts to simplify the process of giving feedback.
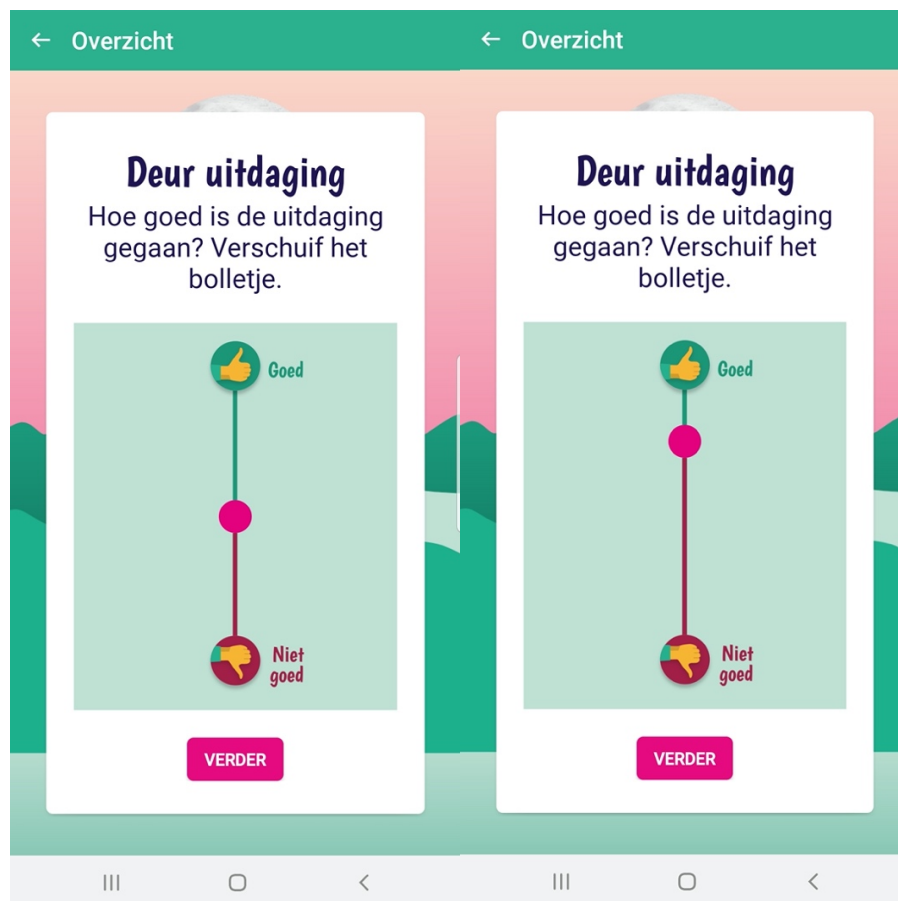
Figure 1. Feedback bar turning redder when giving positive feedback.

Navigation

Overall, most of the participants were satisfied with the navigation within the app. Only one participant suggested that it should be possible to go back to the app description before entering the code in the registration (which was not possible). Still, three participants criticised that after they gave feedback on how the challenge went, they ended up at the 'Overview' page and it

was not possible to get back to the menu. Instead, when clicking on 'back' they ended up at the challenge again, and were asked to provide feedback a second time: (see Appendix C) *'There was one thing that I sometimes found annoying, when you were on the page for the challenge, you could go to the overview but then when you clicked back from the overview you immediately went back to the challenge instead of the homepage'* (Participant 1). Other than that, all participants reported having a good impression of the navigation and no additional issues. Participants highlighted that it was effortless to navigate through the app *'It was absolutely easy'* (Participant 3), *'(...) quite simple… you just had to swipe over the screen to get to the other page and yeah that was easy"* (Participant 5). Changes in the settings could also easily be made *'(...) I think it was easy, there were not many steps, just a few information to read and yeah that was it'* (Participant 5).

Aesthetics

All participants were pleased by the design and highlighted that it was an inviting design with nice colours. One participant recommended offering a 'dark theme' because the participant preferred dark themes over bright ones (Participant 3). Two participants mentioned that the dog as a *'mascot'* (Participant 4) in combination with the mountain (see Figure 3) in the overview was not particularly suitable *'(...) but maybe an animal that actually lives on mountains? Or with the moon maybe a wolf?'* (Participant 2). One participant suggested using a rocket instead of the mountain in the app so the user collects parts of the rocket by completing a challenge and in the end, the dog could fly to the moon. An additional design recommendation was made as a participant suggested to improve the simplistic design of the dog to *'make it cuter'* (Participant 4). Other than that, all participants were pleased by the design and the colours of the app.

Figure 3. Illustration of mountain and moon in the overview.

Motivation

Participants mentioned several aspects that would have increased their motivation to use the app. One aspect was adding a reward system such as collecting points. According to three participants, this would increase extrinsic motivation in addition to intrinsic motivation. They had the idea that receiving points or any type of reward would lead to an increase of interest regarding the app '*(...) maybe they could just add a few features to yeah make it a bit I don't know more interesting for the user...*' (Participant 2). Additionally, a participant argued that a reward system would make the app more appealing *'Reward things that make it more appealing like Oh yeah I mean I can have some points, or you can collect points maybe that would be more motivating'* (Participant 4).

In addition, two participants mentioned that their motivation would be higher if the challenges would be related to actions that they perform less often in a day *'Maybe some tasks that happen less often than drinking or turning off the lights'* (Participant 2). Participants mentioned that they often forgot performing the challenges throughout the day because the tasks were too frequent and automatically executed. Therefore, some participants thought that

it would be easier to carry out the challenges if the tasks were not so regular *'maybe it would be more appealing for me to use it frequently… like yeah… when the tasks would be less frequent'* (Participant 2).

Personalisation

After using the app for five days, two participants commented on the lack of personalisation, especially concerning the start and end time during which challenges were issued. They criticised that the challenge of the day (issued at 06:00 AM) started too late and ended too early (at 22:00 PM) *'Something that was a bit hindering for me is that I wake up very early in the mornings like at six (…) but I guess that was too early um… because there was still the challenge from the last day'* (Participant 2) and *'Stopped a bit early with the tasks (…) I was supposed to do it the whole day and I think it stopped at six/seven somewhere around that they said it was already done'* (Participant 3). Furthermore, participants felt the reminders were optimal, they were neither too frequent nor too infrequent, but one participant wished feedback could have been asked for after the first half of the day. Thereby, the participant would see how it went until then and get more motivated to improve the rest of the day '*If you do have a start time and an end time you can say half… well, at the middle you can say 'How is it going now?' (…) I think then my motivation would go up because then I would see okay 'It is going okay but I wanna do better in the evening so I will pay more attention to it'* (Participant 3).

Overview of main themes, definitions, codes, participant numbers and quotes

Table 2

Overview of main themes, definitions, codes, participant numbers and quotes

Themes	Definition	Codes	Quotes
1. **Clarity and length of information**	Perceived clarity and length of written information including the understandability.	Clarity Length, Clarity Length Understandable	'I think it covers the topic very well in those short sentences' 'It was good, clear and building on what was said before'
2. **Navigation**	The navigation through the app, especially in daily use and when giving feedback.	Simple navigation, Navigation issue	'Very easy actually, a few clicks and it was done' 'There was one thing that I sometimes found annoying, when you were on the page for the challenge, you could go to the overview but then when you clicked back from the overview you immediately went back to the challenge instead of the homepage_
3. **Aesthetics**	Colours, animation, and minimalistic design of the app.	Colours and animation, Recommendation aesthetics	'Really felt like a good app with the little dog, the little mascot that can be used to guide through it.' 'To improve the visual I would say I don't know like the dog is really cute but maybe make it cuter because it looks really simple and it's really a minimalistic art but for some illustration it could be better'
4. **Motivation**	Features that would have increased participant's engagement in using the app.	Recommendation, Recommendation motivation	'I see that the moon is really central and maybe by doing the challenges you could collect some pieces to build a rocket or so and in the end when you did all the challenges after the 14 days you could fly to the moon maybe…'

			'Reward things that make it more appealing like Oh yeah I mean I can have some points or you can collect points maybe that would be more motivating'
5. Personalisation	Features such as start and end-time that would have made the app more suitable to participant's daily routines.	Recommendation time, Recommendation individualisation, Recommendation feedback	'Maybe also nice to add start and end time settings, so you can choose 'I want to do it between these hours'' 'Stopped a bit early with the tasks (…) I was supposed to do it the whole day and I think it stopped at six/seven somewhere around that they said it was already done'

Discussion

This study explored the usability of the mobile self-control training intervention Scipp according to students los in self-control. Findings suggested that the app was generally usable, but there was still space for improvement. All participants described the app as clear and understandable with an appropriate length and division of the text, but one essential part of the app was unclear, the role of the dominant hand. Most of the participants were not able to recall that the challenges were only related to their non-dominant hand. Scientific literature found that the unclarity of information can lead to confusion and a decrease in user satisfaction (Fang, 2019). The so-called 'consumer confusion' or 'unclarity confusion' is related to less trust in the intervention and product and less experienced joy during use (Matzler, Stieger, & Füller, 2011). Thus, the unclarity of presented information might reduce user satisfaction and increase confusion among app users.

