BSc Thesis Creative Technology

Briefly Motivating:
Motivate and retain older participants in a research study using a newsletter.

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Abstract

As part of a large-scale study to design and test new approaches to encourage healthy living for older adults, it is difficult to keep the participants motivated for a longer time.
This project aims to find a way to use social marketing to encourage older adults to continue with their participation.

The Creative Technology Design Process, as described by Mader and Eggink (2014), extended by the Agile Design process, described by Beck et al., provided the foundation for this study. The Agile Design process adds a quicker iteration process.
One of the solutions to this problem is a newsletter. This newsletter utilizes aspects from social marketing and is sent out every 6 weeks. This newsletter can feature positive success stories, include the recipients in the decision process for the study, or explain the impact the participants have on the study. The newsletter follows guidelines from the literature research and was inspired by the state of the art. The newsletter was subsequently developed using an iterative approach. In this approach, three newsletters were created. The first provided initial ideas and was then adapted into the second. The second newsletter was used for client meetings. After the feedback from these meetings was implemented, the final newsletter was used for testing.

The prototype was evaluated with 30 respondents. During this evaluation, the design was received well. The clear display of information and easy-to-use buttons facilitate with the user interaction. During the interactions, it was noted the time to interact is very short and smooth. Based on these results, the prototype appeals to the respondents and can be an added value for this study.

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1 Introduction

1.1 Context

As more and more people in Europe become older, more suffer from diseases. Some of these can be linked to an increase in social isolation [1]. Additionally, the healthcare system is not capable of addressing all diseases in older adults. To lessen the burden on the healthcare system, it is important to strengthen the immune system. A good way to achieve this is by being more physically active and increasing the social contacts. The PHArA-ON-Project(grant ID 857188) was started to address this problem through large-scale pilot-projects and a budget of 21 Million Euro [2]. The overall objective of this study has been mentioned on their website and "is to make a reality smart and active living for Europe's ageing population by creating a set of integrated and highly customizable interoperable open platforms with advanced services, devices, and tools including IoT, artificial intelligence, robotics, cloud computing, smart wearables, big data, and intelligent analytics." [2]. With it, new technologies and services are developed that older adults co-create and test. These technologies are aimed at improving their lives by promoting healthy eating, exercising, and social connections [3].

This project is done in multiple smaller studies that are done in several countries. These studies are called "pilots". The pilots take place in Italy, parts of Spain, Portugal, Slovenia, and the Netherlands. In the Netherlands, the University of Twente (UT) is collaborating with the National Fund for the Elderly (NFE), Roesshingh Research and Development, AdSysCo, and Maastricht Instruments. One of the services NFE offers is a PlusBus. This is a service that allows for older adults to regularly take a bus, together with other older adults, to buy groceries and make other kinds of trips. All over the Netherlands, there are between 70 and 80 locations that offer the PlusBus. However, the main research is done in 2 locations only, with others acting as control locations. While they can be found all over the Netherlands, most of them are located around Amsterdam and its surrounding area. The participants test an extension to the PlusBus service that is developed by the technical partners of the study. These extension offers the participants to subscribe to use a physical activity monitor and coaching system, called MISS Activity, as well as opting in to use a tool to raise self-awareness to develop healthy eating habits, called PACO.

The main goal of the Dutch pilot is to assess the participant's satisfaction with and the feasibility of using these extensions. Moreover, the results will also be explained. The study is designed to take longer than other studies ([4] [5] [6]) to get an in-depth understanding of how participants respond to the technologies tested.

1.2 Challenge

The run-time of studies in the technology and health sector is usually around 4 to 12 weeks [4], [5], [6]. The PHArA-ON-Project takes place over more than a year. It is important for its success that the participants are motivated to continue with the study for the whole time. Additionally, more specific to the Dutch pilot, the locations of the PlusBus are further apart. Yet, it is a goal to give all participants the feeling that they belong to something bigger. Therefore it is also important to update participants about and motivate them for the project, as well as giving every participant a sense of community.

1.3 Research Question

The main question this paper tries to answer is:
How can we engage participants to actively participate in a study that will take a year using social marketing?
As this question is very broad, the following sub-questions will guide the process of answering the main research question:

1. How is social marketing used in health and health care?

2. How can older adults be motivated to continue participating in studies?

3. How can social marketing strategies be used with a newsletter?

2 State of the Art

In this chapter, the state of the art will be analyzed. For this the theory underlying social marketing and the motivation of older adults will be analyzed. Moreover, current developments, projects, and products will also be investigated.

This chapter consists of three sections. In the first, current scientific literature will be examined to see how social media is used in the health sector. Moreover, this research also tries to answer the question how older adults can be motivated. Here, the theory of a good newsletter will also be evaluated. The second section investigates existing social marketing campaigns from different countries. This section then also tries to understand what makes these campaigns successful. Lastly, newsletters themselves will be investigated. This section tries to find examples for the theory laid out in the first section. Moreover, examples of newsletters aimed at older adults will help to explain how newsletters to older adults differ from those aimed at a younger readership.

In the end, a short discussion will try to answer the question "*How are social marketing strategies used with a newsletter?*".

2.1 Social marketing in health care

Social marketing is used in the health care sector in many ways. Firstly, it is important to understand that social marketing is used to promote a voluntary behavior change. As Gordon et al. [7] explains, this change is not forced. When looking at the ways in which social marketing is used, there are two aspects. Firstly, social marketing is often used to promote behavior changes such as preventing smoking in certain societal groups. According to Goethals et al. [8] social marketing is also used in campaigns aiming to encourage healthier eating or promote physical activity. While this understanding is already a good starting point, a literature research was performed to understand this concept in more detail.

Moreover, social marketing can also be used to raise awareness in societal groups. One of these awareness campaigns was used to ensure citizens in Australia were aware how to access important information and documents for health care services. Mehmet et al. [9] explain that tools and social marketing efforts were combined to offer citizens easier access to documents and health-care information. Here, posters, billboards and social media campaigns help with this awareness by showing how simple it is to access important documents.

While the literature in combination with this example already show the use of social marketing, it is important to understand that in the broadest sense, it is a framework

combining aspects from multiple behavioural studies with concepts from the commercial sector. Because of the concepts from the commercial sector, social marketing also experiences problems usually seen with conventional marketing, such as being misunderstood and undervalued as a tool to promote change [10].

In conclusion, social marketing is used by providing a framework that helps promote a behavior change or offer helpful resources. In this framework, the aspects from both behavioral studies and commercial marketing support the campaign similar to a foundation supporting a building. When used in the correct ways, social marketing can „strengthen the impact and effectiveness of national and local health improvement"[10]. However, as it includes aspects from commercial marketing, social marketing and also the message it is conveying can be „misunderstood and undervalued". All in all, social marketing helps in the health care sector by laying out a framework with which many challenges can be attempted to be solved.

However, having a framework to help solve challenges is only the first step to help older adults. The second step is to find out how they can be motivated to stay with the study. According to Mody et al. [11] Participants can be motivated by a supportive social environment. Peers, as well as study coordinators, play an essential role in providing the necessary motivation. However, the motivation is not the only aspect affecting participants. Another aspect is the challenge of retaining participants. There are multiple challenges that need to be addressed to motivate older adults to continue with the study. The first challenge that needs to be faced is the high attrition of older adults as noted by Mody et al. [11]. This means, „frequent hospitalizations, easy fatiguability, shortness of breath, acute illness, and severe pain" may lead to participants to opt out of studies or delay them by long amounts of time. To add to this, Mody et al. [11] also explains that a lack of feedback to the participants can lead to them stopping with participating.
While the health of participants, as well as the outside aspects of the study influence the retention of participants, Tang et al. [12] explains that the type of activity participants have to perform is also a factor on the retention of participants. Physically or mentally taxing tasks are a reason to quit earlier.
A simple solution to the challenges noted here was found by Mehmet et al. [9]. They note that offering participants the opportunity to interact in a co-creation process with organizers of the study increases the retention. Moreover, it seems that „positive success stories and peer-to-peer engagement" also help retain participants.

Lastly, Meekes et al. [13] confirms what Tang et al. [12] has found. Participants may encounter barriers such as cognitive hardships. These barriers lead to participants quitting earlier. In addition, questionnaires lead to less retention of participants. Finally, Meekes et al. [13] also support Mody et al. [11] by explaining the higher maintenance of older

adults influences the retention of participants. Most challenges of retaining older adults in studies can be traced back to health related issues.

2.1.1 What makes a good newsletter?

It is important to know the theory behind how social marketing is used in the health sector as well as how older adults can be motivated to keep participating. But only this knowledge does not make for a well-rounded solution. Here, it is important to also get an understanding of newsletters that are traditionally found in brand marketing. While newsletters can be used for social marketing purposes, it is rather rare. Therefore, the important question here is to understand what makes a good newsletter. Moreover, in this stage, newsletters from companies can be analyzed and the common elements can then be translated to this solution.

At first, it is important to understand what is needed in a newsletter. Here, MDirector outlines good first steps. It is mentioned that it is important to keep the reader in mind [14]. This means personalizing of the emails if possible. Instead of "dear reader" the email could read "dear Konrad". Moreover, it is emphasized that the subtitles help the reader get a quick understanding of what the article is about. In this, but also the articles themselves, it is important to write concise sentences [14]. Writing concisely means the reader has the most information in the shortest amount of time. Additionally, an important point is to post regular newsletters. This helps create a habit of reading the newsletter [15]. Because the reader can expect the newsletter to arrive at a set day, maybe even time, this can be implemented into a routine that helps the newsletter get more attention. It is important to be regular in sending out the newsletter. This is only possible if there is enough material to say anything. Having something to write about is an important step as well [16]. As content in your newsletter gives the reader a reason to come back for the next.

Lastly, it is also important to include the reader in your newsletter using a call-to-action. This can be done by inviting the reader to respond with their story [17]. This not only shows that the newsletter is read, it also shows that you care about the readers you have. This care can help engage readers even more [16].

All these tips help make a newsletter attractive to read and interact with. Following these tips will increase the interaction and retention rate of the readers.

2.1.2 Conclusion

The results of the literature research indicate that using social marketing can be applied to retain participants. When this is combined with a newsletter, it has the potential to be

a good approach to solve the challenge at hand. While the framework of social marketing helps, it can also be shown that it shows drawbacks from conventional marketing. It is easily misunderstood by the public and undervalued as a tool, as results can not be measured immediately.

In addition to social marketing as a framework, another topic that was investigated was how older adults can be motivated. Here, the results point towards peers and family as the main motivators in the lives of older adults. However, other factors also determine the motivation to continue with the research. At first, the tasks should not be too challenging, both physically and mentally. Studies have found that positive stories help participants continue participating in a study. This can be translated into a social marketing campaign by using newsletters as a medium to distribute stories, but also request participants to send in their stories. Lastly, the transparency and approachability of the study and its organizers is important as well.

Finally, the parts that make a good newsletter were also investigated. Here, it was found that good newsletters can be identified by six aspects. The first is regularity. If a newsletter arrives frequently, it is anticipated more. Secondly, there is content. Every good newsletter needs content that is appealing to the target group. After that, there is the importance of subtitles. Here, the information is summed up and presented in an easy to understand way. For this, the texts need to be written concisely. This is point number four. For the fifth point, it is important to talk to the reader personally. This means, if possible, to refer to them by name as this builds a closer relationship. Lastly, it is also important to involve the reader by asking questions and providing the option to reply. Concerning these heuristics, it could not be determined if they were found through a scientific process or through trial and error. The sources also do not indicate this. However, similar heuristics were found across multiple websites. This seems to confirm they are tested by multiple parties.

2.2   Social Marketing

In the literature research, the theory of social marketing campaigns was worked out. However, it is also of importance to see what these campaigns can look like. Therefore, this section takes a look at existing campaigns and tries to analyze why they are successful.

2.2.1   Social marketing campaigns

Social marketing campaigns apply concepts from commercial marketing. Thus, social marketing campaigns can take many forms. In the following, several successful social marketing campaigns will be highlighted and also explained as to why they are successful. The first

Figure 1: A campaign to move drivers to slow down. The text reads "Hands off your phone".[18]

campaign is a German campaign to prevent traffic accident related deaths. Starting in 2017, billboards located near the highway and other roads showed posters as shown in *Figure* 1 or similar. This campaign is successful as it does not provide a lot of information. Instead, it shows what the aftermath could look like, if the driver is involved in an accident. Moreover, because of the big, short writing, the message is easily read while driving.

The second campaign comes from the United States of America. In an effort to call for gun legislation, Moms Demand Action [19] released a campaign showing a child holding a gun and another child holding a Kinder Surprise egg, as shown in *Figure* 2a. The aim of this campaign is to show how illogical the legislation in the USA is. This campaign can also be seen as successful, as it confronts the viewer with two extremes. On one hand there is an assault rifle, on the other hand there is a candy. Additionally, by asking the person reading this to guess makes the poster more interactive and leaves the viewer thinking. This appeals to their common sense and the answer should be clear.

Lastly, there is a campaign that was run both on- and offline. In the south of France, a vaccination campaign was updated to also include the COVID-19 vaccination. It is shown in *Figure*2b. This campaign was started because at the time, many countries were in lockdowns to prevent the spread of COVID-19 [22] [23] [24]. As more and more vaccinations were allowed, this campaign promoted the vaccination. This campaign is successful because it shows what a vaccination can offer. By getting vaccinated, more and more freedoms can come back. Especially by appealing to the emotional connections people can experience with the pictures, the message is strengthened.

The campaigns shown are all made for billboards and posters. While this can already

(a) This poster is used to raise awareness for the difference in legislation for protection of children.[20]

(b) A poster showing two people hugging passionately. The main text reads "Yes, the vaccine can have desirable effects"[21]

Figure 2: Two more examples for social marketing posters

have an effect on people passing by, there are also more direct methods. Some of these target specific groups, other help highlight lesser known consequences.

The first example, shown in *Figure* 3, shows a beer mug. While a normal campaign could have worked as well, this campaign makes it obvious by where the advertisement is placed. When you grab the handle for a drink, the fist is in front of, or on the face of the woman. The imagination of the user is sparked. They can imagine hurting someone by seeing it. This image alone can already be thought-provoking. Because it motivates people to actively think, it is a very successful campaign.

Figure 4 shows an example of how some municipalities try to remind drivers to slow down. On streets that experience a lot of accidents or that are prone to speeding, signs are installed that show the speed a car is going. They are often used to remind drivers to drive the speed limit. In this example, the message is further supported by showing the speed as the days one would need to spend in the hospital if a crash were to happen. While the

Figure 3: A mug that highlights alcohol related violence.[25]

Figure 4: A speed measurement sign is upgraded with a sign stating the days you will spend in the hospital. [25]

correlation may not be accurate, it still highlights the threats of speeding. This campaign is successful in two ways. First, it reminds the driver to slow down and drive the speed limit. Because of the larger sign, it is also easier to read. Secondly, it also paints a mental picture of what might happen, if you speed.

And as a last example is a bra that highlights the effects of breast cancer. Moreover, it also raises awareness for those who have experienced breast cancer. *Figure* 5 shows the way in which this was achieved.

First of all, this example shows that it understands the target group. While both men and women can develop breast cancer [26], it is more visible in women. Second, by showing how breast cancer can affect one, this campaign heightens the awareness that women may have of those affected by it. This is done through the design of the bra only having one cup. Lastly, it also acts as a reminder to be mindful and to go to checkups. This is done via the tag attached.

Figure 5: Bras highlighting breast cancer. [25]

There are many ways in which social marketing campaigns can be used. These shown here were only a handful of the possibilities that exist. However, important factors can be identified that can make a campaign successful. The first factor is emotions. In many cases, the campaigns do not show facts but they evoke emotions. Secondly, it is important to show clearly what the results of the undesired action may be. By highlighting this, the desired result, a change in behavior, is more likely to be achieved. Lastly, these campaigns all target a specific group. This group can be smaller or larger depending on the needs.

2.2.2 Social Marketing Conclusion

As mentioned in the beginning of this section, social marketing campaigns can take many forms. Billboard advertisements, physical objects, and posters were shown in this section. Importantly, all of the campaigns work because they elicit emotions. These emotions can be grief, happiness, confusion. But because of these emotions, the groups targeted are moved to think about what they saw. However, each form of social marketing has a use. Moreover, they also target different sized groups. In *Table* 1, the differences are outlined. In addition, newsletters will also be added.

For the challenge at hand, it is important to reach a smaller number of participants. Furthermore, the budget for a larger scale social marketing campaign is also missing. Moreover, campaigns with posters and billboards are aimed at people who are generally in an area. This is a circumstance that is not given with the challenge the client faces.

Campaign Type	Use	Target Group Size	Budget
Billboard	Remind people to change a behavior	>1000	Very high budgets
Poster	Promote a better option	>1000	High budget
Physical Object	Raise awareness to an issue	100 − 1000	Moderate budget
Newsletters	Raise awareness and promote	< 200	Low budgets

Table 1: An overview of the use, target group size and budget of campaigns. Budget values adapted from [27], [28] and [29]

2.3 Newsletters

For the challenge at hand, the client indicated that a newsletter would be the better option. Because of this indication, newsletters will be examined more thoroughly. In this section, newsletters will be shown and also used to find out if and how the theory explored in *Section* 2.1.1 was applied. In addition, newsletters aimed at older adults will also be examined to gauge what is done for this target group.

2.3.1 Examples

(a) Newsletter promoting good manufacturing procedures. [30]
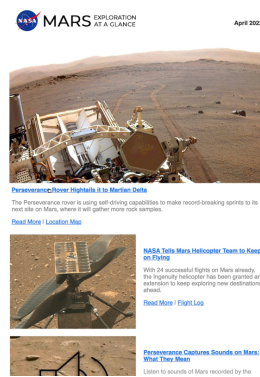
(b) This newsletter shares news on the mars missions. [31]

(c) Here, a product is advertised. [32]

Figure 6: Examples of newsletters

The first example, shown in *Figure* 6a, shows that it is doing things right, when it comes to regularity. This newsletter is sent out every week on a Tuesday. Furthermore, it

also shows that it offers content. In every newsletter, they talk about a new topic that is important for those subscribed to.

Figure 6b embodies two other aspects. It is the right example to show that conciseness and subtitles can help inform the reader in a fast way. The subtitles below the blue titles summarize the content of the article in a way that all the important information can be viewed with a swift glance. However, if more information is wanted, there are also options to view the longer article. The fact that the information can be read quickly is because of the concise manner in which it is written.

The third example shows how the engagement of the reader is of importance. *Figure* 6c shows that the reader, in this case the author, is addressed by name. Through this personal connection the engagement with the reader is given from the first line. Moreover, the images from the community show that the company values responses from the community. This also fosters and enhances engagement.
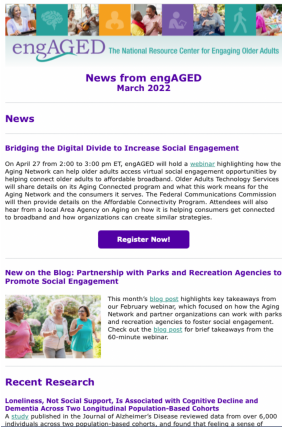
(a) News for older adults. [33]

(b) A printed newsletter informing residents of the news. [34]
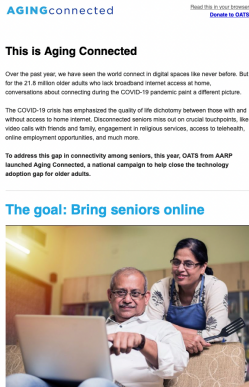
(c) The connectivity in higher age is of importance. [35]

Figure 7: Examples of newsletters aimed at older adults

While newsletters are generally aimed at target groups regardless of age, some newsletters are also designed to be read by older adults. Some examples are shown in *Figure* 7. The information provided in these newsletters is tailored to the older demographic. Some promote tips for healthier living, such as *Figure* 7b, others talk about social connections, as seen in *Figure* 7a. While there seem to be differences in the design, newsletters designed for older adults generally follow the same design principles laid out in *Section* 2.3.

These are important topics. Other newsletters, such as the one in *Figure* 7c, try to provide older adults the resources to learn new skills. While it seems there are many newsletters, it is not clear how exactly social marketing is used in combination with newsletters. This offers an opportunity to apply what was learned in *Section* 2.1. This section highlighted that social marketing appeals to emotions to promote changes in behavior. To

use social marketing effectively with newsletters, the content, as well as supporting images, should evoke positive emotions in the participants. If the content and images mainly feature events in this study, the emotions they evoke can be associated more easily with the study as a whole.

2.3.2 What services are there?

Sending multiple hundred newsletters by hand is very time consuming and often times also difficult. Usually, this is done using services that manage the content and also the sending of the mails.

It is important to see what services exist and what each service can offer. To better compare the services, *Table* 2 compares five services. The services are MailChimp, SendIn-Blue, Moosend, MailJet, and Omnisend. These services will be compared in four different categories:

1. Pricing

2. Number of mails during free plan

3. Special services

4. GDPR

As data privacy plays an important role in the EU, it was assessed if all five of the services were adhering to the General Data Protection Regulation (GDPR). This was done by looking through the privacy policies of each service.

Service	Pricing per month	#Mails in free plan	Specialities	GDPR
MailChimp	0€ to 125€	10000 emails to 2000 subscribers	good mail designer, all-in-one solution	No
Sendinblue	0€ to 60€	unlimited	email automation	Yes
Moosend	Free Trial to 120€	unlimited emails to 1000 subscribers	detailed reports, nice templates	Yes
MailJet	0€ to 385€	200 emails per day to unlimited subscribers	Multi-user collaboration	Yes
Omnisend	0€ to 105€	500 emails per month	free plan includes all features, automation	Yes

Table 2: Comparison of mailing services

2.3.3 Newsletter Conclusion

It can be seen that there are many kinds of newsletters. Each newsletter is used for a different purpose and is therefore filled with different content. Generally, all newsletters apply the theory discussed in *Section* 2.3. What can be observed is that newsletters aimed at older adults generally feature topics that hold a high importance to the target group. These topics are also explained in a way that they are understood easily. Not only are the newsletters written in a concise way, they also use a simpler language.

To reach the intended users with the newsletter, it needs to be sent. For this there are many services that offer to send emails. On top of that, they all offer extra features that can be of importance. As all the providers shown in the table above offer a free plan, the budget is not of great importance. However, as the number of participants can be considered to be small, the constraints of the number of emails plays not an important role. Now, the deciding factors are the extras offered. And here, Omnisend is the best option. It offers all features in the free plan. These features can enhance the newsletter and help making the upkeep easier.

2.4 Discussion

For the majority of the campaigns evaluated, they have target groups of a couple hundred people up to multiple thousands. When the target group consists of a wide spectrum of people, having billboards or objects is the best approach.

However, with the situation of the challenge at hand, a newsletter poses a better option. This is because there are three factors making conventional social marketing difficult. First, the campaign for this project is aimed at a smaller target group. This means that the way they are targeted also needs to be more precise. Secondly, not all participants of this study frequent the same places. Often, the locations differ greatly, as the PlusBusses are spread all over the Netherlands. Therefore, posters or billboards are difficult to set up. Moreover, this study already has something valuable to target the participants directly: their e-mail addresses. The last factor is the fact that we have the relevant information of the participants. This also includes the e-mail addresses.

This does not mean that approaches from social marketing are totally fruitless for a newsletter. *Figure* 4 shows an approach of how data can be shown. For the newsletter, a positive wording is more desirable. For the newsletter it is also relevant that a lot of social marketing targets the emotions. This fits well with the information gathered during the literature research. Here, it was found that older adults are motivated through positive support from their peers and families. Moreover, success stories that elicit positive emotions help as well.

To conclude, using social marketing as a framework to solve a problem is a good approach. Moreover, taking inspiration from existing campaigns shows that providing the target group with messages and numbers at the same time can be promising, too. Additionally, by evoking positive emotions through stories from peers, those who participate as well, the participants can be motivated effectively. As shown in the literature research, participants are also motivated by being able to give feedback and interact with the study organizers. This can be achieved by allowing the readers of the newsletter to respond to the newsletters. This can be achieved by asking for feedback, but also asking for stories of their own.

Lastly, offering a glimpse behind the scenes of the study, by introducing the organizers and those who work for it, also helps the participants feel closer connected.

3 Methods and Techniques

In this chapter, the methods and techniques used in this project will be discussed. At first, the methods used before and in the ideation will be explained. After this, the methods for the specification are explained. Then, a short overview is presented of the method used to realize the idea. And lastly, the methods to evaluate the prototypes are explained as well.

3.1 Agile Design and Creative Technology Design Process

For this project, two design methods will be combined. The Agile Design Process, shown in *Figure* 8, will be used on a macroscopic scale. As many prototypes are necessary, iterative testing provides a better solution. On a microscopic scale, however, the creative technology design process will be used. This means that each phase will consist of ideation, specification, realisation, and evaluation instead of discovery, plan, build, and review as shown in *Figure* 9.
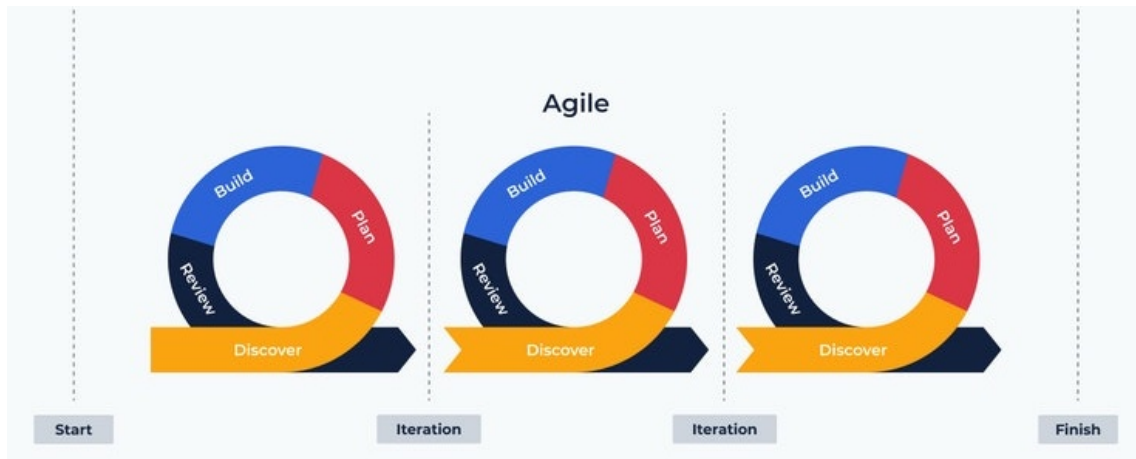

Figure 8: The Agile Design Process[36]

Before work on the iteration can begin, more information needs to be found. For this, the state of the art has to be determined. This is important, because state of the art explains what products, solutions, or services already exist. Moreover, it also sheds light on how these existing technologies can aid the new ideas. Before the first prototype can be designed, more research into the stakeholders needs to be performed. With the help of a stakeholder analysis, stakeholder requirements will be determined that lay the ground work for the design of the prototype. This can be viewed similar to the discovery phase of the Agile Design Process. The next parts, plan, build, and review, will be substituted with the phases outlined below.

In the specification phase, one idea will be selected and then developed further. With feedback from the stakeholders, the potential prototype is specified more. At the end
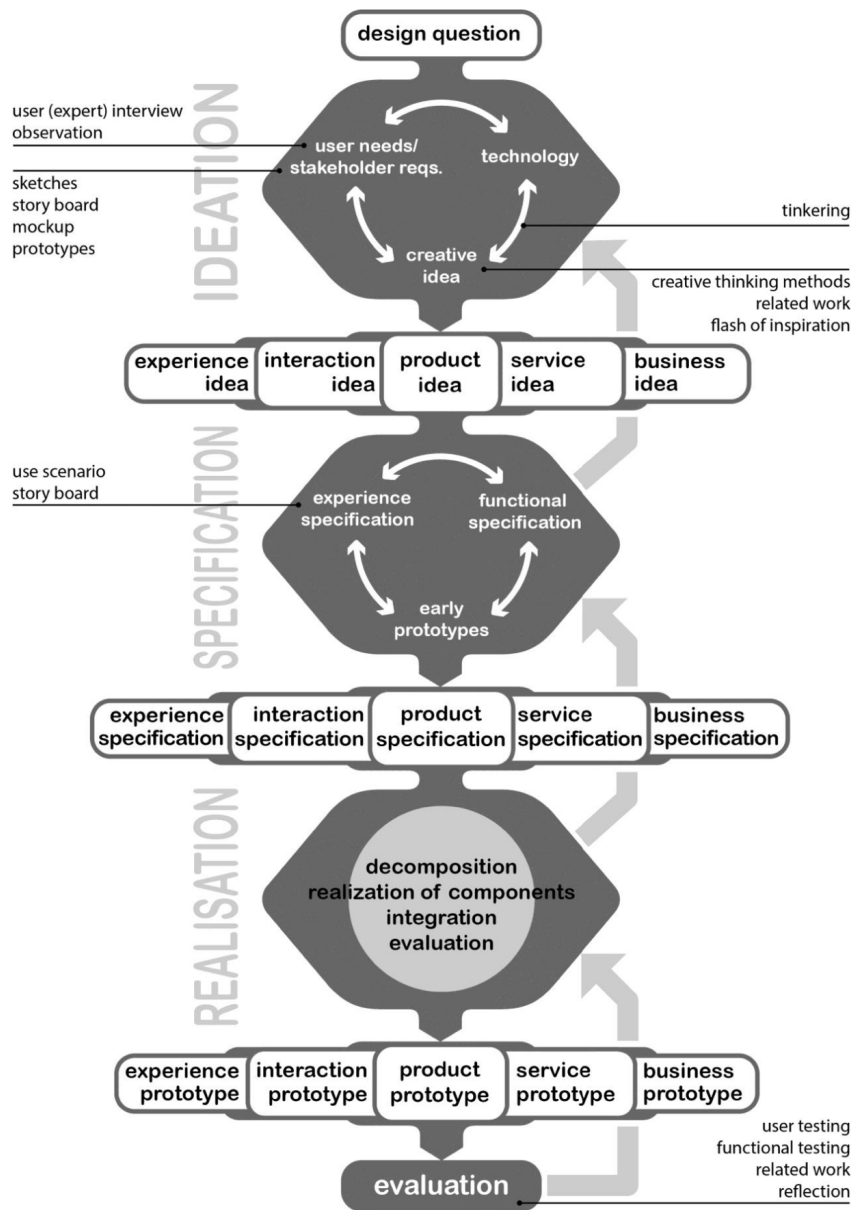
25

Figure 9: Creative Technology Design Process [37]

of this phase, the idea is ready to be turned into a prototype. This phase replaced the planning phase. With this specific idea, a more detailed prototype can be constructed in the realisation phase. This realisation phase substituted for the building phase. Lastly, the prototype will be evaluated with function testing and user testing. This is similar to the review phase.

A notable difference in this approach is that for the following iteration, only specification, realisation and evaluation will take place. The discovery phase will then be used to take the feedback from the review phase of the last iteration and transform it into action points that will be used for improvement. This means, the idea at the beginning will be iterated

upon to find a suitable solution for the stakeholders.