According to the participants, a reward system would have increased their motivation to use the app daily. Several reports have shown that incentives or a reward system within an application led to an increase in user adherence (Brenuis et al., 2020; Cafazzo, Cassekman, Hamming, Katzman & Palmert, 2012; Cai et al., 2017). Nevertheless, these types of rewards target extrinsic motivation rather than intrinsic motivation and the user (Benabou, 2003). Literature has shown that rewards (extrinsic motivation) led to a better performance in the beginning, but no rewards (intrinsic motivation) had higher compliance in the long run (Benabou, 2003). Nevertheless, scientific literature shows that therapeutic persuasiveness is one of the main predictors when it comes to user adherence in eHealth interventions (Baumel &Yom-Tov, 2018). Therefore, a persuasive design in terms of including behavior change principles into the general design of the app predicts higher user engagements than ease of use or visual design. Scipp already includes persuasive features by highlighting the importance of self-control and that this app will lead to increased self-control after two weeks. Nevertheless, the app is currently lacking any extrinsic motivations and solely relies on intrinsic motivation. This means that focusing on a combined approach with both, intrinsic and extrinsic motivation would be the most advisable. This is supported by the motivational model which states that intrinsic and extrinsic motivation are key determinants for the behavioural intention of users to use technology (Wilson & Lankton, 2004).

Regarding the reward system and its connection to aesthetics, one participant suggested taking a rocket instead of the mountain and unlocking another part of the rocket with each completed life to then fly to the moon with this rocket. Studies have shown that aesthetics or

visual appeal influences the user's involvement in the app positively (Lazard, 2016). In addition, it impacts their evaluation of the app in terms of credibility and security. This is also in line with the improvements in aesthetics the participant recommended. According to them, these small improvements could increase the attractiveness of the app to the user and improve their engagement level.

The participants also highlighted that the colours and the animation of the dog were appealing as well. However, it was noted that the animation of the dog was quite minimalistic and could be more detailed to be more appealing to the user. However, several studies found that minimalistic design is essential when creating an understandable eHealth intervention (Nielsen, 2005; Rissanen, 2014). According to Nielsen's eighth usability heuristic 'Aesthetic and minimalist design', a simple and minimalistic design is essential to keep the user focused on the main purpose of the app. Unnecessary details would only lead to distraction and would interfere with usability. Therefore, the minimalistic design should be maintained to keep the user's focus on the essential parts of the study.

Additionally, personalisation is an aspect that requires more attention within the SCT-app. The participants were pleased that there was not much input required from them when registering, however, the start and end times of the challenges did not fit each participant. Therefore, a one-size-fits-all approach is not usable in this case. Adolescents and especially students are known to have a constantly changing day-night rhythm (Medeiros, Mendes, Lima, & Araujo, 2001). While some students stay awake longer at night and sleep into midday, others do it the other way around. To still ensure that all users can benefit from the app to the same extent, personalisation is of great importance. Previous studies have found that especially user satisfaction increases with personalisation (Trivedi & Trivedi, 2018; Zhou et al., 2018). This can also be related to behavioural engagement since it focuses on integrating technology into one's daily life instead of just being adherent to it (Kelders, Kip, Greeff, 2020). In general, adherence solely refers to the frequent use of, for example, eHealth, whereas engagement covers emotional, cognitive, and behavioural components as well. According to Kelders, Kip, and Greeff (2020), the subjective experience by the user such as interest and attention fulfils a major role in engagement.

Finally, participants were mostly satisfied with the ease of navigation, with only one process in need of improvement. After giving feedback for the challenge of the day, the participants were led to the overview of the levels. Getting back to the menu turned out to be more complicated than expected. Thus, when clicking 'back' users only got back to the challenge. This caused a certain level of confusion among the users which according to Pagliari

(2007) can decrease the adherence. Moreover, this inability to escape the unwanted situation also harms Nielsen's third usability heuristic (2005) 'User control and freedom'. According to this heuristic, the user's inability to escape such a situation will limit the user's freedom and cause frustration. Literature also found issues in navigation leading to an increased difficulty for users and greater cognitive load (Li & Luximon, 2020). Thus, great emphasis should be placed on fixing such navigation issues to avoid harming those usability criteria.

Limitations and Strengths of this Study

This study has several strengths. The two-part study design with the first interview being after the registration and the second one after participants used the app for five days, allowed the researcher to gain in-depth knowledge about the app usability over a certain period. In addition to that, in this study, a few issues in usability were detected and possible solutions were identified.

Nevertheless, a few limitations of the current usability study should be noted. First, the software produced several bugs when the cell phone was not set to the latest Android version and when the language setting was not set to Dutch. In both cases, the app looked different and caused considerable confusion. In this study, this was only the case for one participant at the beginning of the study and could be remedied quickly. However, this could be a possible explanation for the participant not being able to recall the purpose of the intervention after the registration Nevertheless, the issue was quickly resolved so it did not have a great impact on study findings. However, it is important to note that the app does look differently when having a phone language different from Dutch. Another limitation related to language was that not all participants were Dutch. On one hand, this could have been the reason for usability issues such as not being able to recall the purpose of the intervention due to comprehension problems. On the other hand, this would make the app more generalizable because these participants still perceived the app as clear, understandable, and could navigate through it without major difficulties. This means that the app is usable enough for participants with Dutch as their second language.

Furthermore, limitations in design were detected. According to the participants, the function of the feedback bar was confusing. To avoid any confusion, the feedback bar needs to be modified so it turns greener when giving positive feedback instead of turning redder. By doing that, confusion is minimised in the next study and the real-life implementation of the app and there will be fewer obstacles.

Recommendations for Future Research

Based on these findings, general recommendations for health applications with students with low self-control as a target group can be made. It is of particular importance to clearly present information such as the purpose of a study and its content to avoid confusion among users. In addition, users should be able to adapt the app to personal daily structures and times to create ideal conditions for daily use. Lastly, there should be no navigation issues that could annoy users and limit their participation. All these aspects should be considered when conducting future research in the field of health applications. More specific future recommendations for this app would be that researchers should keep in mind that all participants have the latest Android version on their cell phone and the language setting is in Dutch.

Conclusion

The present research aimed to investigate the usability of the self-control training app: Scipp. The study findings indicated that apart from smaller limitations, the app was generally usable. Scipp was usable in terms of clarity and length of written text, however, some participants wished to have more personalised and motivational features within the app. Additionally, a small issue concerning the navigation and feedback giving was detected which should be improved for future research and real-life implementation.

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Appendices

Appendix A Informed Consent

Consent Form for: The Usability Study of a Self-Control training app
YOU WILL BE GIVEN A COPY OF THIS INFORMED CONSENT FORM

Please tick the appropriate boxes	**Yes**	**No**
Taking part in the study		
I have read and understood the study information dated [DD/MM/YYYY], or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	☐	☐
I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	☐	☐
I understand that taking part in the study involves taking part in two audio recorded interviews (video-call or in person) and using a self-control training app for at least five days. The interview audios will be destroyed after the thesis is finalized; however, the anonymized transcripts will be kept.	☐	☐
Use of the information in the study		
I understand that information I provide will be used for testing the usability of the self-control training app. This means that my detected issues and possible recommendations will be used to write a master's thesis that will consist of improvements of usability for the self-control training app.	☐	☐
I understand that personal information collected about me that can identify me, such as [e.g., my name or where I live], will not be shared beyond the study team.	☐	☐
If you want to use quotes in research outputs, then add extra question: I agree that my information can be quoted in research outputs	☐	☐

Consent to be Audio/video Recorded
I agree to be audio/video recorded. Yes/no   ☐   ☐

Signatures

_____   _____   _____

Name of participant [printed]

Signature   Date

_____   _____

_____

Researcher name [printed]   Signature   Date

**Study contact details for further information: Dilan Dengiz,
d.dengiz@student.utwente.nl**

Contact Information for Questions about Your Rights as a Research Participant

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-bms@utwente.nl

Appendix B Interview Transcripts

Appendix Interviewee A 1.0

Researcher: What is your first impression of the app?