3.2 Ideation

3.2.1 Stakeholder Analysis

Several stakeholders are involved in the project. These stakeholders can take many forms. People, companies, and organizations are all stakeholders. As all these can have influence on the final product, both directly and indirectly, it is important to determine their role in the project and understand what interests they have during and after the design of the product.
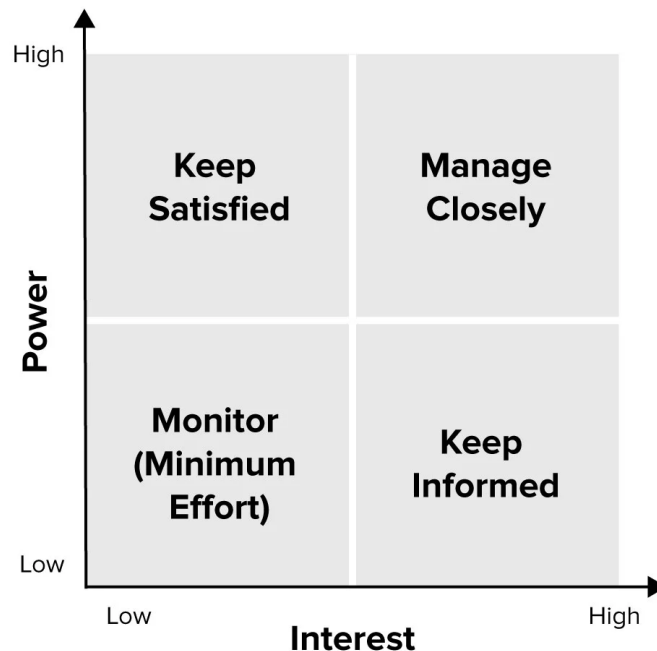

Figure 10: Stakeholders Power/Interest Grid

On their website, Mind Tools [38] explains the stakeholder analysis. Their approach is done in three steps. At first, all the people who may have an interest in the product will be listed. After the stakeholder identification, the second step then prioritizes the stakeholders. This is done on a "Power/Interest Grid" that has been adapted from Mendelow [39]. This visual tool is shown in *Figure* 10. The figure is divided into four quadrants in which the stakeholders will be placed. Each placement indicates what actions need to be performed to manage the stakeholders. As the final step, it is important to understand the key stakeholder. For this information needs to be gathered, for example through interviews.

3.2.2 Mindmapping

One way to ideate is by using a mind-map. According to MindMapping.com [40], the first step is to enter the main topic. This topic describes what you want to find ideas on. After this, the next step is to find topics. These topics all relate to the main topic in one way or another.

After, the topics can be rearranged. This helps see connections, or visually show categories. While the topics already can be enough, it is possible to add sub-topics that explain or expand the topics more. They can help to structure the topics even more, as they add information that otherwise would not be visible straight-away.

3.3 Specification

In the specification phase, the concept will be specified more by using the requirements from the stakeholders and by using interaction scenarios. At the end of this, a detailed description of the concept will be given. The interaction scenarios help to lay out the interaction between the user and the product.

3.3.1 Requirement finding and prioritizing

Clear and prioritized requirements are important when designing a product. Usually, the stakeholders have different requirements. First, all the requirements will be gathered. After this, the main client will be asked to give feedback on all requirements. For this feedback, the requirements will be prioritized. This prioritization is done using the MoSCoW method.

The MoSCoW-Method is used to find out the importance of the requirements. This is done by classifying the requirements using four categories. The categories are: "Must", "Should", "Could", and "Would". "Must" determines a requirement that has to be met. A "Should"-requirement can be added if possible. "Could" signifies a requirement that is not vital to the design. Lastly, "Would" describes requirements that may be added in the future.

3.3.2 Interaction Scenario

As a way to understand the interaction between the user and the product, an interaction scenario can be written. This is outlined in an article from van der Bijl-Brouwer and van der Voort[41]. The interaction scenario "provide[s] a thinking tool that help[s] designers explore how design proposals might work in different contexts of use."[42]. At first, a persona is developed. This persona outlines what a possible user may look like. Moreover,

important details are added to give the persona depth. Afterwards, a text outlining the interaction between the user and the product is written. This text takes into account what steps a user may take and what they may think about.

3.4 Realisation

During the realisation phase, Omnisend's built-in editor will be used to design and edit the newsletters. As this editor is using the drag-and-drop-process, it is easy to do, even if the person using the editor is not well versed in web-design.

For the first iteration, it is also important to first design a color palette the newsletter will use. These palettes will be designed using Coolors [43]. In these palettes, it is important to have at least one dark color, one or more bright colors, and one or two accent colors.

3.5 Evaluation

For the evaluation of the prototype, two approaches will be chosen.
The first approach is to ask the client and its partners for feedback. This will be done by sending the first prototypes as an email and ask specific questions. The aim of this approach is to assess if the overall design, as well as whether the design choices match the expectations of the client.
The second approach is to attach a questionnaire to the last prototype that is sent out to the participants. The aim here is to understand what older adults pay attention to and what they like and dislike. Furthermore, it will be tracked how many participants opened the newsletter and clicked on certain links. This will help to understand which content is most appealing ot them.

4   Social Marketing Strategy

There are many ways in which the participants can be motivated to continue with this study. While each of the ideas mentioned here can be developed into a full product alone, they can also work together to form an over-arching strategy which can be employed to ensure a more effective approach.

Status	Ideas
Existing	Day trips and excursions
Vision	Care Packages
	Reports of User Experiences
	Newsletter
	Video Content
	Podcasts

Table 3: List of ideas for the Social Marketing Strategy

As these ideas, as well as existing plans, form a strategy, it is also helpful to visualize how they influence each other. This influence will be symbolized by "providing content for". This means, one idea can provide content for other ideas later on. These connections are shown in *Figure* 11.
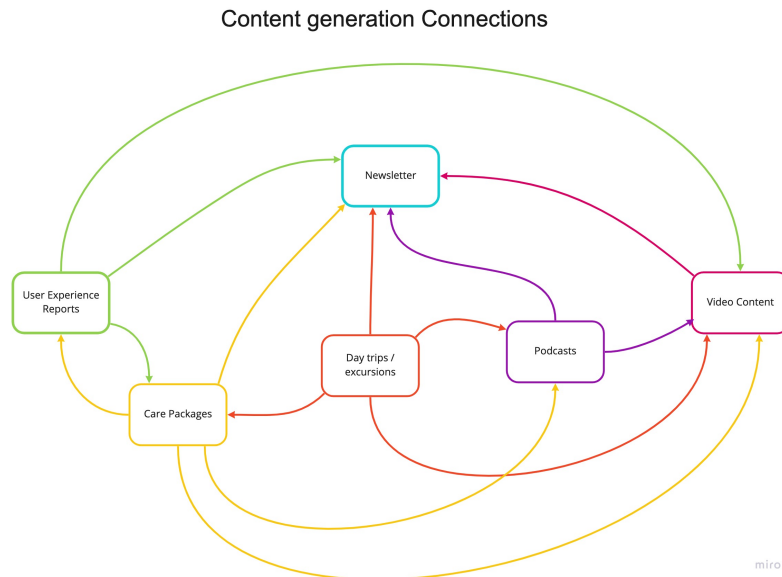

Figure 11: Which idea provides content for another idea?

These connections show that there are five ideas that mainly produce content for others and two ideas that incorporate the content. The idea "newsletter" acts as an outlet

to the participants, their families and friends. Moreover, the outlets can also be seen as pre-requisites for the other ideas. This means, for the ideas to be able to reach the target group, at least one of the outlets needs to exist. On the other hand, a "newsletter" may lead to the development of the ideas shown here as well.

On the other hand, the newsletter also offers the benefit of bundling the feedback. This means, the newsletter offers the target group an easy way to give direct feedback on any of the activities through the press of a single button. These responses can then be directed to the organizers of the separate ideas. At the same time, the user experience reports indirectly provide feedback on the motivational activities and on the products that should be tested as well. How these connections look like is shown in *Figure* 12.
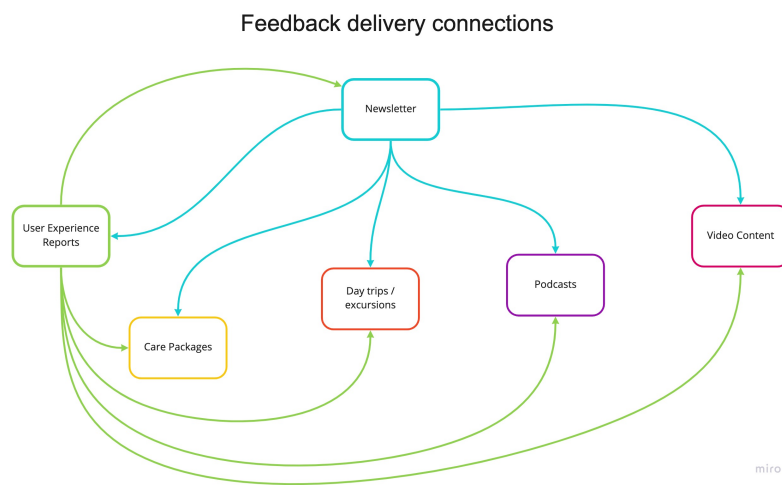

Figure 12: How are the feedback streams connected?

The figures show that the newsletter plays a central role in informing the target group and also in providing feedback to the organizers. This essential role adds value to the research and also helps the participants feel more informed. At the same time, it does not take up as many resources as other ideas and can therefore be developed further in less time and with less overhead. Additionally, a major hurdle in contacting older adults digitally, the lack of technological devices, is not present in this study. This is because the participants are equipped with a tablet. Below, a timeline of developing the other ideas is shown. The left-most idea already exists. As outlined above, the newsletter is the next best choice. As it is working in a tight cooperation with user experience reports this idea could be developed afterwards. The other three ideas are sorted by the perceived ease of development and the time-intensity and costs. In the following chapters, this document will therefore explore the development of a newsletter.
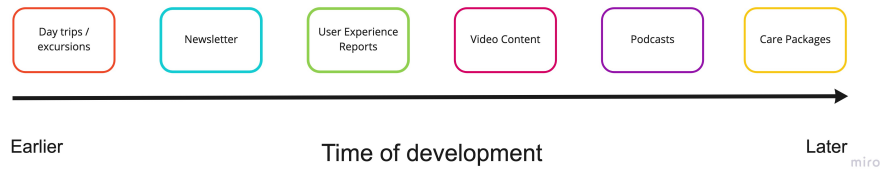
Figure 13: Which idea should be developed when?

5 Early prototypes

This chapter gives an overview over the early prototypes that were created to hone in to the final prototype which was presented to the participants of the study. The creation process of the prototypes was done in phases. In the first phase, the content of the newsletter was gathered. The second phase was used to create the look and feel of the newsletter. In the third phase, the organizational and managerial aspects were discussed in a meeting. These choices include the frequency, who is in charge of editing, and other questions.

5.1 Stakeholder Analysis

There are many stakeholders in this project. These are listed below. These stakeholders either are affected by or have an interest in the project.

- Participants

- NFE

- Welfare organization (client)

- University of Twente

- AdSysCo

- PlusBus members (non-participants)

- Volunteers

- Families of Participants

- Roessingh research and development

- PHArA-ON Project management

This list can now be prioritized on the grid. The position of a stakeholder on the grid shows how much attention each stakeholder needs. On the x-axis, the interest of the stakeholder is shown and on the y-axis the power they hold. The squares can be defined

as: Low interest, low power (LPLI); Low interest, high power (LIHP); High interest, low power (HILP); High interest, high power (HIHP).

Stakeholders located in the LPLI-square should only be monitored. Those in the LIHP-square should be kept satisfied. The stakeholders that can be found in the HILP-square should be provided the necessary information that they need to stay informed. Lastly, stakeholders in the HIHP-square should be informed and satisfied at all times. While the squares cover each a quarter of the whole area, within a square the interest and power vary still.
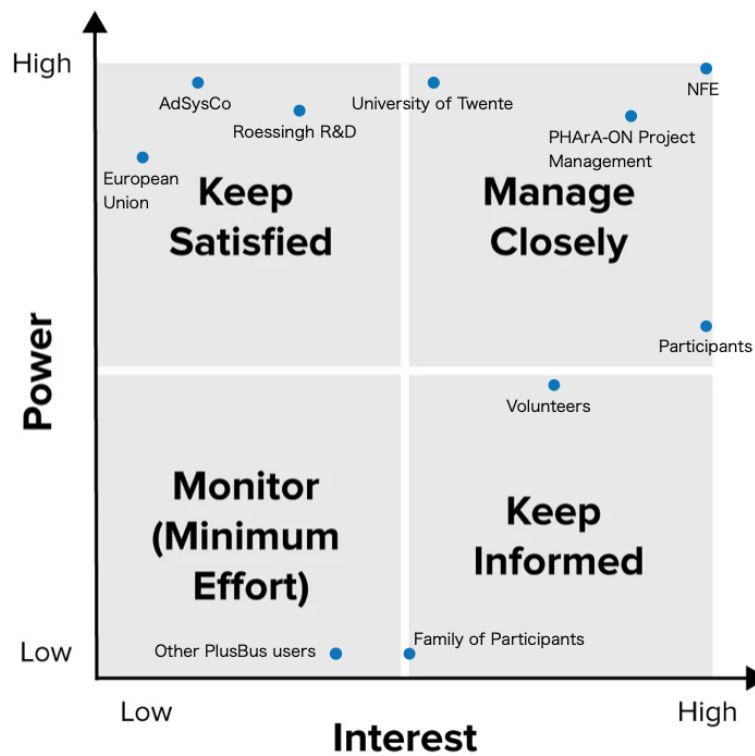

Figure 14: The prioritized stakeholders

Before the study started, the participants were asked to fill out questionnaires. The anonymized data was first used to get an detailed insight into the end users. This insight could then be used to generate content aimed at this group. For this, the age distribution and the technology they own and use was necessary and can be seen in *Figure* 15.
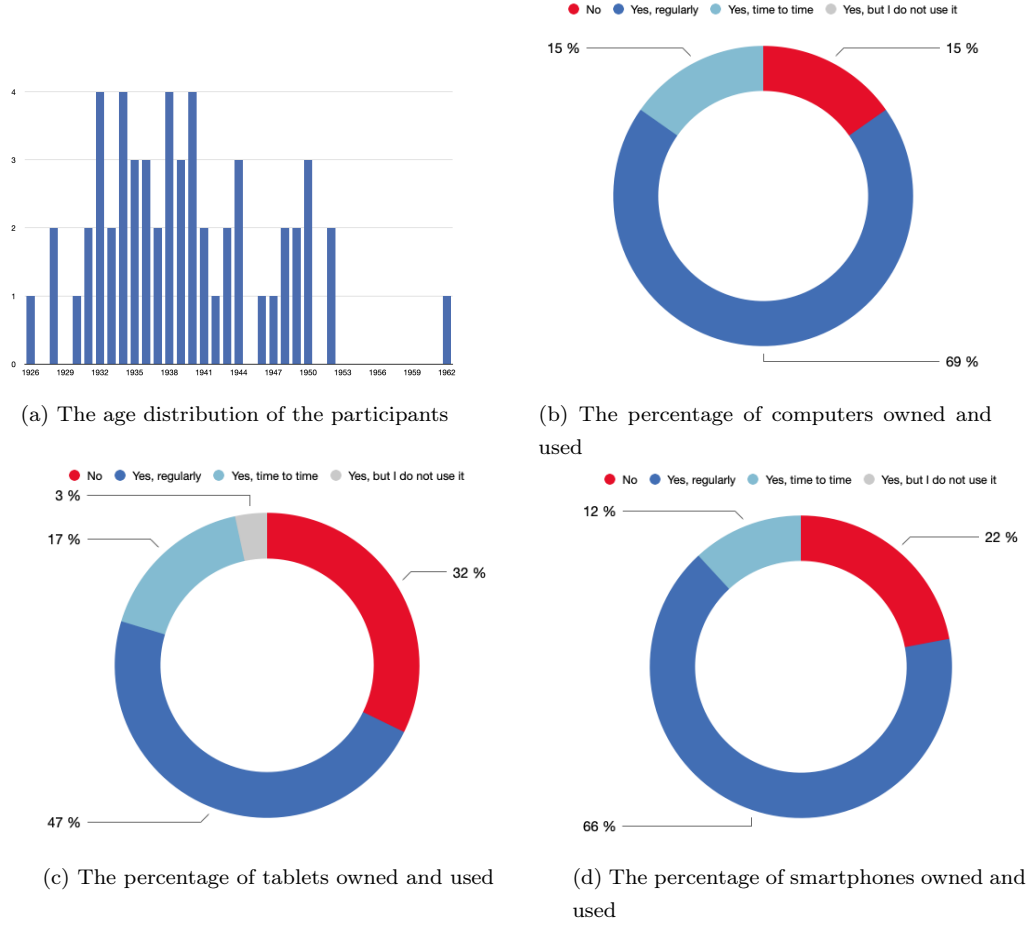
(a) The age distribution of the participants

(b) The percentage of computers owned and used

(c) The percentage of tablets owned and used

(d) The percentage of smartphones owned and used

Figure 15: The results from the intake questionnaire

5.2 First Phase - The Content

After the initial understanding of the end users, it was time to start with the work on the newsletter. The first phase was used to create the skeleton of the newsletter, add flesh and dress it up nicely. This is done through the outline and afterwards adding the content.