Interviewee: Um… well... what I saw with the introduction what I also mentioned was that the animation is really cute, and it really keeps your attention with what you're actually reading. Because it is way more effective to have a small sentence divided in multiple screens than one bis long text without any um pictures… So, I think that was a really nice feature. I also really like the colors, um... from what I see so far with the green and the pink, yeah, it just looks really needly organized with is what I really like.

R: Mhm, and how did you find the registration?

I: Um, well the registration actually is really self-explanatory, so eh it wasn't really hard to do so.

R: And now about the clarity of the information, what was your general impression of the written text? You already said that it was short enough, divided in small sections but do you have any other impressions you want to share?

I: Um, well actually I think it covers the topic very well in those short sentences because obviously you cannot tell the reader a lot if you have a really small sentence and a few screens but… I think it actually tells you what you need to know. And like triggers your... well how can I explain it… it triggers you to continue doing it. Like 'I wanna now more about this", 'Can I actually do it?"

R: Really good! And can you recall what topics were covered?

I: Um… well at first it said about training, that um… it trains a muscle so in two weeks you should be able to eh do your goal, like work towards it and actually that's a really short period so like, wow can I actually do that in two weeks only? Eh… it said that, well they have to know which hand I am writing with, left or right, so I'm right handed because of exercises, it wants to keep your attention, like when you do things more focused like opening the door with your other hand instead of doing it with my right hand I have to do it with my left hand so I'm like, 'Oh yeah, attention!". That's what I mainly recall.

R: Great! And how did you find the information when you had to put in your own data, so like the goal and the code?

I: Well, the code was also very self-explanatory because I got the code in the chat and then it was like 'Okay, fill in your code here", what I did immediately, so that's great, no technical issues there. And for the goal, it gave an example, like 'I wanna go on a walk more often", so I thought that was a great example, so I think you just can put one specific goal into it but also

like 'What is more?", it's not very specific so, for example, if I only go for a walk like one time a week, two times are already more than what I used to do so its double. So it's not like 'Oh, I have to do five times a week now" which is less specific which I think is really good so the people not feel like very pressured towards a specific goal.

R: So, do you like that better?

I: I like that better, because I think some people could be really bothered by not being able to achieve it because they are a little bit busier during the week. If you say 'More often" it's like 'Okay I used to go for a walk one time a week and not I do three times a week" it's not five which was a very specific goal, but I still did more than what I used to do so, then I already achieved it.

R: Good, and to what extent did you perceive the app as understandable while completing the registration?

I: Um.. well, I went really quickly through it, because I felt like it was very self-explanatory and it was very clear to understand, so I think that was really good, it wasn't really hard to register.

R: So what do you think the challenges will be about?

I: Um… well, I think, as in the examples, there will be different exercises per day that involve my left hand… like doing things like drinking water with my left hand to keep my attention on that.

R: Okay, so could you do me a favor now and change your dominant hand in the settings now?

I: Yeah sure… (10 sec.) I changed it now.

R: And how did you perceive that?

I: Very easy actually, a few clicks and it was done.

R: Good, you can change it back now because otherwise the app will use the wrong hand in the upcoming days!

I: Haha, yes, I will.

R: What if anything caused you frustration while completing the registration?

I: No, no everything went well so

R: Okay, and do you have anything in mind that you would change to make it more usable?

I: Um.. at the moment, not really specifically actually because the registration was just very easy that's why I think it was pretty good. It's easier than with other apps that I used, where you had to fill in email or make an account you know?

Interviewee B 1.0

Researcher: So, what is your first impression of the app?

Interviewee: Well… I think it is a cute app, it kind of has a nice layout with this cute dog and the colors. I did not expect such a sweet design at first I thought it would be more serious because um… its about self-control and um.. that sounds quite serious, I guess.

R: Alright, and how did you find the registration?

I: Well… I think it was quite simple, there was not much required to complete the registration, you already gave me the code that I had to fill in and um.. what else… there were a few slides that explained the app and everything… yes, I think it was quite easy.

R: Okay, now I want to talk about the clarity of the written information. What was your general impression of the written text?

I: Um… I think the texts were very short… therefore there was no unnecessary information… but I think sometimes I felt like I need a bit more information… let me think of an example… um for example, when it said that the app will train the 'muscle" in two weeks… like will I have the maximum level of self-control in two weeks? I don't think this sounds realistic and um… do I need to do the exercises continuously to keep the self-control? I found that a bit confusing. Um… I feel like sometimes there were those statements but without much explanation, I mean I understand that a lot of text may not be… appealing to the user but there could have been a bit more explanation at times…

R: Alright, and what did you think of the explanation of how the app works?

I: Um.. let me think… okay… I think it was okay, it gave information about self-control and compared it with a muscle… there will be reminders I guess… but I don't know how many, I think it would be annoying if there were a lot of reminders, like per hour or so…. Um… and it gave examples… I think it was drinking with the left hand and… I don't remember the second one but also something with the left hand.

R: Good! And what did you think of the information when you put in your own data?

I: Well, I think that was quite simple, I already had the code in the chat and my personal goals was also easy to fill in… I was just a bit confused because I didn't know how broad or specific this goal had to be. I did not really think about my goal before, so this caught me a bit off-guard, and I had to improvise a bit… also with my dominant hand, it was easy to fill that in of course…

R: Okay, how did you perceive the length of written information?

I: Well, what I liked was that there were multiple slides with relatively short texts… that was better than having a lot of text on just one slide… but as mentioned before, I would have liked it better if there would be more explanations…

R: Good, and to what extent did you perceive the app as understandable?

I: I think it was quite understandable because there was no complex information… it was all quite self-explanatory, I guess…

R: Mhm… Could you then explain to me what is expected from you the following days?

I: Well… I will train my self-control every day… there will be exercises that I have to do each day and there will be reminders a few times I guess… and at the end of the day I have to provide feedback…

R: Yes, and can you explain what your non-dominant hand has to do with it?

I: Um.. yes, now that you ask this… I was not sure because there were two examples about the non-dominant hand, but I am not sure if each challenge will be related to my left hand… I think it would make sense because I also had to fill in if I'm left or right-handed but… yeah… it was not 100% clear to me if all exercises will involve my left hand…

R: Alright, how simple, or difficult was it for you to navigate through the app?

I: Well, that was very simple it was basically going from one slide to the other and yeah... that was easy.

R: Good, could you then please change your dominant hand in the settings?

I: Sure… (11 sec) Done

R: And how did you find that?

I: Very simple, it was easy to find in the settings

R: Great, now you can change it back… because otherwise the challenges will be about the wrong hand.

I: Alright, done

R: Good, now what would you change to make the app more usable?

I: I think it is already a good app… but I guess I would make the information clearer sometimes... for example with the non-dominant hand... I am not 100% sure if all the challenges will be about that… now that I think a lot about it, this makes sense, but I think if there would not have been this interview, I would not be sure about it…

Interviewee C 1.0

Researcher: So, what is your first impression of the app?

Interviewee: Um… it was, it was clear…it was well explained... as I said before, some things could be mentioned earlier to avoid confusion about it but all in all, it was a nice way to start an app.

R: And how did you find the registration process?

I: Pretty straight-forward, yeah it was just filling in the code and that's it.

R: Now I want to talk about the clarity of the written information, what was your general impression of the written text?

I: Um... sometimes it felt too short, like 'we want to explain a lot but we don't want you to just see a lot of text so we just skip it" I can understand it but on the other hand… having it too short is not enough so… I and I understand they wanted to have a nice balance between those, but for me, I would want a bit more explanation… Also with the timeframe... when it said that you will do these tasks every day... I mean every day for how long? One year? Afterwards, it was made clear that they mean for two weeks but that should have been mentioned earlier… yeah

R: Mhm… and concerning the explanation, what did you think, how was the explanation about how the app works?

I: Um… that one was actually good because that's the second part with the four um… that was really well explained. It was good, clear and building on what was said before.

R: Good, and how did you find the information where you had to put in your own data?

I: Easy, just really straight-forward… so yeah

R: Mhm, so we already talked a bit about the length of the written information, you said that it was a bit too short, you needed a bit more of explanation…

I: Yeah, exactly

R: To what extent did you perceive the app as understandable when you completed it?

I: How do you mean?

R: Could you tell me what is expected from you the next five days?

I: Um yeah, I will get a task on my phone, I think a notification, but I am not sure… well I get a notification that there is a new task and yeah… then I'll get it and I just have to do what the task says basically for the next five days…

R: Mhm, can you think of… or what do you think will the tasks be about?

I: Well, they gave an example like opening doors with your left hand… or right hand… but I hope that one doesn't come up…

R: Why?

I: Because, for me it depends on how the doors open, so the door behind me it swings to the left, therefore I use my left hand to open it and when it goes to the right, I open my right hand to open it. So that's why I hope that doesn't come up but stuff like that I think… because they just gave an example of um.. because I'm right-handed, use your left hand to do things, but for the others, I have no clue what it could be

R: Mhm, so you think it could be anything

I: Yes, actually yes

R: I'm curious, from the information about the challenges, did you recognize that all the tasks will involve your non-dominant hand?

I: Yes, because well of course they asked which of my hands is the dominant and well the examples they gave... well I remember opening the door with the other hand using a cup with the different hand and that implies to me that I will just will use my hands differently…

R: Good, um… what if anything caused you frustration?

I: from the app? What could casue… hmm too many notifications… if I understood the question right…

R: Mhm, I mean, what caused you frustration in the registration that you just did?

I: Ahh, um going back to the left and right thing... If they ask me to write with left, I will not do it because I know I can't do it um... I would get frustrated if it's close to impossible, like if it would not benefit my working ability…

R: Yes, but in the registration, that you just did, was there anything that caused you frustration?

I: Um not in particular because I said, less Netflix, more reading, YouTube, actually, not Netflix. And um… no it does not frustrate me because I would like to read more because of Covid I hang in front of the screen and yeah I would like to minimize that.

R: Alright, what would you do to make the app more usable?

I: Um… doing it in English to reach more people, but yeah… an IOS version because I know how the app store is so that will cost a lot of money…. yeah hahaha and um… make a dark theme, because I like that more… my phone puts everything in dark mode automatically and I like that better… um... and going backwards before you put the code in… because now I had to log in to go back to the information again and yeah, just a button that enables me to read the information before I enter the code, yeah if you miss something.

Interviewee D 1.0

Researcher: Yeah so, what is your general impression of the app?

Interviewee: Um yeah, it really feels like a beta-version because there is a.. well mostly for the words and I find that there is the bar between each word, its really like a beta-version. Not finished kind of feeling but I really like the color that they choose! Yeah it really felt like a good app with the little dog, the little mascot that can be used to guide through it. Yeah overall I think it is a nice app!

R: And how did you find the registration?

I: it's easy it's not too complicated I mean you just… you put the code in that you already gave me and following the tutorial that just explains what's gonna be so yeah

R: So you thought it was easy to go from one step to the other?

I: Yeah!

R: And now I want to talk about the clarity of the information. So, what was the general impression of the written text that you had?

I: It was very simple and uh yeah a good narration, not overly complicated it's just like yeah okay let's see now you can do that's it right, so it was clear um yeah…

R: And what do you think about the information that explained how the app works?

I: The info you gave me or the info I got from the app?

R: From the app.

I: uh yeah it was uh clear because it's not too complicated, there is a menu setting and… yeah it's not complicated to follow.

R: Okay, does that also go for putting in your own information? How did you find that?

I: is this well done um… it was quite easy to follow…

R: What do you think about the length of the information?

I: The link? Like what you gave me?

R: No, I mean the length, was it too short or too long?

I: Aah okay I understand! Oh yeah it was good, it was clear and concrete, I didn't miss anything there.

R: Okay and um was the app understandable for you?

I: Yeah, it yeah, its quite integrative and yeah, I don't see anything that could be complicated… yeah

F: And can you explain to me what is expected from you the following days?

R: Um… I will have a challenge every day that I have to complete, and I will get that in the app, so I will have a little visualization and yeah... every day I will have little things to do and yeah I will see if I can go for it and eh yeah

R: Mhm, do you have an impression or can you think of what kind of things you have to do every day?

I: I think it can really just be basic well-being things that people tend to forget, just like they said, thinking water or think about something nice or yeah.. like I think it is really on the self-care and just to show people like by doing little tings every day you can just improve in general how you can improve in general, like your mind, how you feel and your body.

R: Mhm and what do you think is the relation to… because you had to put in your dominant hand, right?

I: Yeah

R: what do you think is the relation to that?

I: Um… maybe the way the things are gonna be organized on the screen? I don't know, nowadays, the phones are really big and I have really small hands and I sometimes use both my hands… maybe to make it more easy… when the things are more organized on the right or on the left? Then it can influence that it is just more practical for the user, and it could also look more nice.

R: How simple or difficult was it for you to navigate through the app?

I: Um… well yeah there is not much, so it is quite easy, there is two things on the main screen and then you can see the menu with all the things you can use or do and yeah.

R: Do you have the app open right now?

I: Yeah

R: Could you change your dominant hand in the settings?

I: Um lets see… (11 sec) yeah I did

R: How was that for you?

I: Yeah it was easy… it is just a bit weird that the second button for the right is really like… not the same size as the left so yeah… but it was still easy to do

R: Mhm, can you show me the screen?

I: Yeah

R: Mhm yeah I see, thank you. You can change it back to normal now, because otherwise you will receive the wrong challenges

I: Alright, I did

R: Okay, so what if anything caused you frustration during this registration?

I: Hmm no.

R: Okay, and what would you change to make the app more usable?

I: Um definitely I would remove the bars between the words and yeah I think you can just scip the repetition and yeah the title_menu like, keep it simple, FAQ, How to use the app, how to use the app etc. because with all the repetitions it feels like a repetition and eh yeah it's a bit less attractive for the eye but overall with the illustration and everything its nice and yeah..

Interviewee E 1.0

Researcher: Yeah, so what is your first impression of the app?

Interviewee: Um yeah, it was nice, I think it is relatively handy to use and its kept really simple… I like the design, its simple but it does not overwhelm you with a lot of different colors and motives or so… yeah also the dog is really cute and funny, it made me laugh when I saw it.. haha yeah

R: Great and how did you find the registration?

I: Yeah um.. I think it was easy, there were not many steps, just a few information to read and yeah that was it, I think I expected it being more difficult. yeah

R: Mhm okay, now I want to talk about the clarity of the written information… what was your general impression of the written text?

I: Yeah um… I think it was good, there were short pieces of text divided on multiple pages… I think that was good because I would not want to read a huge text I guess… I think that would have been demotivating to me… so yeah it was good

R: Mhm and what did you think of the information that explained how the app works?

I: Um I think that it was clear… I mean it was not really extensive but it was explained clearly and short so that was good.

R: Did you have the impression that it was too short?

I: No not really, I think keeping it short is better to keep me motivated… so yeah if it covers everything it can be kept shortly so yeah that's good…

R: Alright, and what did you think of the information where you had to put in your own data?

I: Easy, I mean there was not much, I remember the code… and you gave me that beforehand so that was easy… and if I'm right or left-handed… I mean that's clear because I clearly know that haha um and the goal… yeah there I had to think a bit but it was still doable, maybe a bit unexpected but yeah… it was okay

R: Okay and how did you perceive the length of information?

I: Yeahh. Um… as I said it was good because yeah it was quite short but covered all necessary information… there were two examples as well and yeah small images so yeah that was good

R: Okay and to what extent did you perceive the app as understandable while completing the registration?

I: I think it was quite understandable… there was no big confusion while registering… I mean on the first pages… there was something about self-control and the muscle was used as a metaphor I guess… and yeah… that was simple… also when the app was described um… like challenges I have to complete each day… in the app it first said every day, but I guess in total it will cover two weeks? I have to do t for five days right?

R: yes, at least five days

I: Good, yeah I think that was quite clear then…

R: Okay and can you explain to me what is expected from you the following days?

I: Um yeah so, I will get a new challenge every day… like some things that I have to do differently from normal… and I have to give feedback at the end of the day I think… yeah

R: Okay and what kind of challenges can you think of?

I: Um… I don't know… I think it will be everyday tasks like it was explained in the examples... I think one task was drinking water with the left hand?

R: What do you think why the app asked for your dominant hand?

I: Yeah I mean… I was not sure about that… there were two examples with doing something with the left hand, but I was not sure if every task will involve my left hand…

R: Yes, each challenge will be related to your non-dominant hand

I: Aahh okay, yeah I think that could be more explicit… I mean it can be understood that way because of the examples but I was not completely sure… maybe they could write it more clearly…

R: Good… how simple or difficult was it to navigate through the app?

I: I think that was quite simple… you just had to swipe over the screen to get to the other page ad yeah that was easy…

R: Okay, could you then change your dominant hand in the settings now?

I: Yes… (10 sec.) yeah done… easy

R: how did you perceive that?

I: It was simple, I mean it is quite self-explanatory in the settings

R: Okay good, now you can change it back again

I: yeah okay

R: What if anything caused you frustration?

I: Um… frustration… I think nothing, all in all it was yeah easy

R: What would you change to make the app more usable?

I: Um... yeah, I would mention more explicitly that all tasks will involve my left hand… just to make clear what the user can expect… and hmm I think it was quite usable… I cannot really think of something I would change now but maybe that will change after I used if for a few days…

Interviewee A 2.0

Researcher: So, what was your general impression of the app?