To generate the content, it is important to generate different rubrics. The generation of the rubrics was facilitated by a mind-map. This mind-map shows the different rubrics that were generated. In a second step, the rubrics were then sorted into three super-categories, information, behind the scenes, and community building.

5.2.1 Rubric generation

There are many things that need to be ideated on before the newsletter-prototype can be designed. It is important to get an understanding of what is expected of the newsletter. Moreover, the initial design is of importance as well. Before the initial design of the

newsletter can take place, it is important to know what content the newsletter will include. For this, talks with SEFORA TUNC and JANET VAN DEN BOER were a first source of inspiration. At first, with the help of a mind-map, multiple rubrics were found. This mind-map can be seen in *Figure* 16.
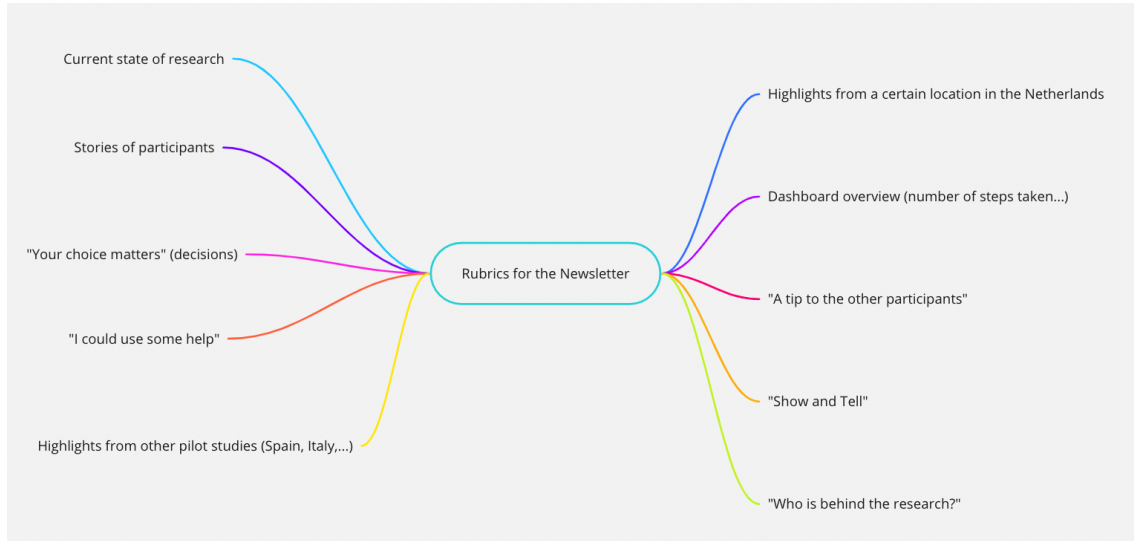

Figure 16: The rubrics for the newsletter

For some of the rubrics, the results from the literature research were incorporated. As mentioned in *Chapter* 2, older adults are motivated through their peers. This can be done with stories or other interactions. Because of this, other categories were added. These include stories from other participants, as well as questions. Moreover, it was interesting to introduce people behind the scenes as well. The aim of this is to make participants aware that there are many people work behind the scenes. In addition, it also helps participants to get to know the researchers and project managers on a more personal level.

These rubrics were then structured according to the categories they belong in. As shown in *Figure* 17, there were three categories found. The first category is informational. This means, providing important information. This information can include the current progress of the study, but also achievements of the participants, such as number of steps or distance walked. This information should also be displayed in an attractive manner.
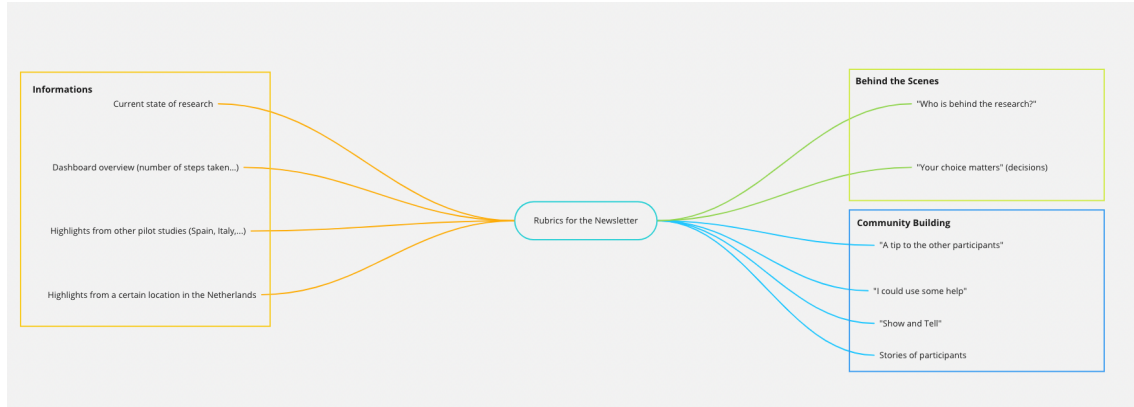
Figure 17: The organized rubrics

A second category is called "Behind the Scenes". Here the studies organizers and workers are shown. Moreover, this category also includes polls and decisions the participants should be included in. The last category is called "Community Building". Participants can enter texts, ask questions, or ask for help with a problem they are having and want to share with the community. Moreover, it is also a place to interact both with the study organizers but also other participants.

These rubrics were also discussed with the client. The rubrics were received well. After explaining the added value of involving the participants themselves, the clients seemed more eager as well. Moreover, the client is also a source of inspiration for the categories. At the end, these rubrics, as well as the super-categories, were discussed with the supervisor.

In conclusion, the rubrics are relevant and also grouped well with the super-categories. Therefore, to conclude phase one, it can be noted that the newsletter must feature content from three super-categories that are called "Information", "Behind the Scenes" and "Community building". Each of these also has sub-categories. These are shown in *Table 4.*

Super-Categories	Sub-Categories
Information	Current state of research
	Dashboard overview
	Highlights from other locations in NL
	Highlights from other pilot studies
Behind the Scenes	Meet the Researcher
	"Your choice matters"
Community Building	Tips for the participants
	Help needed
	Show and tell
	Stories of Participants

Table 4: A short overview of the categories

From this, a first short list of requirements can be gathered.

- Each newsletter should have content from at least two of the three super-categories

- Other rubrics should be added easily

5.3   Second Phase - The Look and Feel

Before the first prototype could be designed, an initial color palette was created. For this palette, the colors used by NFE were the starting point. In addition to a blue, a red, and an off-white, a darker blue, a black, as well as white and a light blue were added.

Figure 18: The initial color palette

Each of these colors will have a specific function in the newsletter. The colors shown in *Figure* 18 will be numbered 1 to 7 from left to right. Starting with color 3, this will act as the background color for the newsletter. The content that is added on top will use colors 4 and 5. They are used to indicate when one rubric ends and another is beginning.

Therefore, they are used in an alternating way. As Color 2 harmonizes well with color 3, it will be used as the font color. So, the text is using this dark blue. Lastly, as the readers should be able to interact with the newsletter, it is imperative to also have buttons. To discern buttons that link to external websites from buttons that are made to unsubscribe from the newsletter, the colors 6 and 7 are used.
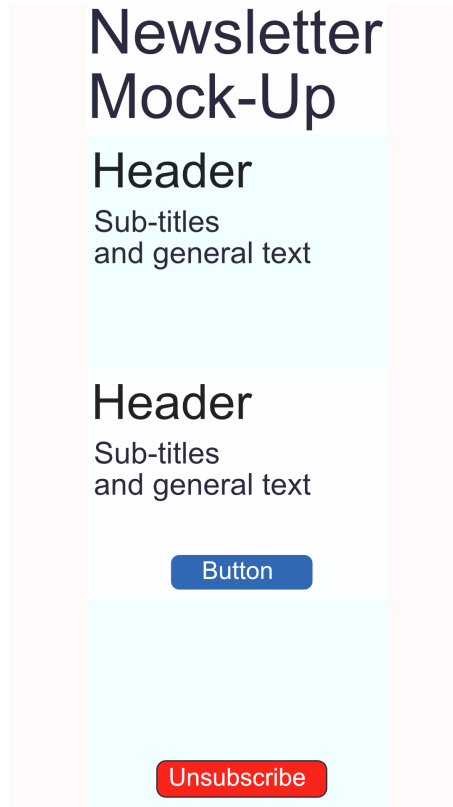

Figure 19: The colors shown in a mock-up

After this step, the prototype was created. The prototype consists of several components. While it seems self-explanatory, the texts are important. In the beginning, there will be a header. This text can then also be found in the subject-line of the email. After this, it is explained that the participants can unsubscribe whenever they like. After this section, the content starts. First, there will the main article. This article is the most important piece of the newsletter and will mainly dictate the subject-line as well. After this, there will be a secondary article. These are used to inform the reader about other important news in the research. After this, smaller blogs are shown. These should provide interesting stories on other topics, not directly pertaining to the immediate research. The prototype is shown in *Figure* 20.
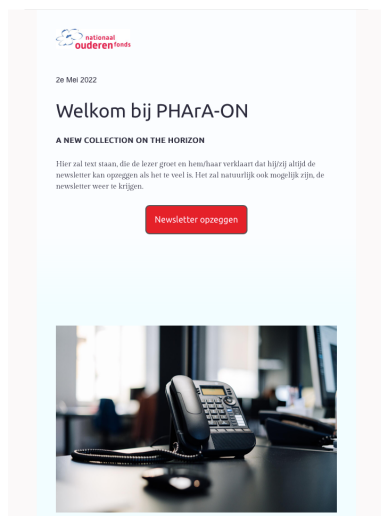
(a) The first part of the newsletter
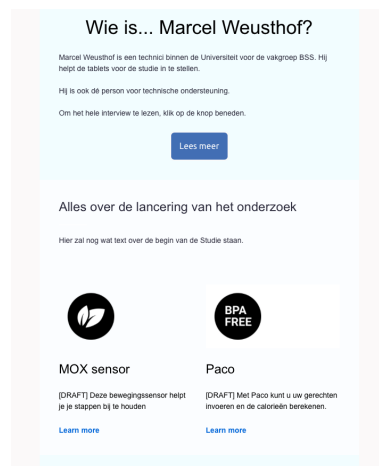
(b) Another section that explains the technologies
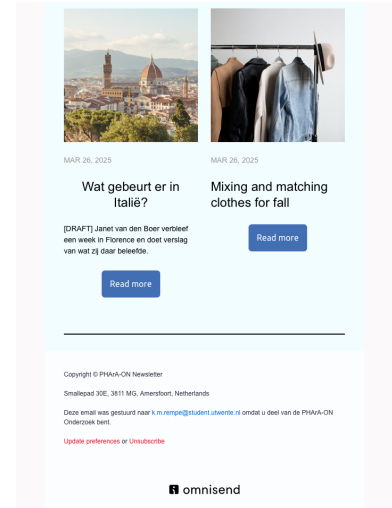
(c) Lastly, there will be two more stories to inform the participants

Figure 20: The first prototype of the newsletter

This first newsletter was sent to the clients for feedback. Here, the main focus laid on the look and feel. Therefore, the questions reflected this as well. The feedback should focus especially on the colors, the text style and font size at first. Moreover, any comments on the legibility and content were of importance as well.

5.3.1 Feedback

It was mentioned that the sender should be changed from "Pharaon" to "PlusBus-onderzoek". This had to be done so the participants are not confused. In the first prototype, a red button was placed at the beginning. This could be used to unsubscribe from the newsletter. However, it was explained that this could confuse the reader and it should be put at the end of the newsletter. Additionally, it should be mentioned that the participant will not unsubscribe from other newsletters that are sent out, but just this. In the second newsletter, it can be seen that the red button moved from the top (left image) to the bottom (right image). Additionally, the button was also separated from the main content by adding horizontal lines.

It was also noticed that the size difference between the header and the main text was very large. The main text should be increased in size. Not only helps this make the size difference easier on the eyes, it also helps the older adults read the text better. On the subject of the text, it was also mentioned that the font of the main text should be changed, as it "is a bit old fashioned".

These changes were implemented into the next prototype. After making these changes, it was apparent that they improve the look and feel of the newsletter. An updated version of the prototype is shown in *Figure* 21. Additionally, there were some smaller remarks, as well. It was mentioned that some parts of the newsletter were still in English. This needed to be changed still as the newsletter should be in Dutch.

Another point of feedback was to change or remove certain terms, "like 'vakgroep BSS'". This was then changed at a later date in the development.

Lastly, it was pointed out that the links to both the interview, as well as the links to the technology used did not yet exist correctly. This could not be solved at this moment, as some of the content still needed to be uploaded to the respective websites.

(a) The first part of the newsletter

(b) Another section that explains the technologies

(c) Lastly, there will be two more stories to inform the participants
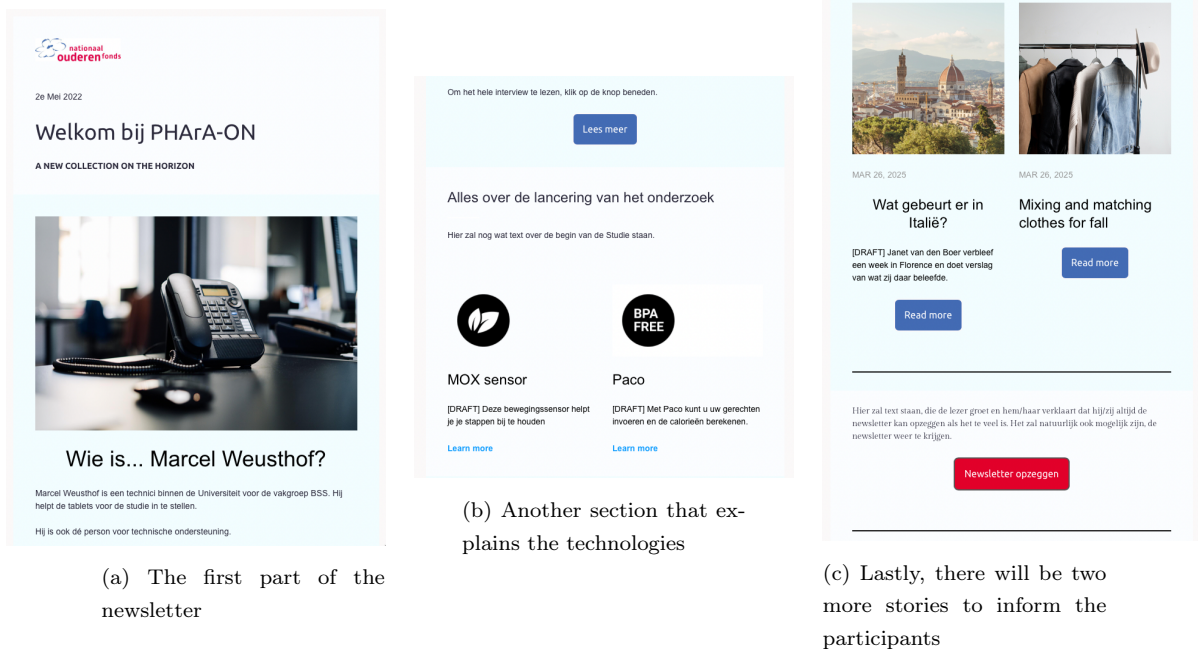
Figure 21: The updated prototype of the newsletter

The feedback that was gathered from the clients supports the findings in the literature research. Based on this, the first requirements could be defined. Additionally, in a discussion with the supervisor, additions were made to the requirements. These requirements are:

- Texts should use simple language

- The newsletter should be in Dutch

- Users should be able to find the unsubscribe button within 30 seconds

- The unsubscribe button should be located at the bottom of the newsletter

- The newsletter should have a font size of at least 12pt and use dark letters on a light background for sufficient contrast

- An image should be added to the main story

- Images should be added to other stories as well, if they lead to an external website

- Three logos should be shown at the top. These logos are from NFE, the University of Twente, and Phara-On

- The color palette should reflect the colors of NFE

5.4   Third phase - The implementation

After this prototype, a meeting with the clients was held. Here, the organization of the prototype was the main focus.