Interviewee: Um I actually have a really good impression of the app, but I have to say that I really found eh the assignments really hard.

R: Oh really?

I: Yeah, I had a lot of difficulty remembering them because afterwards… I mean there was one where I had to drink with my left hand and I just automatically drink with my right but after I drink, I was like 'Oh shut I was supposed to do it with my left one" So I found it really hard, yeah

R: Mhm

I: But I think that's just me that it was hard for me to remember to do things with my other hand

R: Yeah, it's a thing, it's an automatic process, that's also why they chose the assignments being daily tasks that you really do without thinking um..but yeah… would it be better or you if there would be more reminders?

I: I don't think so because every time after I did it I was like 'Ohhh", so for me personally I don't think that more reminders would have helped, so... just because Im just thinking about so many different things and afterwards Im like 'Shuuut" …

R: Okay so um… and coming back to the questions, how would you describe the app in three words?

I: Um… I would say, comprehensive, organized and pretty

R: And did you use the app for the entire five days?

I: Yes, I used it every day

R: Mhm, what made you want to use the app every day?

I: The colors hahah it looked just… it looked so nice that I just wanted to check, and I was also very curious about the assignments that's why I opened it every morning like 'What do I have to do today"

R: Good and what would you say, from 0-100 how motivated were you to use the app?

I: 70

R: 70… good and now that the study is over, would you use the app daily?

I: Hmm maybe not daily because for me it was really hard… I wouldn't use it daily

R: And could you think of something that would increase your motivation to use it daily?

I: Maybe some tasks that happen less often than drinking or turning off the lights…

R: Mhm and what do you think about... because now you had another view on the task and the challenges and what do you think about the information was presented, for example, the challenges?

I: I still think that they were really comprehensive and short to the point but still that you know what you had to do because they were really small tasks explained in just one sentence so that was just really easy, there was nothing remarkable

R: Mhm and how did you find the feedback option?

I: yes, I found that pretty helpful so you could see how you actually performed that day, so I think that was a really good bonus in it

R: Mhm and I already asked about it a bit but the reminders, how did you find them? Was it clear? Or the frequency…

I: I found them frequent enough because they kept reminding me, it was just my thing that every time after I was like 'O I should have done it differently" and yeah... like I completely forgot… so for me it was still frequent enough… like there was nothing in the app that was unclear there was nothing where I thought 'Oh I don't know what to do now"

R: Mhm… so, would you say the app was understandable or was there anything that caused you frustration?

I: Um no not at all, it was really understandable so there was not even one word which I questioned so yeah...

R: Good and that was a bit about the content... how was it to navigate through the app? So from overview to feedback to challenge for example?

I: Oh, it was still good but there was one thing that I sometimes found annoying, when you were on the page for the challenge, you could go to the overview but then when you clicked back from the overview you immediately went back to the challenge instead of the homepage… that was what I thought was a bit annoying... yeah

R: Good to know! And um now that you used the app for a longer time, is there anything that you would change to make the app more usable? It could be design or some other features, whatever is on your mind

I: Um… I don't think so for the subject of the app is really good, the only thing that I would change is the thing with going back and forth from the pages because I thought that sometimes was really annoying because you're like 'Oh I want to go back to homepage, and you have to click two times extra and you are like 'where am I going now? That was sometimes confusing but that was really the only thing that I saw

Interviewee B 2.0

Researcher: So, what was your general impression of the app?

Interviewee: Um… I think the app was nice… I mean I had a lot of difficulties doing the tasks actually… yeah.. it got a bit better the last days of using it but I actually have a quite busy schedule and when I was in a hurry or had a lot of stress I completely forgot about the challenges… so yeah it was not as easy as I expected it to be…

R: Okay and how would you describe the app in 3 words to me?

I: Um… three words... I guess… challenging… smart… and appealing

R: Good… so you mentioned that you had difficulties with integrating the tasks in your… well your busy schedule, and did you use the app every day?

I: Yes, I did because I also wanted to provide you with good feedback for your study actually… so I tried to do the challenges and use the app… but something that was a bit hindering for me is that I wake up very early in the mornings like at six… and to ensure that I use the app daily I opened the app immediately to see the next challenge for the day um… but I guess that was too early um… because there was still the challenge from the last day, so I think it would be better to… I don't know like make the next challenge available from 4 am or so?

R: Ahh I understand… and on a scale from 0-100, how motivated were you to use the app?

I: I think I would say like.. 70… because I was still curious what challenge will be next and I really wanted to do my best… because yeah the whole purpose of using the app is to improve my self-control right? And yeah I think that was a good way.. like yeah

R: And now that the study is over…would you use the app daily?

I: Well, I would not say daily… I think um… it is a nice way to challenge yourself and I think that once you did the challenges for a few days you kind of know what it is about… like doing daily things with the other hand… I could also think of making it more suitable for

myself by looking at my daily routines and yeah checking what I do often and then just try to do these things differently by myself without the app… um… because I think it is still additional effort to use the app daily, like… yeah even though the app is kept quite simple… it still requires some effort like reading the challenges and the feedback… I mean it was okay for a few days but like I wouldn't use it daily… yeah…

R: Mhm… but do you have anything in mind that would increase your motivation to use it daily?

I: Well… as I said the app is quite… simple I mean you do not have to do much within the app yeah but more like integrating it to your daily life… maybe it would be more appealing for me to use it frequently… like yeah… when the tasks would be less frequent… because drinking… I mean I drink a lot and it was really hard to yeah… think about doing it with my other hand… yeah

R: Okay and what do you think about the way the information was presented? Like the challenges for example?

I: Pretty simple, I mean… it was presented in a very clear and comprehensive way… shortly to the point I would say…

R: And what about the levels?

I: You mean that mountain thing with the stars?

R: Exactly

I: Haha That was cute, but I didn't get the connection between the dog and climbing a mountain… I think there could have been a better was… yeah like to present it…

R: Do you have anything in mind?

I: Um… not really but maybe an animal that acutally lives on mountains? Or with the moon maybe a wolf? Or just not the mountain… yeah… I don't know…

R: Okay… how did you find the feedback opportunity?

I: Yes! That was a bit weird… like overall it was okay but I was a bit confused when I gave a thumbs up but the bar was completely red… yeah… I think it would have made more sense if the bar would be greener when giving good feedback instead of turning red…

R: Mhm… and… what do you think about the reminders? Like the way they were presented and the frequency?

I: Um… that was okay… I was glad that they were not sent too frequently... yeah that would have ben annoying… they were clear and okay I would say…

R: Good… and to what extent did you find the app understandable?

I: I think it was pretty okay… I mean the information was very simple and clear… I do not remember a moment where I was confused or did not know what to do… it was quite self-explanatory… yeah…

R: And how simple or difficult was it for you to navigate through the app?

I: That was acutally something I stuggled with sometimes… because when you wanted to get back to the main page… like from the overiew… I think I was always sent back to the challenge… yeah that was confusing… I remember being stuck a few times and that was reall frustrating and really demotivated me…

R: Mhm… and other than that… do you have anything else in mind… that you would like to change to make the app more understandable?

I: Um… well I would definitely simplify the navigation… like when clicking back you should get back to the main page immediately and not back to the challenge or so… that's just confusing and yeah… I mean if you forgot the challenge or so then you can click on that on the main page… yeah otherwise it's just confusing…

Interviewee C 2.0

Researcher: What is your first impression of the app?

Interviewee: Um… yeah it was easy to use… um it was clear what do to um… yeah there was just I thought they stopped a bit early with the tasks… I was supposed to do it the whole day and I think it stopped at six/seven somewhere around that they said it was already done… so yeah that was the only thing that I wouldn't mind if it had been longer

R: Mhm, how long would be like okay with you?

I: Until I go to bed… I mean it can be the whole day so.. yeah

R: Okay, yeah so maybe that you can decide on yourself when to give feedback?

I: Yeah, maybe also nice to add start and end time settings, so you can choose 'I want to do it between these hours"

R: Yeah, great… and how would you describe the app in three words?

I: Um… um… it was somewhat helpful... that's just too, it was okay and helpful… and yeah sometimes annoying…

R: Mhm… why was it annoying?

I: Um… because well… I did about the things I had to do but when I'm in a rush and just do it and then later on I think 'Ahhh did I do it or did I not do it" … yeah that's the annoying part

R: Yeah, that's the tricky thing because it's an automatic thing you do and then you have to just do it differently from normal, that's a struggle, I can understand that… and did you use the app for the entire five days?

I: Yeah, actually yes

R: Mhm, what made you use the app?

I: Well… there is a research going on and they asked me to do so haha…

R: So it was more extrinsic motivation than intrinsic?

I: Yeah, to be honest… and its always nice to see if something helps so.. and how they think yeah how they think how you can change your self-control…

R: Mhm and how great would you rate your motivation to use the app from 0 to 100?

I: Um I would say around 70

R: And um… now that the study is over, would you use the app daily?

I: Well, if the tasks are fun, I would do it

R: And you perceive the tasks that you had the last five days?

I: Um I would say um… yeah the first day was the door thing... that was really… yeah I think a lot about is because doors that go to the right I will use my right hand so it was just… I really had to think about doing it. The second one was to use the fork with the left hand… um but as I mentioned here, my parents taught me to use the fork with my left hand because of table manners… yeah… drinking the water with the left hand is fine… because that's kind of doable… it was a nice small task that is easy to do… and the lights with the left hand that is also absolutely doable you just really have to think about it… because you normally walk in the room, switch the light on and that's it…

R: Yeah, true. Could you think of tasks that might have been a bit funnier?

I: Um… just using your other hand? Um yeah I would say your mouse but because all the mouses are already designed for a specific hand you can't really use it with the other hand… um… no actually um… no

R: Alright, and do you have anything in mind that would increase your motivation to use the app?

I: Um… well they do the notification during the day, saying this and that I would also say do a half day… because if you do have a start time and an end time you can say half well at the middle you can say 'How is it going now"… like with the swiping thing as well, I thing then my motivation would go up because then I would see okay 'It is going okay but I wanna do better in the evening so I will pay more attention to it"

R: Yeah, great and what do you think about the way the information were presented, for example, the challenges?

I: How they were presented?

R: Yes

I: Um… yeah nice, clean, easy, short so you just woke up… look at it and 'Ahh I have to do this today"

R: What about the way the levels were presented? With the mountain?

I: Ohhh yeah it was like candy crush, they use the same principle… that was yeah… it had no extra value to the rest of the thing but yeah I can understand that its nice…

R: Okay, and the feedback function? How did you find that?

I: Um.. yeah it was easy to use but the sliding gave a big variety of how I would score the task and maybe that's a bit too much, sometimes I was just like 'a little bit up" or 'a little bit down" and just somewhere there so maybe it's nice to do like seven steps um… because then its like more easy to fill it in…

R: Yeah, good and what do you think about the reminders?

I: Um… I usually I swipe them away… I think they were okay, not too much text and yeah not too often so that was good

R: Okay, and to what extent did you perceive the app as understandable?

I: Yeah, it's a nice clean app um.. like I said before, I wished it had an English version…

R: Mhm, even though you're Dutch?

I: Yeah, I prefer English

R: Okay and how simple or difficult was it to navigate through the app?

I: It was absolutely easy

R: Okay and now that you used the app for a longer time do you recognize anything you would change to make the app more usable?

I: Well yeah, make it English um… what else… no, actually nothing… it was, I don't know its already in dark mode… I think my phone put it dark more… yeah that's always a good one… that's nice, yeah for the others… I think you cannot change much because I mean there is a lot of function in it but not by clicking buttons so what I experienced is that it was okay… yeah…

Interviewee D 2.0

Researcher So what was your general impression of the app?

Interviewee: Well, it was kind of interesting to challenge myself every day I have to admit that I struggled… especially… the first days when trying to include… or when trying to switch my hand in daily tasks such as opening doors or eating with my left hand… but all in all it was a simple app… so I did not face major difficulties or problems yeah I think the problems that I faced were more related to my own level of self-control

R: And how would you describe the app in three words?

I: Um.. I think it was ... simple… and clear but still difficult… because it was really hard to keep the challenges in mind

R: Alright and did you use the app for five days?

I: Yes, I did

R: Good, what made you want to do so?

I: Well… of course I was curious… and tried my best to use the app because… I mean the goal of the app was to increase my self-control and yeah… therefore I tried my best to use the app every day… also I really liked the design it was really cool and yeah…

R: and how was your motivation to use the app for those five days on a scale from 0 to 100? I: Well, I would say it was 80% I have the feeling that it also depended on how good the challenge went… or um… how difficult the task was because for me for example turning the lights off and on was… like with my left hand um.. was easier than eating with my left hand yeah because when I was in a rush and had to eat really quickly then yeah… it was just annoying to eat with my left hand and um… therefore I was not quite motivated to do so yeah I think it depended on the task…

R: And now that the study is over would you use the app daily?

I: Well… I would not say daily… I mean yeah it still requires a certain extent of effort and yeah… I think it's difficult to integrate it in every day… um that would be too much but I think for like… I think the app is meant to take two weeks or 14 days and I think that is quite doable… but on a daily basis I would not use it…

R: Alright and do you have anything in mind that would increase your motivation to use the up daily?

I: Um… I don't really know… I mean I think there is no scenario in which I would use the app like every every day… but to use it for the 14 days um… yeah it really depends on the challenges or maybe if there would be a reward system or so… because now I mean you climbed the mountain with the dog which is also funny because I really don't understand why they choose a dog to climb a mountain… but maybe if there would be more of a reward system… like if there would also be a goal in the app and not only the increase of self-control which is quite internal but also a bit of an external reward… um… I think that would be a good idea yeah that might increase my motivation to do so because I actually like the idea of visualizing it in a cute way and I really see the effort that the developer put into the design of the app but maybe they could just add a few features to yeah make it a bit I don't know more interesting for the user…

R: Yeah good ideas and what do you think about the way the information was presented for example the challenges?

I: Um… I think they were quite clear I mean they were presented in… short sentences also within visualization and I mean there were simple tasks so there was no confusion or… yeah no uncertainty about that so that was great I would say…

R: And what do you think about the way the levels were presented? You already mentioned the dog climbing the mountain…

I: Yeah I mean it was kind of cute… and I liked the animation but it's just really basic… it just goes from one level to the other and that's it… but maybe if the dog would fulfill a purpose um… or if yeah… I don't know... maybe that could be improved a bit like by including a reward system…

R: And what do you think about the way the feedback was presented?

I: Well… that was good… ah there was something that confused me because um… when I gave a positive feedback… so when I gave a thumbs up then the bar would turn red… and that was weird because the thumbs up were presented in green and the thumbs down were presented in red… and I was a bit confused why that was the case you know? I mean why it was more red when it was actually a good feedback… but other than that I was yeah it was clear

R: And what do you think about the way the reminders were presented?

I: Oh that was okay… I mean it was short and that's alright because the purpose of a reminder is just to yeah the word already says it to remind you and that was alright… I mean it was not too often so it did not get annoying but I think that was alright

R: Good and to what extent did you perceive the app as understandable?

I: Well… it was quite understandable, I think I did not face any difficulties… I mean as I said it's really simple… simple tasks or… challenges and simple feedback option there are reminders um the mountain it was yeah it was okay

R: And how simple or difficult was it to navigate through the app?

I: Um… that was okay as well… I do not completely remember where I struggled… um… but I remember that sometimes I had difficulties to switch between the different pages… I mean yeah… sometimes I was confused when navigating from yeah the mountain um… overview to the main page…

R: And now that you use the app for a longer time do you recognize anything you would change to make it more usable?

I: Um… let me think yeah maybe I would improve the design because yeah make it a bit more connected with the dog the mountain and the moon I don't know I like the colors that could be kept but I mean it's a quite simplistic design… which I also get because I think it should not be overwhelming but maybe that could be improved… and as I said the feedback bar should turn greener when yeah… giving positive feedback but other than… that I have nothing in mind…

Interviewee D 2.0

Researcher: what was your general impression of the app

Interviewee: it was OK that I think like when I have to evaluate it was a bit counter inductive it was a bit like you have to put the button if it was good or not good… like when you put in good the bar was turning red and then I was thinking oh am I doing a good thing and then like maybe if the bar was just getting more green when I rate it as good that would be more clearer but other than that you get used to it… yeah I mean it's an easy app so if I forgot something I would just check again oh and I see now that I opened the app since it's in Dutch it also does not look weird anymore with the bars and so oh I just realized it now… yeah overall it was nice and interesting thing to do now

R: if I would ask if I would ask you to describe the three words what would you say

I: Um… easy um pleasing like the color is really and yeah it's fun to get every day a new challenge yeah

Alright and did you use the app for the five days

yeah I did I tried to do the challenges every day but some things I couldn't really do because I eat with chopsticks and I can't eat with my other hand and then I was like OK I tried to do it again and then I realized that I always eat with my left hand because my mother is left handed and she taught me so when I was a child so yeah… and when I had to switch the hand I was like okay so that's how I'm supposed to eat as a right handed person haha… that was funny… and yeah so in the first challenge you don't really think about doing it but at the third I was more like 'okay I need to do that" and it came more naturally and yeah it was an interesting experience

R: And could you also tell me what motivated you to use the app?