Right at the beginning, one important distinction was made. It was mentioned that there are two different types of communication to the participants and volunteers. The first type are the important emails, hereafter referred to as emails. These are sent out when they are needed and inform the participants and volunteers about specific topics. Secondly, there are the regular newsletters. They are filled with general information and other content aimed to connect and motivate the participants but also to get their feedback.

5.4.1   Content

One of the points of discussion was the content of the newsletters. Here the clients were first introduced to the ideas made already for this newsletter. However, additional categories were added, as well. For the first newsletter, a person responsible for setting up and maintaining technological devices will be introduced to the participants. In following installments, other people can be introduced also.

The participants can also tell the client and other participants about user experiences and problems with the products that are being tested. Another possible item can be stories of other PlusBusses. Here, activities that have been made can be talked about in smaller blog posts.

As the newsletter is also sent out to PlusBus users that do not participate in the research, a quality-of-life-interview can be added to the newsletter also. Not only can this help the organizers get an overview of how the participants are doing, but can also serve to others as a reminder to think about how they are doing.

The last two items that could appear in the newsletters are a timeline that gives an overview of what happens until the next newsletter. Lastly, each newsletter can also have a teaser for the following newsletter. Here, the main topic may be teased or other important stories.

5.4.2 Planning

Then, the planning of the communication with the participants was discussed also. Not only was the frequency of the newsletter an item, but also when other emails should be sent. While the emails themselves are not of importance to this project, it is important to see how the newsletter is part of a larger communication schedule. At first, an email with manuals and motivational texts is sent out shortly after the kick-off of the study. One month after this, another email with questionnaires about the products that are being used will be sent out. At this moment, a first evaluation will take place as well. Then, 1.5 months after the first email, the first newsletter will be sent. From this point on, the newsletter will be sent every 6 weeks.

Additionally, it was discussed that the control group will receive information about the project as well. This is done as they are also part of the research. One change that will be made is that the control groups receive newsletters less frequently.

5.4.3 Editing

Another part of the meeting was a short discussion about the editing work for the newsletter. In it, a decision had to be made between having the UT edit the newsletter or NFE. This decision is important because many subsequent decisions follow from this as well. It was decided that the newsletter will be edited by the UT. This is because there is already an email registered to the UT domain.
Following this decision, it was also discussed how the content will be collected. Here, the decision was made that each partner collects content on topics they are knowledgeable on. For example, Maastrict Instruments is responsible for making and gathering content on their sensors, while NFE is responsible for texts about the PlusBus locations.

From this meeting, more requirements for the prototype can be drawn. As they concern the editing and the organizational aspects, they are of utmost importance. The requirements are outlined below:

- The newsletter should be modular to accommodate changing content layouts

- At the end of the newsletter, a teaser of the next newsletter should be included

- The newsletter should be sent out every 6 weeks

- There should be the option to sent out the newsletter to different groups with different frequencies

- Editing of the newsletter should be easy

- The participant should be able to answer the newsletter

- Answers to the newsletter should be received safely

5.5   Conclusion

At first, the content was discussed and rubrics were made. These rubrics were then split into three categories, Information, Behind the Scenes, and Community Building. After, the look and feel was fleshed out by designing the colors used in the newsletter, as well as the overall design. Lastly, the newsletter was first discussed with the clients and the feedback from this meeting was implemented.

After defining the content, working on the look and feel, as well as discussing the frequency and who is responsible for editing the newsletter, the newsletter is at a stage where it is now possible to refine the requirements. These requirements, in addition to the information of how the newsletter is created will lead to the final prototype.

6 Specification

After the stakeholder analysis and the ideation, the intended use for the newsletter, as well as required functions were discussed. After this discussion, the requirements were written down. In the list below, all requirements are shown. These required functions not only include functions of the newsletter, but also functions that are going on in the background. The requirements that have been gathered through the different steps in *Chapter* 5 are listed below. Additionally, more requirements have been added through talks with the client. In the following step, they will be sorted into technical- and non-technical requirements. After this, they will then be ranked using the MoSCoW method.

6.1 Requirements

- Each newsletter should have content from at least two of the three super-categories

- Other rubrics should be added easily

- Texts should use simple language

- The newsletter should be in Dutch

- Users should be able to find the unsubscribe button within 30 seconds

- The unsubscribe button should be located at the bottom of the newsletter

- The newsletter should have a font size of at least 12pt and use dark letters on a light background for sufficient contrast

- An image should be added to the main story

- Images should be added to other stories as well, if they lead to an external website

- Three logos should be shown at the top. These logos are from NFE, the University of Twente, and Phara-On

- The color palette should reflect the colors of NFE

- The newsletter should be modular to include less frequent interviews

- At the end of the newsletter, a teaser of the next newsletter should be included

- The newsletter should be sent out every 6 weeks

- There should be the option to sent out the newsletter to different groups with different frequencies

- Editing of the newsletter should be easy

- The participant should be able to answer the newsletter

- Answers to the newsletter should be received safely

- The user should be able to tell what a button does

- There should be templates that can be filled in for multiple uses

- Newsletters should be personalized by adding the first name of the recipients

- Buttons in the newsletters should lead to safe websites

- Editors should understand what information to add to the template

- Editors need to be able to tell what newsletter needs to be sent out when

- Content should appeal to multiple target groups

- Never present more than 5 items in one newsletter [44]

6.1.1 Functional requirements

The functional requirements explain what the layers of the product are. This includes images, buttons, links, but also aspects such as editing of the newsletter. These requirements can be tested without asking users for feedback.

Functional Requirements	
The newsletter has a font size of at least 12pt and use dark letters on a light background for sufficient contrast	Must
Images are added to other stories as well, if they lead to an external website	Should
Three logos are shown at the top. These logos are from NFE, the University of Twente, and Phara-On	Must
Modularity to include less frequent interviews	Should
The newsletter is sent out every 6 weeks	Should
The newsletter is sent to different groups with different frequencies	Must
The newsletter is in Dutch	Must
Answers to the newsletter are received safely	Should
There are templates that can be filled in for multiple uses	Must
Buttons in the newsletters lead to safe websites	Should
The unsubscribe button is located at the bottom of the newsletter	Must

At the end of the newsletter, a teaser of the next newsletter is included	Could
The color palette reflects the colors of NFE	Should
The participant can answer the newsletter	Should
Never present more than 5 items in one newsletter[44]	Must

Table 5: Organizing the functional requirements according to the MoSCoW-Method

6.1.2 Non-Functional requirements

The non-functional requirements show a preference for a design. These requirements are not needed for the prototype to function. However, they need to be tested with the future users and organizers.

Functional Requirements	
Editing of the newsletter should be easy	Must
Each newsletter should have content from at least two of the three super-categories	Should
Other rubrics should be added easily	Could
Texts should use simple language	Must
Content should appeal to multiple target groups	Must
The newsletter should have a readable font size	Must
An image should be added to the main story	Should
Editors should understand what information to add to the template	Must
Editors need to be able to tell what newsletter needs to be sent out when	Must
The user should be able to tell what a button does	Must
Users should be able to find the unsubscribe button within 30 seconds	Should

Table 6: Organizing the non-functional requirements according to the MoSCoW-Method

After the requirements have been organized, it is important to also get insight into the thoughts of a user when interacting with the newsletter. For this, three personas and three interaction scenarios are created. From the analysis in *Chapter* 5.1, multiple conclusions for the personas could be drawn. Firstly, most of the participants are female and their average age was 83. The total age distribution is shown in *Figure* 15 *(a)*. It was also noted that most participants were widows. Because of this, a large amount of participants lived alone at home. It was noteworthy, that many participants own at least one technical

device, either a computer, a tablet, or a smartphone, besides the products and services they should test, as can be seen in *Figures* 15*(b)-(d)*. These devices were mostly used to keep in contact with family and friends. Some also indicated they used the devices to stay up to date on current events. In the experimental group, the participants indicated to have an average skill when using these devices. In the control groups, the participants said they had basic skills. Moreover, the participants in the experimental group had a higher education than those in the control groups. The personas used this data to understand the future users and to give the personas more depth.

6.2 PACA-Analysis for the Participant Experimental Group

6.2.1 People

Persona 1
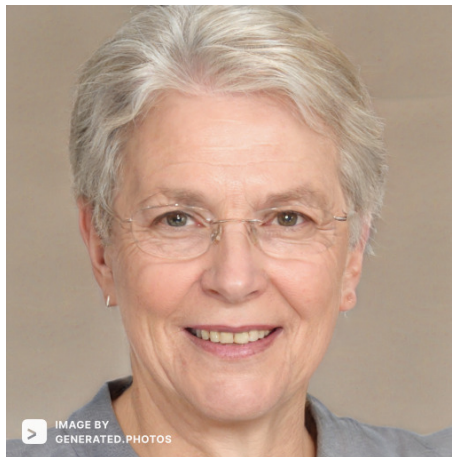
Figure 22: A portrait of Esther Struve [45]

Name: Esther Struve
Age: 83 Years old
Status: Married to Antonius Struve (87 Years old)
Work: Retired
Living in: Amersfoort
Education: MBO-education at ROC van Amsterdam.

Goals
During her time in retirement, she noticed she did not have as much energy. Therefore, she wants to exercise more. She joined the PlusBus research as a way to exercise more and to help others be more motivated as well.

Personality

Esther is generally very open. She likes to cook meals herself but also enjoys going out to a restaurant. She also enjoys drinking a coffee with her friends. At home, she uses her laptop sporadically to browse the Internet from time to time. However, when it comes to problems, she always calls up her son for him to help her.

Barriers

In earlier rounds of the PlusBus research, she has found it difficult to stay motivated to use the technology over longer periods of time. Mainly, she thought it was just her. Sometimes, she also feels left alone and the emails she receives are not as interesting to her.

Biography

Esther excelled in high school. After high school, she worked at her home. At church, she met Antonius at 20. Soon after, they married and she became a housewife. Later on, her husbands job moved and they followed. They moved to a house in the suburb of Amsterdam. After this move, Esther joined a book-club to spend time with new friends she made there. Because both her and her husband felt the suburbs gotten too cramped, she moved with her husband to Amersfoort. There, she signed up for the PlusBus to go on fun trips, as it they wanted to still spend time with others and make new connections.

Persona 2
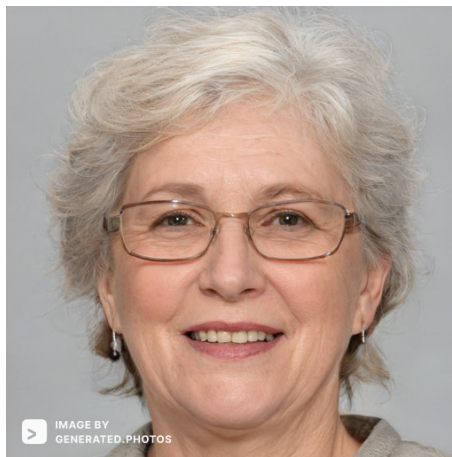
Figure 23: A portrait of Ingrid de Vries [45]

Name: Ingrid de Vries
Age: 79 Years old
Status: Widow
Work: Retired

Living in: Ommen

Education: Finished VMBO education

Goals

As part of her retirement, Ingrid wants to stay in contact with friends. One of her closer friends is part of the PlusBus-research. He would like to know what she is doing and if there are news.

Personality

Ingrid is very extroverted. At work, she liked to spend her lunch breaks with co-workers. There, she would regularly listen to what the men had to say about new technologies. Besides tinkering at home, she really excelled at cooking. Her hobbies also included hiking and skiing. As more and more technical developments happened, Ingrid tried her best to keep up with them and still stay informed. Moreover, she likes to spend some time learning how to use newer products.

Barriers

He mostly hears the information from her friend directly. Unfortunately, they cannot meet as often. Therefore, Ingrid is looking for a way to get information on the research.

Biography

Ingrid grew up in the north of the Netherlands. Her father taught her the basics on how to solder and repair electronic circuits. They were very simple, but over time, as the technology progressed, Ingrid taught herself how to repair it. After her high school education, she started to work at a larger store in her town.

When she was 24, she met her future husband at a party organized by her work. After this party, they started dating and eventually moved in together. In her 50s, Ingrid and Matthijs moved to Ommen to live a calmer life. With the experience she gathered, he opened a store to repair electronics. After he retired, both him and Ingrid joined the PlusBus to meet new people and make friends.

Persona 3

Name: Nienke van Dijk

Age: 31 Years old

Status: Single

Work: A researcher at the University of Twente

Living in: Haaksbergen

Education: PhD in Behavioral Studies

Figure 24: A portrait of Nienke van Dijk [45]

Goals

Nienke wants to provide the participants of the PlusBus-research the adequate information on the current events. For this, she uses newsletters. As she is also in charge of combining the content from the partners into the newsletter, she wants this to function as straightforward as possible.

Personality

Nienke may seem secluded at first, but after some time she becomes very open. Both at work and with her friends, she likes to connect with the people around her. She is a fan of spreadsheets and in her free time, she enjoys going out with friends and organizing game nights at home.

Barriers

While she works with a laptop at home and a computer on campus, it is difficult for her to understand what is asked of her, when the user interface is not easy to understand. For her, hidden buttons, a lot of drop–down menus and overly complicated websites pose a big problem.

Biography

Nienke had an eventful childhood. In her family home, she grew up with two siblings and a dog. In high school, she decided to follow the profiles nature and technology, and nature and health. After she finished high school, she started her bachelor's in biology at the University of Groningen. After that, she also did her master's there. After five years in Groningen, she then moved to Enschede. There she did her PhD in Behavioral Sciences and after started working for the University of Twente.

Now she is in charge of sending out emails to the participants of the PHArA-ON study.

Not only does she send out the emails, but she is also the head of the editorial department for the study. Here, she talks to the other partners of the study and arranges the content of the newsletter. After the contents have been gathered, she then edits the templates and sends the newsletter to the participants.

6.2.2 Actions/Interaction Scenario

The goal of these interaction scenarios is to point out how different parties will interact with the newsletter and understand the design requirements. For the first two scenarios, the interaction will start at receiving the mail. For the last, the workflow from creating the newsletter all the way to sending it out to the participants will be highlighted.

How will a user interact with the newsletter?

1. It is a Wednesday. Esther opens up her email program and sees she got new mail.

2. She skims over the subject lines and sees one that catches her eye. It is the newsletter from the PlusBus research.

3. After opening it, she is greeted by a small text greeting her and quickly explaining what the contents of the newsletter are.

4. She scrolls down and sees a big image that sums up the topic of the main article.

5. After reading the subtitle, she decides, that she wants to read more.

6. At the end of the subtitle, a bit of text explains where the button leads, so she can assess if she would click on it.

7. Because of the color of the button, it sticks out and she can identify it as the button to lead her to a longer version.

8. After returning to the email, she continues with the other articles.

9. When she scrolled down further, she reads a story from one of the participants from one of the locations in Utrecht

10. After reading the story, she feels happy and inspired to go for a walk.

11. As it is already the last month of the study, she lastly wants to unsubscribe from the newsletter.

12. She scrolls through the newsletter and notices a red button at the bottom. She reads the quick text and it explains that the button leads her to a website from which she can unsubscribe from the newsletter.

13. After clicking, she is redirected and can click on a button to unsubscribe.

How does someone from the control group interact with the newsletter?

1. After 3 months after the study started, she is wondering how the study is going.

2. Suddenly, she receives an email notification.

3. She opens the email and sees it is a newsletter from the PlusBus Onderzoek.

4. After opening it, she scans the newsletter for interesting content.

5. The main article is about an update on the study so far. Excited, she clicks on the button below the subtitle.

6. She is directed to a different website where the progress of the study is written in more detail. Additionally, there are overviews of important highlights.

7. After that, she is going back to the newsletter as there was another article on what the participants would like to do in the fall.

8. After reading this, she is going through the small things other participants want to do. She is making a plan on going out and taking a stroll through the forest.

9. As she has finished planning this, she then realized that there was a short summary of the people in the organization.