I: Hmm… Yeah just because I never thought of doing these little challenges and I was interesting to think about it and I had the control over it yeah it was really interesting to see like in the daily life just some stuff you do naturally you do normally with your right hand and then you have to swap and yeah

R: and if you have to rate it from the scale from 0 to 100 how motivated were you?

I: I'm more than 50 for sure maybe not 100 let's say 70 80

R: alright could you think of features that would have increased your motivation?

I: I don't know because yeah or maybe um reward things that make it more appealing like Oh yeah I mean I can have some points or you can collect points maybe that would be more motivating because for me it was really a new feeling of trying to do new things and the challenge that's why I tried it but maybe for other people a reward system would help but yeah it was interesting to discover that maybe also work on the design to define it a bit more…

R: can you give an example?

I: to improve the visual I would say I don't know like the dog is really cute but maybe make it cuter because it looks really simple and it's really a minimalistic art but for some illustration it could be better… and for the progress bar yeah I don't know… now that I think about it looks a bit like a Christmas tree it's interesting the way it is but maybe I don't know that's also an artistic point of view because I like to draw a lot and I see that the moon is really central and maybe by doing the challenges you could collect some pieces to build a rocket or so and in the end when you did all the challenges after the 14 days you could fly to the moon maybe…

R: really good really creative ideas and now that you've used the app for a few days could you imagine yourself using the app daily?

I: yeah I think I'm gonna try to do the challenges I even manage to make my boyfriend interested in the app because I was using it and he became curious about it. I think it can really be fun.

R: and what do you think about the way the information was presented such as the challenges?

I: yeah it's a simple like from day to day you have to do a different challenge I don't have much to say about that but it was clear

R: And about the way the levels were presented? Like with the mountain you already said it was like a tree and it could also be a rocket to fly to the moon

I: No, I don't know I didn't really feel uh or I didn't see a difficulty in that.

R: Alright good and what do you think about the reminders about their frequency or how they were presented?

I: well it's nice it's not as much as other apps it was enough to remind me after challenges so yeah

R: good um and know that you're also in the app and looking for I don't know the overview and the challenge is how simple or difficult was it to navigate through the app?

I: it's really simple there are not like too much buttons there's just like here's your challenge and the overview and then you can just click and see so it's really simple

R: great and you already gave me a few impressions of what to change for example in the design of the app but do you have anything else in mind that you want to change to make it more usable?

I: um I don't know I thought about something but I forgot I mean I think it was about the challenge like it said for the whole day but it could give like an amount or a ratio like do it at least five times within the day because there was one like the eating challenge I failed this one because yeah I use chopsticks but I think for the other challenges it would have been nice if there would be a ratio like an average or so… that you need an average to pass the challenge…

R: alright so you mean a bit more guidance and less freedom?

I: yes exactly

Appendix C Navigation issue
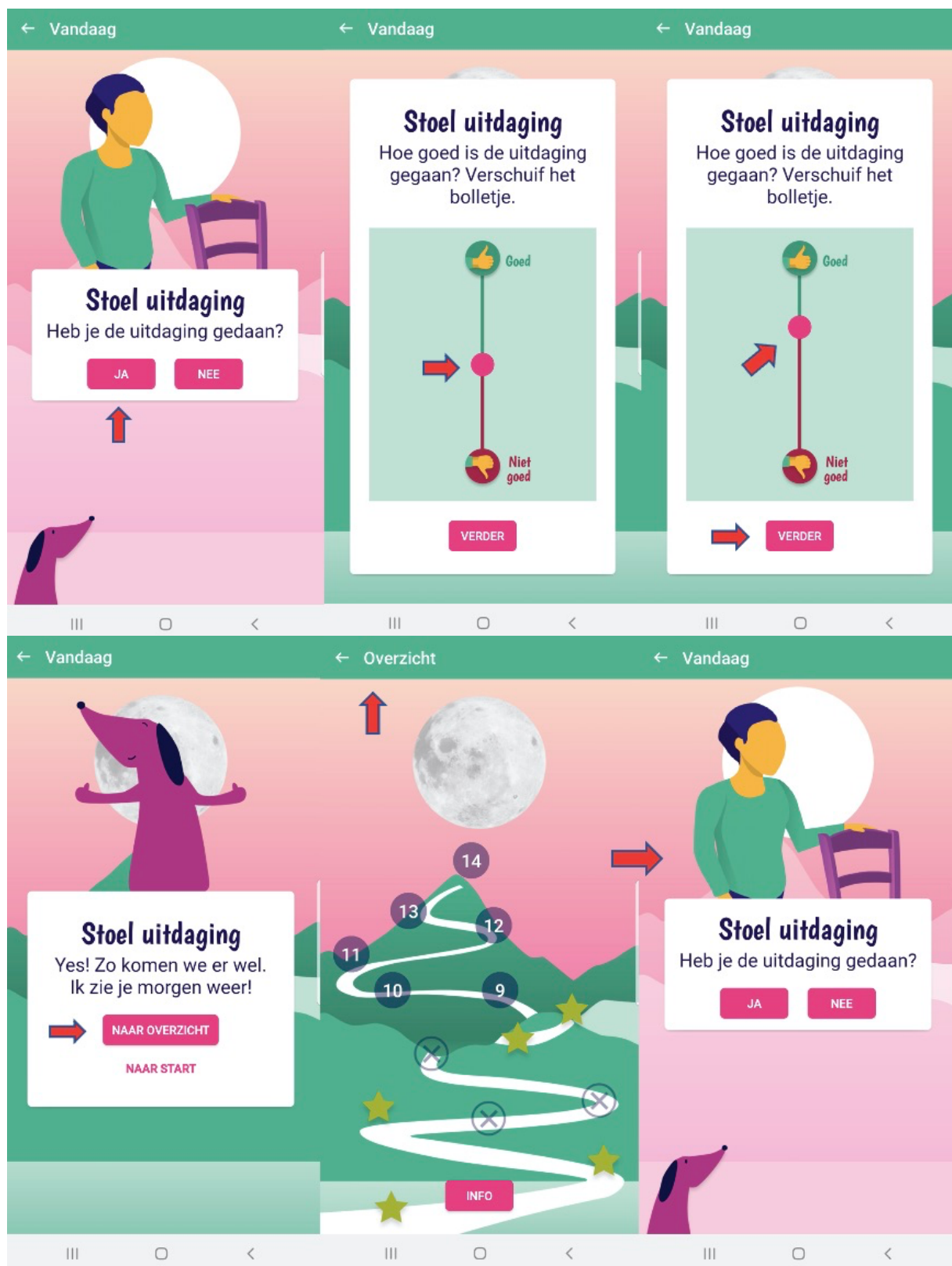
Appendix D Coding Scheme

Table C1.

Coding scheme including Quotes, Categories, and Themes

Quote	Categories	Themes
'The animation is really cute, and it really keeps your attention'	Colors and animation	Aesthetics
'Because it is way more effective to have a small sentence divided in multiple screens than one bis long text'	Length	Clarity and length of information
'(…) it just looks really neatly organized which is what I really like'	Clarity	
'The registration actually is really self-explanatory'	Clarity	Clarity and length of information
'(…) well actually I think it covers the topic very well in those short sentences because obviously you cannot tell the reader a lot if you have a really small sentence and a few screens but… I think it actually tells you what you need to know'	Length, Clarity	Clarity and length of information
'It actually tells you what you need to know'	Length, Clarity	Clarity and length of information
'The code was also very self-explanatory because I got the code in the chat and then it was like 'Okay, fill in your code here''	Clarity	Clarity and length of information
'It was very self-explanatory and it was very clear to understand, so I think that was really good'	Clarity	Clarity and length of information

'There will be different exercises per day that involve my left hand… like doing things like drinking water with my left hand to keep my attention on that.'	Clarity	Clarity and length of information
'Very easy actually, a few clicks and it was done'	Simple navigation	Navigation
'Nice layout with this cute dog and the colours'	Colours and animation	Aesthetics
'Quite simple, there was not much required to complete the registration'	Clarity	Clarity and length of information
'Sometimes I felt like I need a bit more information… let me think of an example… ehm for example, when it said that the app will train the 'muscle" in two weeks… like will I have the maximum level of self-control in two weeks?'	Missing information	Clarity and length of information
'Do I need to do the exercises continuously to keep the self-control? I found that a bit confusing'	Missing information	Clarity and length of information
'Those statements but without much explanation, I mean I understand that a lot of text may not be… appealing to the user but there could have been a bit more explanation at times'	Missing information	Clarity and length of information
'Will be reminders I guess… but I don't know how many, I think it would be annoying if there were a lot of reminders, like per hour or so'	Missing information	Clarity and length of information
'It was quite understandable because there was no complex information'	Understandable	Clarity and length of information