10. She reads through it.

11. At the end, she then closes the browser and the email program.

What does the workflow for the newsletter look like for the editor?

1. It is Tuesday and Nienke has to prepare the newsletter for next week.

2. She opens the omnisend website and logs in.

3. Then, she heads to the menu and selects "Campaigns".

4. There, she gets to see previously sent emails, drafts of newsletters and also sees scheduled newsletters.

5. At the top right, she can create a new newsletter.

6. She clicks on the button and is lead to a selection screen showing multiple options. There, she can choose between a normal email, email A/B testing and other options.

7. Seeing the options, she selects the regular email. After this selection, she is brought to a screen where she can input the first information. This information concerns the subject line, the sender, but also choose from what email address the newsletter should be sent from.

8. After entering the required information, she then proceeds to choose a template.

9. Here, she heads to "Saved Templates" and chooses the standard template for the newsletter.

10. On the website, the next step is to edit the newsletter. Here, the template provides the needed sections and also includes links and some automation.

11. For the main story of the newsletter, Nienke still has to enter a new link for the button. For this, she clicks on the button-element and on the right side can simply paste the new link. Similarly, images can be changed as well.

12. As some texts still need to be changed, she also starts writing the sub-titles and summaries of the articles in the newsletter.

13. As she has finished making all the necessary changes, she then clicks on the button that reads "Finish editing". This button leads to the next page.

14. Here, she can select the segments to which the email should be sent to. Because of the segments, it is possible to send newsletters to all participants or select specific locations that the newsletter should be sent to.

15. After this selection, she has one step left, before the email will be sent out to the subscribers.

16. The service offers to send the email straight-away or schedule it for a later date. When choosing to send the email later, she can set a date and a specific time, when the email will be sent.

17. Lastly, after choosing a date and time, she confirms the selection.

18. As everything has been done, she logs out of the website and closes her browser.

6.3 Context

As part of this research, the newsletters will be sent out every six weeks. At first, the newsletter needs to be created, edited and then the correct target groups need to be selected. This will be done by the editor, shown in the third interaction scenario. Afterwards, the participants will receive the emails and their interactions are shown in the first and

second interaction scenario.

Usually, the participants will access the newsletters in their homes and this environment should facilitate their interaction. Here, the participants can take their time to interact with the newsletter. If they feel overwhelmed, they can also pause and resume at a later time.

6.4 Artefact

For the artefact, there are multiple interaction layers present. At first, the output and input layers. Afterwards, the communication will shortly be examined as well.

The newsletter is accessible on computers, tablets, and also smartphones. As most of these use LCD displays, the newsletter will be displayed using these. This is a strictly visual medium.

At the same time, especially with tablets and smartphones, the display also acts as the input device. Through a touch sensitive layer, the participants can scroll up and down, interact with buttons and also highlight text and select phone numbers. While the interaction on a computer is similar, here, the user will utilize either a trackpad or a mouse. The trackpad also is touch sensitive and the interaction will be similar as with a touchscreen. With the mouse, the movement is translated to the cursor on screen. Buttons then add the opportunity to interact with on-screen items.

Lastly, both the information of the newsletter, as well as the responses of the participants need to be communicated to each other. As the newsletter is transported via the internet, this communication is done using either fiber optic cables, radio waves or copper cables.

7 Realization

After the Ideation phase, as well as the Specification, it is now time to work on the final prototype. In this chapter, the technicalities will be discussed and the content of the final prototype, as well as templates for future use will be shown. Moreover, as each template has a special use, the uses of these templates will also be explained in detail.

7.1 Technicalities

The prototype was designed and built in Omnisend. This service offers an online interface with which the newsletter can be designed graphically. This means, the end user does not need to know any programming languages. This service also distributes the mails to the indicated recipients on their own. This means, the editor only needs to select the email from which the newsletter will be sent and input the email-addresses of the receivers. The newsletter is composed on the website by using a combination of HTML and CSS. CSS is used for the styling. Other internal coding of the service is done using a language called "go"[46]. For actually distributing the emails, Omnisend is using "Mailgun"[47]. Any further research is outside of the scope of this project.

7.2 Content

There are two different types of content for the newsletter. As mentioned previously, some content will be included in every newsletter. Other content will change from newsletter to newsletter. In this section, the content will be discussed top to bottom as it appears in the prototype.

The main piece the newsletter is about, and that is often shown at the top, is a short post about the start of the research. Here, Janet van den Boer has been writing a piece on the start of the research. This means, the participants get an insight into how this launch looked like from the perspective of an organizer. Not only is this aimed to break down the barriers between participants and the organizers, it is also aimed to inform the readers who missed this event.

Figure 25: The newsletter is introduced by a short text.
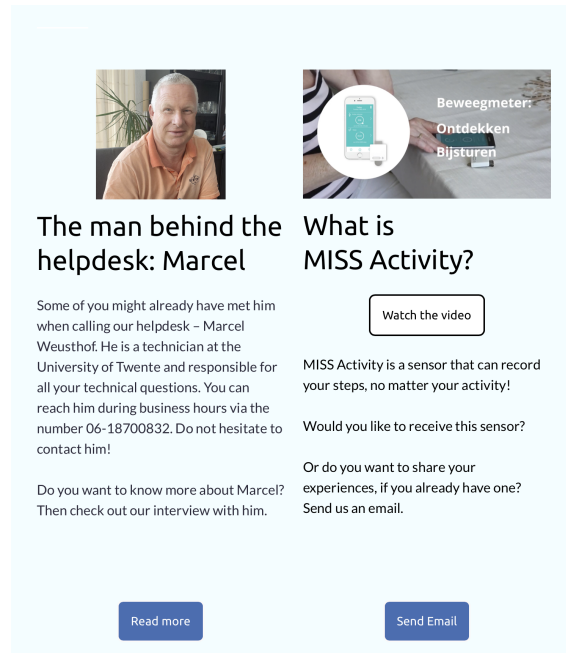
Figure 26: As part of the introduction, a dashboard overview of the participants is shown.

Following this, the readers get an overview of two pieces that can be interesting as well. At first, it will feature an interview with a technician who is responsible for setting up technological devices for the research. This piece is presented by showing a picture of either something that is part of their work or a picture of them.

Figure 27: After the introduction, an interview with Marcel is shown, as well as a video of the MOX Sensor.

As it was the aim to promote more traffic to other websites, the participants are greeted with a short text on a recipe-tip. This recipe can be found on a separate website. The participants not only get new meal recommendations, but also find new meals to try and share with friends and family. Moreover, they are introduced to the PACO website and get a better understanding of what this website can offer.

Figure 28: The recipes are promoted this way.

At the end of the newsletter, there are two sections that will be included in every newsletter. Firstly, the recipients are asked to give feedback on the newsletter. This way,

they can influence what content they would like to see later on. Moreover, this helps the editors know what participants enjoy and what they dislike. Secondly, the newsletters show the upcoming, important dates. This gives them an overview of what is coming but also reminds them to update their calendars. The final newsletter can be found in *Appendix* B.2.
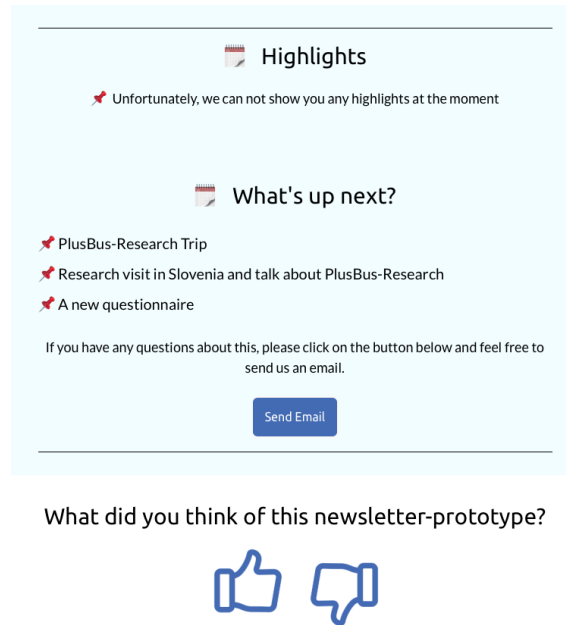
Figure 29: At the end, participants are shown an overview of upcoming events. Additionally, the following steps in the research are shown. And they are asked to provide feedback on the newsletter.

8 Evaluation

In the previous chapters, the process of designing and realizing the final prototype has been shown. However, it is also important to test how both users and organizers interact with the prototype. Moreover, the evaluation will also show any final tweaks of the design and usability, that should be performed before the prototype can be fleshed out into a final product that can be delivered to the research participants.

As already mentioned, it is important to understand how the users and the organizers interact with the prototype. Therefore, it is necessary to get feedback from both parties. For this, the final prototype will have all the content that the users will be getting in subsequent newsletters, as well. Through this, the users and organizers get a better understanding of the newsletter and its process.

8.1 Results from the Client

In a first round, the prototype was sent to four organizers. In the newsletter, a button was placed that leads the receipient to an online questionnaire. The questionnaire consisted of 8 questions. The questions are shown below. Additionally, some questions showed images to help show what was actually meant by the question.

1. On a scale of 1 to 5, how much did you like the newsletter?

2. What did you like?

3. Did you know after a short amount of time, what it was about?

4. On a scale of 1 to 5, how did you like the colors?

5. On a scale of 1 to 5, how easy was it to unsubscribe from the newsletter?

6. What could be improved?

7. Would you like to leave something away?

8. On a scale of 1 to 10, do you think the newsletter can increase your commitment to continue with the study?

At first, the prototype was sent to four organizers, the clients and four responses were gathered with feedback. The original responses were in Dutch but were translated to English. All of the results are anonymized. The following paragraphs shortly outline the answers. This section will end with a list of recommendations.
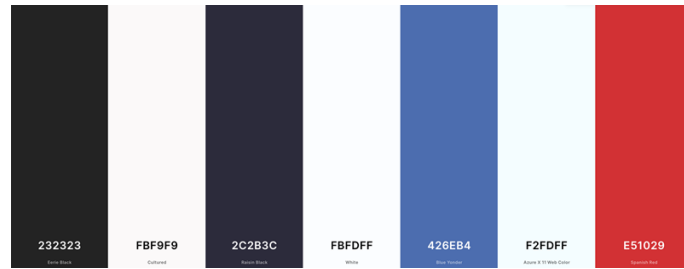
Figure 30: This image was shown with the question about the colors

Figure 31: After, this image was shown to ask how to unsubscribe from the newsletter

On a scale of 1 to 5, how much did you like the newsletter?

For the first question, the average answer was 3. The full distribution is shown below. From this, it is possible to see, that the first opinion of the newsletter was above average.

What did you like?

After this, it was asked what the readers liked the most. Here, all four indicated they liked the images the most. Additionally, two respondents indicated they liked the content and one indicated they liked the subtitles. While this does not provide direct feedback directly, it is possible to learn that images are important to the newsletter and their choice has an impact on the user's perception.

(a) How much did you like the newsletter?

(b) What did you like?
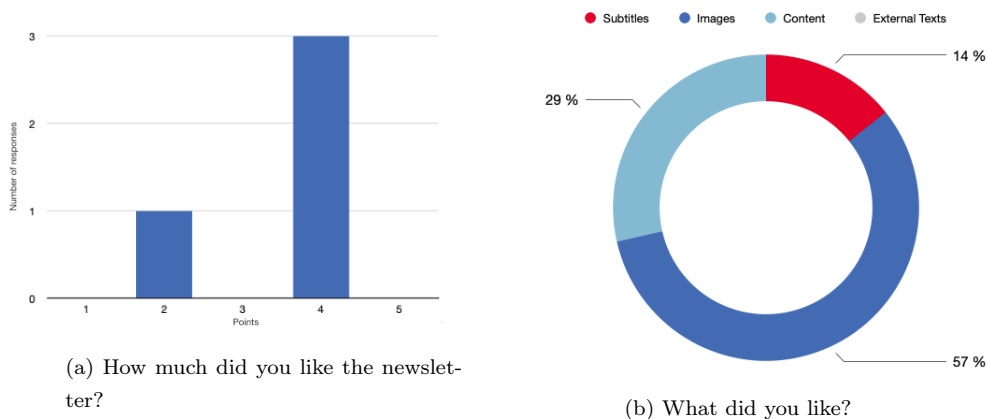
Figure 32: The results of questions 1 and 2

In addition to the answers above, it was indicated that the numbers in the dashboard were received well by one respondent. Another one indicated they felt the numbers were not connected to the rest of the newsletter as much and they would like to see this changed.

On a scale of 1 to 5, how did you like the colors?
Question 5 asked the respondents about the colors used in the newsletter. Here, the scale went from 1 to 5 and the average answer was 3. This means that the colors were perceived as average. One respondent commented that they wished that the contrast between the background and the newsletter should be increased. The results are shown in *Figure 33(a)*.

What could be improved or left out?
For this and the following question, the answers were open-text. For the sake of anonymity, the answers will not be copied exactly but the important aspects will be highlighted. This means the general topics that should be changed as well as what actions were proposed.

At first, a big focus was put on the dashboard and the data it showed. Here it was mentioned, that it was still vague what the numbers represented. One feedback mentioned that these numbers should rather reflect the study, how many participants, their average age and number of locations.

Another point of interest was the button to unsubscribe from the newsletter. Here, the biggest feedback was to move it down even further and reduce its size. A tip was given to make it smaller than the other buttons so it does not draw attention to it immediately.

Furthermore, the introductory text was mentioned as well. Here, it was mentioned that the text should end with a greeting from a specific person. Additionally an image should be added, so people can remember the name better. Another respondent mentioned that it may be better to add an additional text explaining the newsletter, as well as shortly talking about the topics.

The last main point of feedback was the interview. Here, it was said that it was too technical and unnecessary information should be removed as the target group would not be interested or understand it in detail.

Another small point of feedback were some language mistakes in the prototype. These will be removed in the final version.

Lastly, a recommendation was to rearrange the contents slightly differently.
In general, the four respondents agreed that the newsletter was nicely organized and information was easy to find. It was also noted that it was possible to read more, if you wanted
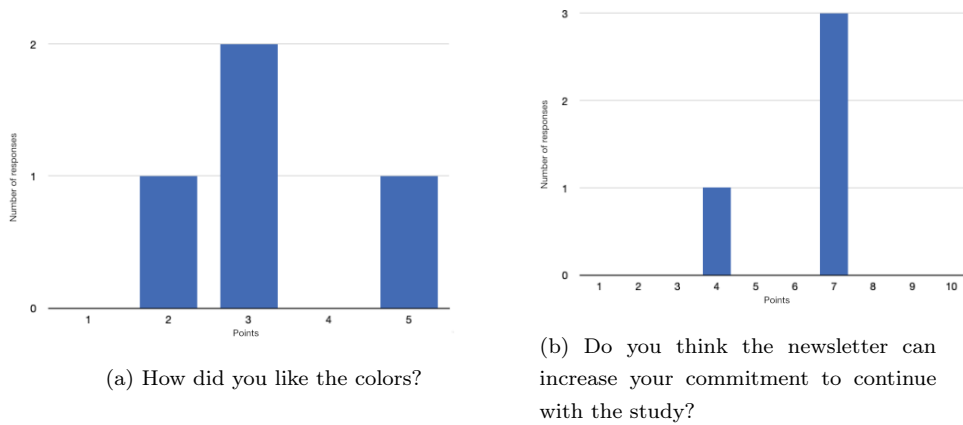
to do so.

(a) How did you like the colors?

(b) Do you think the newsletter can increase your commitment to continue with the study?

Figure 33: The results of questions 4 and 7

On a scale of 1 to 10, do you think the newsletter can increase your commitment to continue with the study?

The last question asked the respondents if they believed the newsletter could motivate participants to continue with the research. Here the average answer was a 6. The exact distribution is shown in *Figure 33(b)*.

8.1.1 List of Improvements

To summarize the feedback received, a list of improvements was created. In this list, the feedback was also written in a more concise manner.

1. The image of Marcel needs to be improved.

2. Improve the content by removing unnecessary information.

3. Connect the numbers shown to context. Make it understandable for the target group.

4. Increase the contrast between the newsletter and its background.

5. Change the dashboard numbers to show facts about the study. Afterwards, explain precisely what they reference.

6. Decrease the size of the unsubscribe button and move it down further.

7. Close off the introductory text with a greeting from a fixed person. Add an image, also.

8. The interview is too technical. Remove passages that do not interest the target group.

9. Fix language mistakes.

10. Rearrange the contents slightly.

8.2 Focus Group

After the first questionnaire, there was a focus group meeting to reflect on the feedback and discuss it in more detail. It was pointed out that the dashboard overview should be changed. Other changes also relate to the user's experience of the newsletter. The feedback is shown in the list below:

- Make the dashboard more specific to each location

- Make the dates more specific

- Remind participants about PACO, MISS Activity

- Remind participants also about the main website

- Highlight a recipe and link it to PACO

- Change the feedback to "thumbs up" and "thumbs down"

- Write an introduction to the newsletter

- Add regular trips to the newsletter as well

- Also explain the next steps in the study

8.3   Results from outside individuals

The plan in the beginning was to send the newsletter to the participants and then use their feedback to gauge if the user experience for older adults is adequate. Unfortunately, the planning of the external parties had changed and therefore it was no longer possible to user test the prototype with the participants. To still get a good understanding if the newsletter is appealing to people, as well as easy to use, it was sent out to friends, family and co-workers. In total, 30 people responded and were included in the analysis.

This demographic may not overlap exactly with the target group of this newsletter, however the age distribution will be larger. Additionally, this way, more answers can be gathered and then evaluated.

For a better understanding, the questionnaire this round includes varied questions, as well as the Sustainable Usability Scale. These 10 questions are asked first. Afterwards, more detailed questions are asked.

1. How did you like the layout of the newsletter?

2. In what order would you order the following items?

3. What else did you like?

4. How did you like the colors used?

5. How straightforward was this interaction?

6. How smooth was the interaction?

7. How long did this interaction take?

8. What would you change?

9. Do you. think the newsletter could improve the engagement to continue with the study?

Questions 5 through 7 were repeated four times for the different interactions. The interactions were "responding to the email to ask a question on the Slovenia trip", "Watch the video on MISS Activity", "Open the recipe", and "Unsubscribe from the newsletter".

The questionnaire was answered by a total of 30 participants of any age between 18 and 65 and above. Their answers were gathered anonymously. *Figure* **??** shows the age distribution of the participants of this questionnaire.
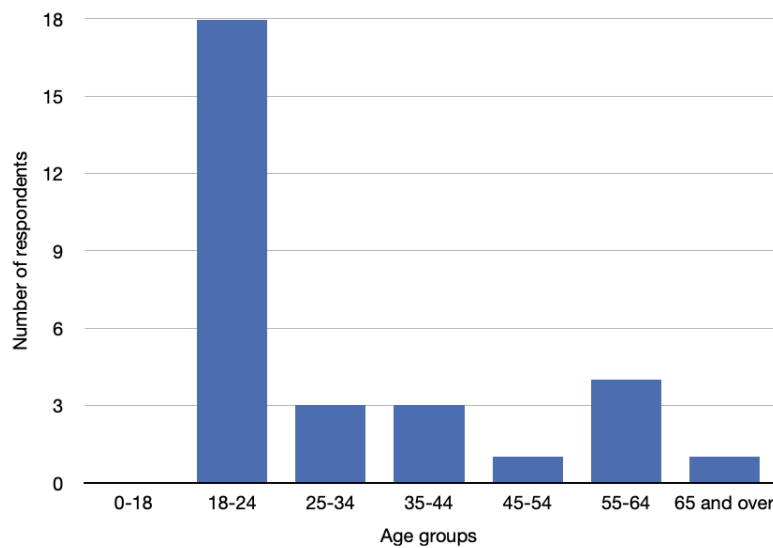
Figure 34: The age distribution for the final questionnaire

In this section, the responses will be shown. Some of the answers are supported through graphs.

How did you like the layout?

At first, the participants were asked to rate the over all layout. The participants could rate it on a scale of 1 to 5. Here the average was 3,9/5.

How would you order the following items?

Figure 35: The answers to sort the three items.

The participants were asked to rank the items "images", "texts", and "subtitles". Images were ranked first 61,3 % of the time, 22,6 % of the time ranked second and the remaining times third. Secondly, subtitles were ranked second the most, followed by third, with 25,8 %, and lastly first with 12,9 %. The general texts were ranked last most of the time. However, the texts were the first choice 25,8 % of the time.

This shows that images appealed the most to the respondents. Additionally, the short, concise texts were noticed positively as well.

What else did you like?

When asked what the participants liked besides these three options, most indicated they appreciated the structure of the newsletter the most. Additionally, they indicated, the newsletter was easy to read. The content and the balance between subtitles and short overviews appealed to the participants, as well. The bigger "Unsubscribe"-button was valued as well.

How did you like the colors used?

The colors were the last item to complete the validation of the look and feel of the newsletter. Again, the participants were asked to rate the colors on a scale of 1 to 5. The average answer was 4.06/5.
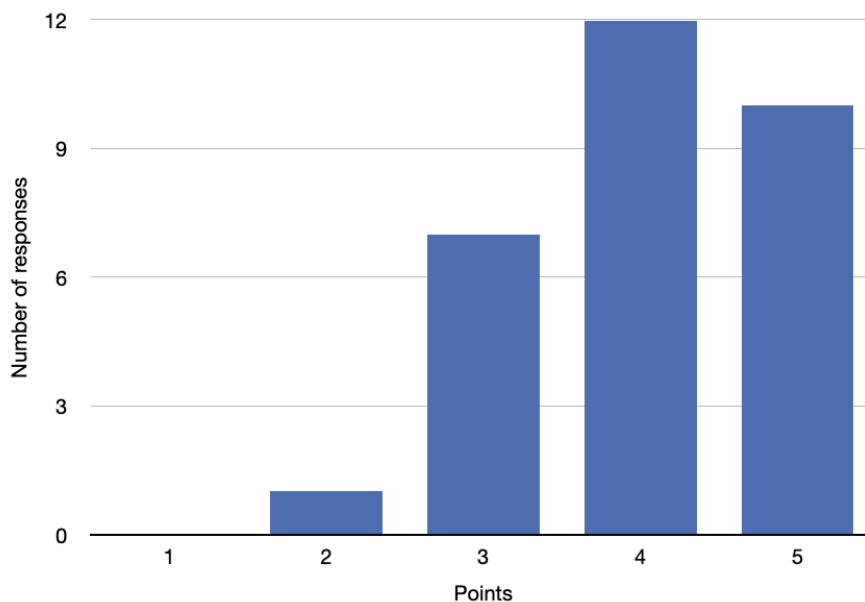
Figure 36: The answers to rate the colors used in the newsletter.

Interactions

After the colors, the participants were asked to perform four tasks. Here, they were asked to ask a question regarding the trip to Slovenia, to open the recipe, watch the video on the MOX-sensor, and lastly, to unsubscribe.

Then, they were asked to rate how straightforward and smooth these interactions were. Lastly, they were asked to indicate a rough guess on how long these interactions took. The first questions all took place on a scale of 1 to 7. This was done to allow for more detail in the answers. The last question was an open-text question. All in all, the smoothness and straightforwardness were rated very high, as shown in *Figure* 37.
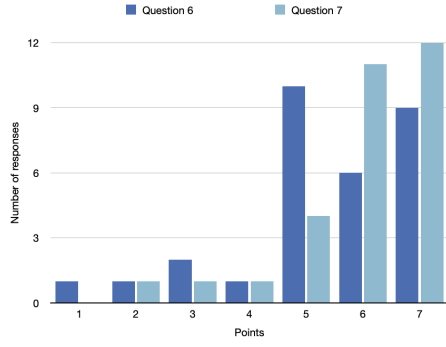
(a) Responses to the straightforwardness and smoothness of sending an email using the button.
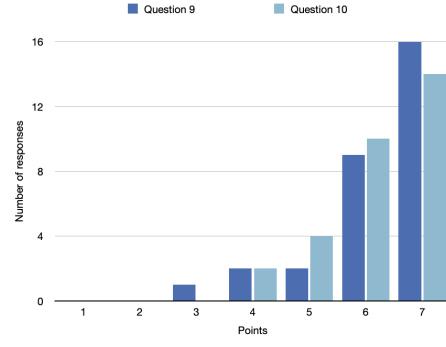
(b) Responses to the straightforwardness and smoothness of watching the video.
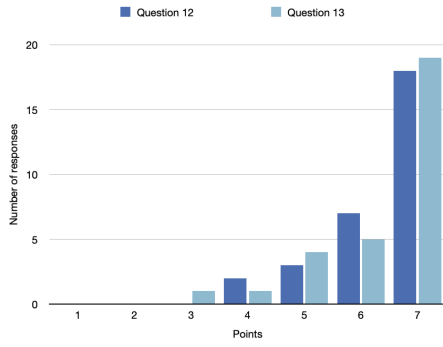
(c) Responses to the straightforwardness and smoothness of opening the recipe.
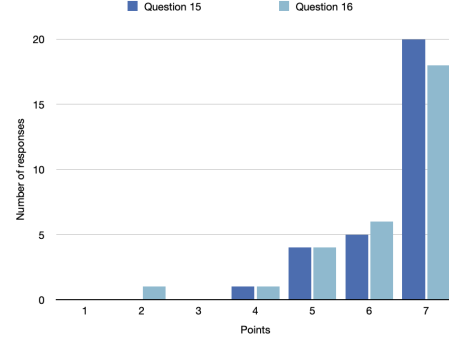
(d) Responses to the straightforwardness and smoothness of unsubscribing.

Figure 37: The results of the interactions in the questionnaire

Additionally, the participants were also asked to indicate how long these interactions took. A majority indicated that it took only a couple of seconds. It was indicated, that some tasks were more difficult to perform as keywords were not highlighted or it was confusing to find the right button. On the other hand, the unsubscribe button was found easily as it had a different color.

Do you think the newsletter could improve the motivation to continue with the study?
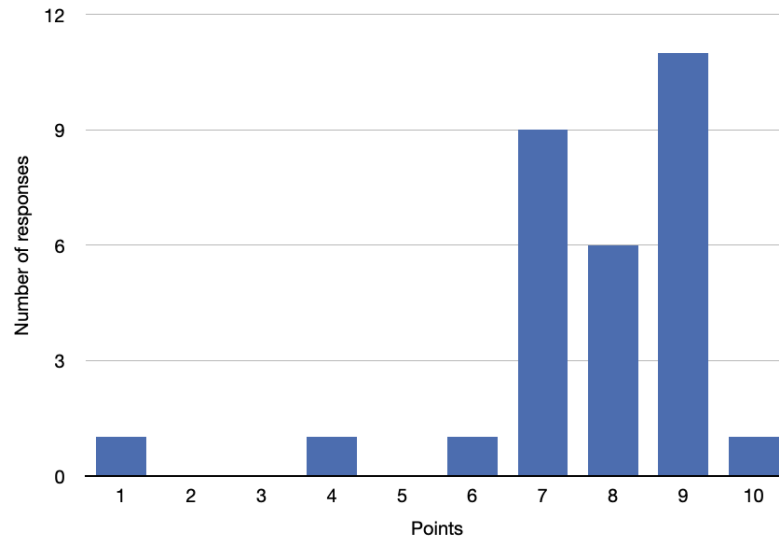
Figure 38: Results indicating if the respondents believe the newsletter can motivate others to continue participating

Here, the participants were asked to indicate on a scale of 1 to 10, if they believe the newsletter could improve the motivation. While the majority rated in the upper half, there are some outliers. The results can be seen in *Figure* 38.

List of suggested improvements

The participants were also asked what they would like to change. In the answers, there was overlap in the answers. One respondent had previous knowledge on newsletter design and contributed with several extra improvements. The results to this question also act as conclusions from this research and are shown in a list below.

- increase the font size

- less text

- highlight keywords for upcoming events

- integrate images better into newsletter

- explain on what topics the participants can reply

- use only one button per section

- make the buttons more visible

- the format of the images should be consistent throughout the newsletter

- format the upcoming events consistently, justified left

- increase contrast between the white and light-blue background

9 Conclusion & Discussion

9.1 Conclusion

This project wanted to research how older adults can be motivated effectively.

At first, a literature analysis was performed. Firstly, literature on how social marketing is used in the health care sector, and newsletters, was analyzed. Afterwards, existing social marketing campaigns were examined to find out the underlying motifs. Additionally, existing newsletter were gathered and it was examined which newsletter services exist. After this step, a social marketing strategy was developed. From this, the newsletter was chosen and developed further using the Creative Technology Design Process and the Agile Design process. This development consisted of three phases. At first, content was important. In the second phase, it was the look and feel and in the third phase the prototype was shown to the clients. After this meeting, the prototype was specified with the MoSCoW-method and a PACA-analysis. This final prototype was then evaluated with four researchers from the PHArA-ON project, and also thirty outside participants to give feedback on the usability of the prototype.

With these steps, the research question "*How can we engage participants to actively participate in a study that will take a year using social marketing?*" should be answered. In the beginning, this question was split up into three sub-research questions. These sub-questions will be answered first before the main research question will be finally addressed.

How is social marketing already used in health and health care?
In general, social marketing is used to promote voluntary behavior changes. These changes are important when it comes to the health of people. In the health sector, social marketing is used to deter people from harmful behavior and encourage healthy choices. Additionally, social marketing can be used to raise awareness of already existing services or resources. Both behavior change- and awareness-campaigns use tools to appeal to humans the most.

How can older adults be motivated to continue participating in studies?
Older adults are motivated the most through their immediate social environment. This environment consists of family and friends, but can also include other people, such as care-takers. If the older adult feels safe and supported through these people, they are more likely to continue participating. This effect can also be supported through peers around them. If positive stories about success are shared, others are more likely to feel good and continue. Additionally, the way in which the study is designed is important as well. If the study is more transparent about the progress and findings, older adults feel more inclined

to continue with this research. At the same time, studies should understand that older adults may not be able to participate due to health reasons or other hardships. Lastly, offering the participants the option to actively shape the study through co-creation processes was attributed to a prolonged participation as well.

How can social marketing strategies be used with newsletters?

The answer relies on the extrapolation of information from the literature research and examples looked at in the beginning. Social marketing relies heavily on emotions of the viewers. Additionally, they use strong imagery to evoke these emotions. With newsletters, images are important as well. Through the possibility to convey information and emotions better than words, using the correct images in newsletters can help influence the target group. It is also possible for newsletters to frame general information in new lights or provide extra context through small texts or by displaying the information in a specific way. Additional factors, such as the feeling of community, can play a role with social marketing as well, but were not explicitly mentioned during the research for this answer.

These results helped with finding an approach towards answering the main research question," *How can we engage participants to actively participate in a study that will take a year using social marketing?* ".

A potential solution to motivating older adults can be through an e-mail newsletter. This solution was chosen because contact information of the participants, such as e-mail-addresses, are known. Moreover, the participants are already informed about day trips and other important information using e-mails. This only supported the choice of an e-mail newsletter more.

The newsletter is designed and managed in Omnisend. This service allows for a graphical design process of the newsletter. During this design, several rubrics are added to a standard template. These rubrics are sorted into three categories, informational rubrics, behind-the-scenes rubrics, and community building rubrics. This is done to get an overview of the rubrics and understand them better. Additionally, this helps in choosing what rubrics to use in each newsletter. In each newsletter, several articles are included, each with different end goals. Informational articles are used to provide information about the study. This way, transparency about the results can be created and the participants see their achievements more quickly and it shows their impact on the research. Behind-the-scenes articles also follow the goal to provide transparency of the study. This time, this is done through introducing the participants to the researchers and organizers. Lastly, to create a welcoming, connected environment, there are community-building articles. These articles are either aimed at connecting the participants or aimed at starting an interaction with

them through call-to-actions, such as questions, buttons, or other links. These goals are supported further through images. Using images can help appeal to the reader's emotions or remind them of the event that is being talked about. Lastly, this solution can help to form a supportive environment outside of family and friends and provide reminders about healthy living.