'I think that was quite simple, I already had the code in the chat and my personal goals was also easy to fill in… I was just a bit confused because I didn't know how broad or specific this goal had to be'	Clarity	Clarity and length of information
'What I liked was that there were multiple slides with relatively short texts… that was better than having a lot of text on just one slide'	Length, Clarity	Clarity and length of information
'I think it was quite understandable because there was no complex information'	Understandable	Clarity and length of information
'I am not sure if each challenge will be related to my left hand… I think it would make sense because I also had to fill in if I'm left or right-handed but… yeah… it was not 100% clear to me'	Missing information	Clarity and length of information
'Was very simple it was basically going from one slide to the other'	Simple navigation	Navigation
'Very simple, it was easy to find in the settings'	Simple navigation	Navigation
'Some things could be mentioned earlier to avoid confusion about it'	Missing information	Clarity and length of information
'Pretty straight-forward, yeah it was just filling in the code and that's it.'	Clarity	Clarity and length of information
'Sometimes it felt too short, like 'we want to explain a lot but we don't want you to just see a lot of text so we just skip it'	Missing information	Clarity and length of information
'I would want a bit more explanation… Also with the timeframe... when it said that you will do these tasks	Missing information	Clarity and length of information

every day... I mean every day for how long? (…) Afterwards, it was made clear that they mean for two weeks but that should have been mentioned earlier'

'It was good, clear and building on what was said before'	Clarity	Clarity and length of information
'I will get a task on my phone, I think a notification, but I am not sure'	Missing information	Clarity and length of information
'The examples they gave... well I remember opening the door with the other hand using a cup with the different hand and that implies to me that I will just… will use my hands differently'	Missing information	Clarity and length of information
'Doing it in English to reach more people'	Recommendation function	Aesthetics
'Make a dark theme, because I like that more'	Recommendation design	Aesthetics
'Going backwards before you put the code in… because now I had to log in to go back to the information again and yeah, just a button that enables me to read the information before I enter the code'	Navigation Issue	Navigation
'Really felt like a good app with the little dog, the little mascot that can be used to guide through it.'	Colors and animation	Aesthetics
'It's easy it's not too complicated I mean you just… you put the code in that you already gave me and following the tutorial that just explains what's gonna be'	Clarity	Clarity and length of information
'Clear and concrete, I didn't miss anything there.'	Length, Clarity	Clarity and length of information

'Yeah, it yeah, it's quite integrative and yeah, I don't see anything that could be complicated'	Understandable	Clarity and length of information
'Like I think it is really on the self-care and just to show people like by doing little tings every day you can just improve in general how you can improve in general, like your mind, how you feel and your body'	Missing information (Challenge)	Clarity and length of information
'Maybe the way the things are gonna be organised on the screen? I don't know, nowadays, the phones are really big and I have really small hands and I sometimes use both my hands… maybe to make it more easy… when the things are more organised on the right or on the left?'	Missing information (Challenge)	Clarity and length of information
'Is just a bit weird that the second button for the right is really like… not the same size as the left so yeah'	Misfunction	Misfunction
'I would remove the bars between the words and yeah I think you can just skip the repetition and yeah the title_menu like, keep it simple, FAQ, How to use the app, how to use the app etc.'	Misfunction	Clarity and length of information
'I think it is relatively handy to use and its kept really simple… I like the design, its simple but it does not overwhelm you with a lot of different colors and motives'	Clarity	Clarity and length of information
'(…) I think it was easy, there were not many steps, just a few information to read and yeah that was it'	Clarity	Clarity and length of information
'It was good, there were short pieces of text divided on multiple pages… I think that was good because I would not want to read a huge text'	Clarity, Length	Clarity and length of information

'I think keeping it short is better to keep me motivated… so yeah if it covers everything it can be kept shortly so yeah that's good'	Clarity, Length	Clarity and length of information
'(…) challenges I have to complete each day… in the app it first said every day, but I guess in total it will cover two weeks?'	Missing information (Challenge)	Clarity and length of information
'I was not sure about that… there were two examples with doing something with the left hand, but I was not sure if every task will involve my left hand…'	Missing information (Challenge)	Clarity and length of information
'I think that was quite simple… you just had to swipe over the screen to get to the other page ad yeah that was easy…'	Good Navigation	Navigation
'I think that could be more explicit… I mean it can be understood that way because of the examples but I was not completely sure… maybe they could write it more clearly…'	Missing information (Challenge)	Clarity and length of information
'(…) not daily because for me it was really hard… I wouldn't use it daily (…) maybe some tasks that happen less often than drinking or turning off the lights'	Recommendation challenges	Clarity and length of information
'There was nothing in the app that was unclear there was nothing where I thought 'Oh I don't know what to do now''	Clarity	Clarity and length of information
'It was really understandable so there was not even one word which I questioned'	Understandable	Clarity and length of information

'There was one thing that I sometimes found annoying, when you were on the page for the challenge, you could go to the overview but then when you clicked back from the overview you immediately went back to the challenge instead of the homepage'	Navigation issue	Navigation
'Something that was a bit hindering for me is that I wake up very early in the mornings like at six (…) but I guess that was too early ehm… because there was still the challenge from the last day'	Recommendation individualisation	Personalisation
'I didn't get the connection between the dog and climbing a mountain… I think there could have been a better was… yeah like to present it'	Recommendation design	Aesthetics
'Maybe an animal that acutally lives on mountains? Or with the moon maybe a wolf?'	Recommendation time	Personalisation
'Overall it was okay but I was a bit confused when I gave a thumbs up but the bar was completely red… yeah… I think it would have made more sense if the bar would be greener when giving good feedback instead of turning red'	Feedback issue	Clarity and length of information
'I would definitely simplify the navigation… like when clicking back you should get back to the main page immediately and not back to the challenge or so'	Navigation issue	Navigation
'Stopped a bit early with the tasks (…) I was supposed to do it the whole day and I think it stopped at six/seven somewhere around that they said it was already done'	Recommendation time	Personalisation

'Maybe also nice to add start and end time settings, so you can choose 'I want to do it between these hours''	Recommendation individualisation	Personalisation
'If you do have a start time and an end time you can say half well at the middle you can say 'How is it going now'' … like with the swiping thing as well, I think then my motivation would go up because then I would see okay 'It is going okay but I wanna do better in the evening so I will pay more attention to it''	Recommendation feedback	Personalisation
'(…) it had no extra value to the rest of the thing but yeah I can understand that its nice'	Colors and animation	Aesthetics
'The sliding gave a big variety of how I would score the task and maybe that's a bit too much, sometimes I was just like 'a little bit up'' or 'a little bit down'' and just somewhere there so maybe it's nice to do like seven steps'	Recommendation feedback	Clarity and length of information
'It was absolutely easy'	Good navigation	Navigation
'(…) maybe if there would be a reward system or so… because now I mean you climbed the mountain with the dog which is also funny because I really don't understand why they choose a dog to climb a mountain…'	Recommendation motivation	Motivation
'(…) maybe they could just add a few features to yeah make it a bit I don't know more interesting for the user…'	Recommendation motivation	Motivation
'(…) short sentences also within visualization and I mean there were simple tasks so there was no confusion'	Clarity, length	Clarity and length of information

'Ah there was something that confused me because um… when I gave a positive feedback… so when I gave a thumbs up then the bar would turn red'	Recommendation feedback	Navigation
'(…) sometimes I had difficulties to switch between the different pages… I mean … sometimes I was confused when navigating from the mountain ehm… overview to the main page'	Navigation issue	Navigation
'(…) when you put in good the bar was turning red and then I was thinking 'oh am I doing a good thing?' and then like maybe if the bar was just getting more green when I rate it as good that would be more clearer but other than that you get used to it'	Recommendation feedback	Clarity and length of information
'(…) I see now that I opened the app since it's in Dutch it also does not look weird anymore with the bars and so'	Misfunction	Misfunction
'Reward things that make it more appealing like Oh yeah I mean I can have some points or you can collect points maybe that would be more motivating'	Recommendation motivation	Motivation
'To improve the visual I would say I don't know like the dog is really cute but maybe make it cuter because it looks really simple and it's really a minimalistic art but for some illustration it could be better'	Recommendation Design	Aesthetics
'I see that the moon is really central and maybe by doing the challenges you could collect some pieces to build a rocket or so and in the end when you did all the challenges after the 14 days you could fly to the moon maybe…'	Recommendation design	Aesthetics

| 'About the challenge like it said for the whole day but it could give like an amount or a ratio like do it at least five times within the day' | Recommendation | Motivation |