9.2 Discussion

This chapter will reflect on strengths and weaknesses of this project. To achieve this, the process of coming to this solution and the methods used will be analysed and suggestions for future research will be offered. The solution presented as the result of this research is only one possibility on how to motivate older adults and other solutions could be designed with other approaches. The design, layout and functionality were well received by the usability testing participants. But there is always the possibility to improve aspects in the design- but also the research process.

9.2.1 Research

During the literature- and state-of-the-art research, several aspects for this project were discovered. In the literature research, underlying principles, such as social marketing and how to retain older adults were discovered. In the state-of-the-art research, existing social marketing campaigns, on one hand, and existing newsletters, on the other hand, were discovered and analyzed. During this phase, strengths and limitations arose.

Strengths

Throughout the state-of-the-art research, background information from literature could be applied to analyze the products and compare them effectively to this project. This analysis was also supported by the large amounts of existing information both on newsletters and social marketing. Especially for newsletters, a lot of practical information was found. These examples helped understand what makes a good newsletter from the beginning.

Limitations

During the research, there were some limiting factors. The first is the commonality between the words "social marketing" and "social media marketing". This resulted in several searches showing results that were not useful for this project as they did not refer to social marketing. Additionally, it was noted that a lot of social marketing campaigns are designed for physical locations or rely on physical objects. This hinted towards a lack of electronic social marketing campaigns. Because of this, the social marketing tools had to be adapted to be used with newsletters.

9.2.2 Prototype

The prototype was designed with multiple stages. At first, there was the ideation phase. After that there was the specification phase followed by the realization phase. Lastly, there was the evaluation. While each of these stages contributed to the final prototype, they also had strengths and limitations.

Strengths

During these stages, many strengths helped create the prototype. A big strength was the iterative design. This was aided by the use of Omnisend as the mail manage and its graphic design interface which made changes easy to implement. After the first prototype was created, feedback was gathered and very quickly implemented. These steps were repeated often, which meant at the end, there were a lot of improvements done quickly. The number of prototypes also helped with assessing if a new design is more appealing or if a removed article should be brought back again.

While the prototypes were tested, there was also contact to the researchers of the study. They contributed much helpful feedback. During the evaluation, they were also contacted again, to assess the prototype first. After small changes were made, the prototype was then tested with a large group of other people. This group of people helped test the usability of the prototype and the results of this testing supported the design and usability of the prototype.

Lastly, one of, if not the biggest strength is the use of social marketing in a lifestyle intervention program. As far as the previous research suggests, social marketing has been used in general for health interventions or to raise awareness. But literature or existing products that aim to help change lifestyles could not be found.

Limitations

Some of these strengths also highlighted several limitations with the prototype. First and foremost, there were timeline changes outside of this study and the evaluation could not take place with the end users. Therefore, the evaluation was performed with 30 other people. Their age distribution, however, is far from the ages of the end users and most likely lead to skewed results.

Another limitation for the prototype was the hosting of articles and blogs. During the prototyping phase, this issue was brought up and some ideas, such as hosting it on the website of the University of Twente, were mentioned. But during the meetings, no solution could be found and this had a small impact on the usability testing.

Lastly, Omnisend had small limitations to the design process as well. While the graphical design interface allowed to quickly change designs and add or remove items, it all relied on fixed boxes and the design could not be altered or made to fit the design ideas. Additionally, a minor inconvenience was also the fact it was not possible to align buttons or images and make the newsletter responsive, without it looking messy at first.

9.2.3 Future recommendations

Following this research, there are multiple possible steps to take next. One of the first steps in the future is to do more research on newsletters and social marketing. This research could then be used to establish guidelines and effects of the use of social marketing with newsletters. The next step should be to assess if the university's own e-mail manager offers the same features as Omnisend. After this assessment, a migration to the university e-mail manager should be considered. As the evaluation did not directly include the end user target group, it is a good idea to test the newsletter with the end users thoroughly. This can then confirm the results obtained in this evaluation and offer direct feedback that can offer possible changes in design or layout.

In *Chapter* 4 proposed ideas, such as video content or care packages. These can be developed further and then integrated with the newsletter and existing day trips.

After this development another possible step could be to create a marketing plan. The aim of this plan is to organize what content will be published at what time. Additionally, it can be used to assign tasks and act as a central document for the communications team. Lastly, a possible future use for this newsletter can be investigated.

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A Logo Ideas

A.1 First Logo Ideas
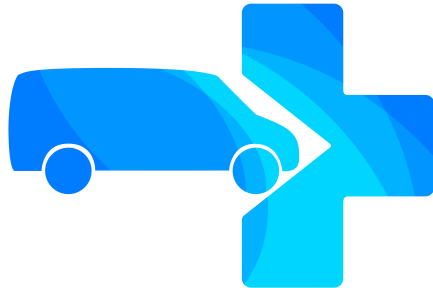
(a) The first logo created.

(b) The percentage of computers owned and used

Figure 39: The logo ideas for the newsletter. These were created before the newsletter design was finalized

Figure 40: The third logo. Here, the focus was to merge research with the bus.

B Newsletters

B.1 First prototypes
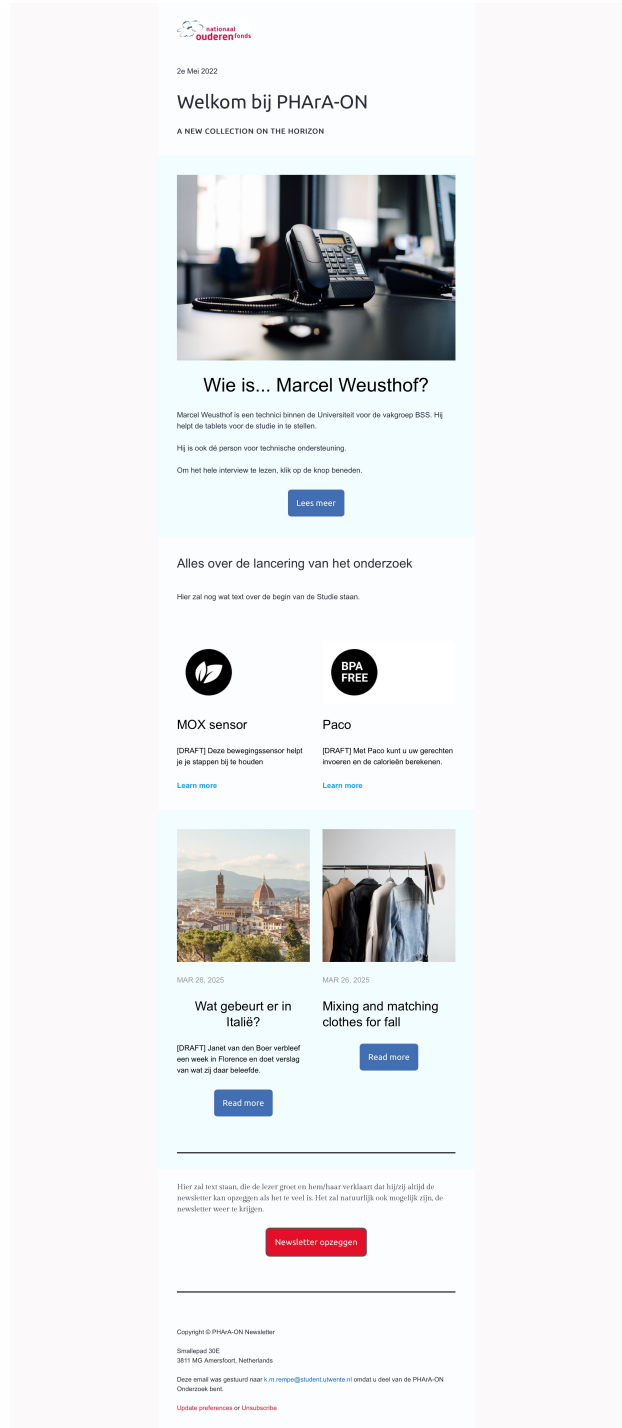
Figure 41: Second version of the newsletter
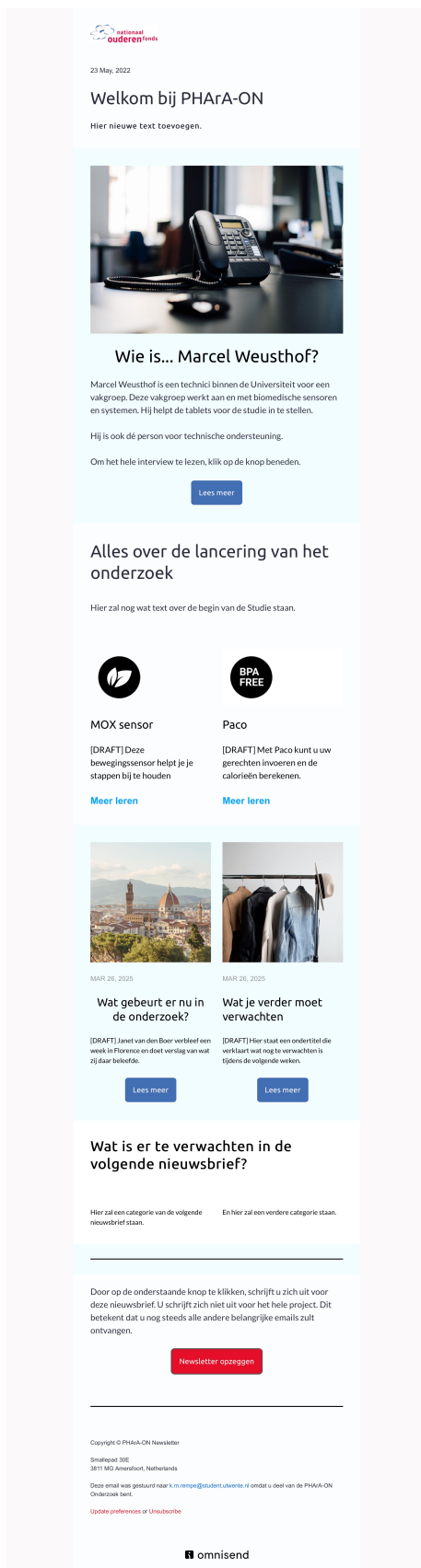
(a) The third version of the newsletter (b) The fourth version of the newsletter
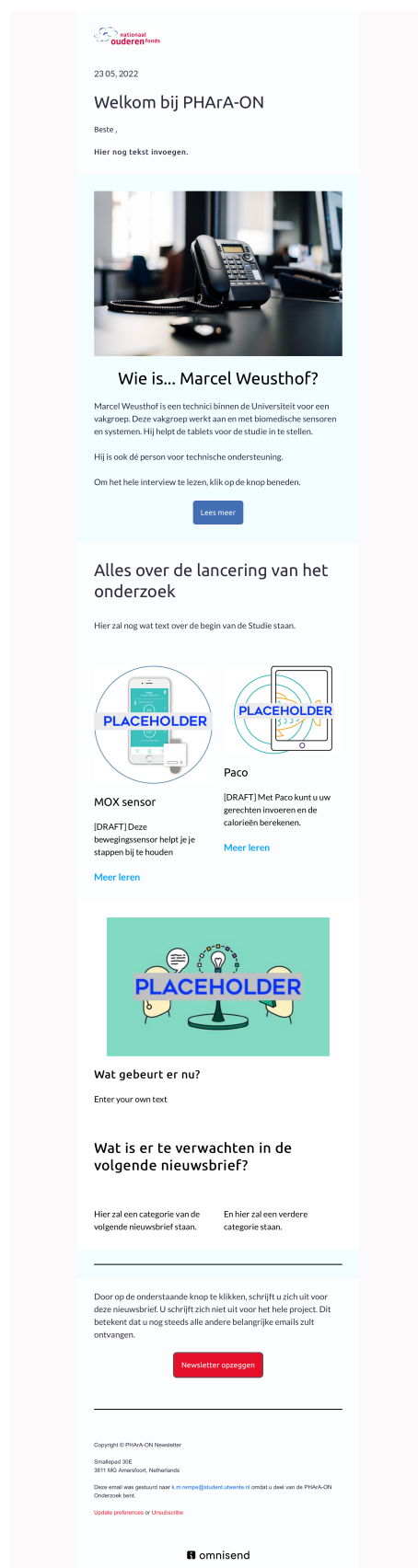
Figure 43: Fifth version of the newsletter

B.2 The Final Newsletter

Figure 44: Final newsletter

C Questionnaire for the Client

Figure 45: First page of the questionnaire

Figure 46: Second page of the questionnaire

* Required

Feedback

7

Wat zou u verbeteren? (leeg laten indien geen suggesties)

Enter your answer

8

Wat zou u weglaten? (leeg laten indien geen suggesties)

Enter your answer

9

Op een schaal van 1(hoogst onwaarschijnlijk) tot 10(hoogst waarschijnlijk), denkt u dat de nieuwsbrief uw engagement om de studie verder te zetten kan verhogen? *

1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○

Back	Submit	Page 3 of 3

Figure 47: Third page of the questionnaire

D Questionnaire for larger survey

Figure 48: First page of the questionnaire

Look and Feel

2. How did you like the layout of the newsletter? *

           1   2   3   4   5

Not at all   ○   ○   ○   ○   ○   Very much

3. In what order would you order the following items? *

Images
Texts
Subtitles

4. What else did you like?

Enter your answer

5. How did you like the colors used? *

           1   2   3   4   5

Not at all   ○   ○   ○   ○   ○   Very much

Back   Next   Page 2 of 8

Figure 49: Second page of the questionnaire

* Required

Usability

For this part, you want to take a look at the recipe that is advertised. Please go through the steps you would take to send an email to the organization.

Please keep in mind that for this testing, it will lead you to a website of Albert Heijn.
(After the website opens, you can stop and return to this questionnaire!)

12. How straight-forward was it to open the recipe?
    *

	1	2	3	4	5	6	7	
Very confusing	○	○	○	○	○	○	○	Very straight-forward

13. How smooth was the interaction? *

	1	2	3	4	5	6	7	
Very uncomfortable	○	○	○	○	○	○	○	Very smooth

14. How long did this interaction take? *

Enter your answer

| Back | Next |

Page 5 of 8 ▬▬▬▬▬▬▬

Figure 50: Third page of the questionnaire

Usability

I this section, you will be tasked with four tasks. After each task, you will be asked to indicate how straight-forward the process was, how smooth the interaction was, and how long it took.

For the first part, you want to ask a question related to the research trip to Slovenia. For this, you want to send an email response. Please go through the steps you would take to send an email to the organization.
(After the pop-up for the new email opens, you can stop and return to this questionnaire!)

6. How straight-forward was it to respond to the newsletter?
   *

	1	2	3	4	5	6	7	
Very confusing	○	○	○	○	○	○	○	Very straight-forward

7. How smooth was the interaction? *

	1	2	3	4	5	6	7	
Very uncomfortable	○	○	○	○	○	○	○	Very smooth

8. How long did this interaction take? *

    Enter your answer

Figure 51: Fourth page of the questionnaire

* Required

Usability

For this part, you want to watch the video on the MISS Activity step counter. Please go through the steps you would take to send an email to the organization.
(After the video starts, you can stop and return to this questionnaire!)

9. How straight-forward was it to open the video?
*

	1	2	3	4	5	6	7	
Very confusing	○	○	○	○	○	○	○	Very straight-forward

10. How smooth was the interaction? *

	1	2	3	4	5	6	7	
Very uncomfortable	○	○	○	○	○	○	○	Very smooth

11. How long did this interaction take? *

Enter your answer

Back	Next	Page 4 of 8

Figure 52: Fifth page of the questionnaire

Usability

For this last part, you want to unsubscribe from this newsletter. Please go through the steps you would take.

(After a website opens, you can stop and return to this questionnaire!)

15. How straight-forward was it to unsubscribe?
    *

	1	2	3	4	5	6	7	
Very confusing	○	○	○	○	○	○	○	Very straight-forward

16. How smooth was the interaction? *

	1	2	3	4	5	6	7	
Very uncomfortable	○	○	○	○	○	○	○	Very smooth

17. How long did this interaction take? *

Enter your answer

Back	Next	Page 6 of 8 ▬▬▬▬▬▬▬▬▬▬

Figure 53: Sixth page of the questionnaire

Figure 54: Seventh page of the questionnaire

Figure 55: Eighth page of the questionnaire