

Creative Technology
August 27, 2021

Online communication platform for the Tobias Sybesma Foundation to enable targeted communication

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Abstract

The Tobias Sybesma Foundation aims to find a cure for brain stem cancer, or DIPG. DIPG is as of writing, an incurable disease. In order to find a cure, research is needed. Research however, requires funding and researchers. On top of that, they would like to better inform children struck by DIPG, their families and others about DIPG. For all these purposes, an online communication platform can be the way to do it. In this project, the focus was on creating an online communication platform for the Tobias Sybesma Foundation. The platform should eventually not only be aimed at possible supporter, i.e. people who donate money or knowledge, but also at the children struck by DIPG and their families. This project, however, focuses only on the possible supporters. To motivate possible supporters to become supporters, the three modes of persuasion by Aristotle were used: logos, pathos and ethos. These are often used in marketing already and can provide a clear framework. Eventually, a fully interactive prototype was made of the website in Adobe XD. For this, a colour palette has been put together, a visual style was created and texts were written to make this prototype as close to a final site as possible. This prototype was then evaluated with 25 users via a survey, who were mostly satisfied with the platform. The client was also mostly satisfied, but does not wish to further develop the platform.

Acknowledgments

First of all I would like to thank Dr. Katarzyna Zalewska and ir.ing. Richard Bults, my supervisors. They were the ones who pulled me through this project, and helped at every step along the way. Next, I would like to thank Jasmijn Kruijshaar, who provided help when I was stuck, and who provided moral support. I also would like to thank all the friends who take a quick look at small points, who pointed me in the right direction and who made an off-hand comment that helped me more than they might have intended. So to all of you, thank you very much.

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1 Introduction

In this chapter, the reason this project was started is laid out. The challenges are mentioned and the research question is formulated.

1.1. Situation

Brain stem cancer, also known as DIPG (Diffuse Intrinsic Pontine Glioma), is currently very deadly, with a 5-year life expectancy of around 2% [1]. It mostly hits children, with a median age of approximately 6–7 years [2]. In the USA, there are around 150–300 patients per year. One of the patients in the Netherlands diagnosed with DIPG was Tobias Sybesma. He fell ill at 11 years old. The prognosis was clear; Tobias would die before his 12th birthday. Tobias, however, fought on, and got an additional 248 days. In July 2018, Tobias passed away at an age of 12 years old. Just days later, The Tobias Sybesma Foundation [3] was founded by his father, Mr. Reitse Sybesma. The foundation aims to stimulate research on DIPG. They work towards this by gathering money, acquiring knowledgeable people, and asking people to share their network. Knowledge is important to put together the pieces that solve the problem of DIPG. But with network, you can share knowledge with people who can connect the dots among each other. The most important way the foundation reaches more people currently, is by word of mouth. Mr. Sybesma, meets people himself.

However, in order to reach more people, there is a need to augment communication, so that the foundation can help people struck by the disease, create more awareness of the disease and reach more people, and allow sharing of information around the disease. Donations may be in the form of money, knowledge, or network, where the knowledge and network are more valuable, as these progress the research to a cure. He aims to connect people and direct them to the common goal of curing DIPG. Knowing the right people is integral to this.

1.2. Challenge

From this follows that an online communication platform needs to be designed, which can serve as an international basis for the Tobias Sybesma Foundation. This platform should facilitate many different target audiences, among which, but not limited to, families struck by the disease, the patients themselves, supporters willing to donate money and experts who might contribute to research. All these people might visit the platform and should therefore be taken into consideration.

It is vital that each different visitor is taken to the right place on the platform. If the visitor is a possible patron, they should receive motivation to actually do so. It should also be taken into consideration that the platform might later be extended to fit more goals related to DIPG. Currently, there is already a website in place:

tobiassybesma.nl. However, this website is meant as a monument to Tobias and not as what is described here.

1.3. Research Question

Based on the description above, the following main research question has been formulated:

How to develop an online platform for the Tobias Sybesma Foundation that enables targeted communication to special interest groups?

The main question gives insight in the whole problem but has room for interpretation. Therefore, two subquestions have been formulated. The first one provides an overall focus:

How to guide a visitor towards the right section on the platform?

To further narrow down the problem so that it is feasible in the time given, the second subquestion is formulated as the following:

How to motivate a visitor to become a supporter?

2 Background research

Many techniques used to influence people in marketing and advertising today, are based on Aristotle's modes of persuasion [4]. While the Tobias Sybesma Foundation is not directly advertising anything, certain members of the target audience do require some persuasion in order to convince them to support the foundation.

The modes Aristotle described are ethos, pathos, and logos. Ethos is about showing you are reliable and show ethical behaviour. It shows something or someone is trustworthy and credible. Pathos is about emotion. By connecting a feeling to a cause, an audience can feel why they should do something. Making an audience feel empathy for a child might make them more inclined to engage with the foundation and the platform. Logos is about convincing through statistics, facts, and graphs. Logos appeals to the rational brain and explains why something is the right choice.

Aristotle also defined telos and kairos, however, these are less useful in the context of an online platform. Telos is about the intention of the message, which is defined by the Tobias Sybesma Foundation itself. Kairos is about the right moment, or the right timing. This is also something that cannot be employed on a website as websites use static information, that is paced by the visitor.

These modes can be used to build with the visitors of the online communication platform, and can be convinced to donate money, or help doing research.

These modes can be used to build trust with the visitors of the online communication platform, and to nudge the people who would want to donate money, knowledge, or network, to actually do so.

2.1. Pre-requirements

Although the goal is to design a new communication platform, there are some constraints already present. First, there is already a domain present, called stopDIPG.com. This means that if the platform were to take the form of a website, the name has been chosen, and this needs to be worked with. Second, the client wants it directed at the international community. This could mean, for example, that the language of the website should be in English, as it is the most spoken language in the world [5]. Third, the website is related to the Tobias Sybesma Foundation, and will most likely need to be linked to that website in one way or another, if only for legal reasons.

2.2. Literature research

2.2.1. When do people donate?

Not only the cause, but also the website can directly influence if people donate or not [6]. If it is about donating one's own money,

the main decisive factor is the content of the website, and the amount trust gained. Trust can be gained in a variety of ways, and an important factor in this is the disclosure of financial reports and showing what exactly is done with the money of a donation [7]. This is both logos and ethos. Here they are tightly intertwined.

Another part are the visuals; e.g., photos or the logo, that should match the cause and the goal of website. The look should connect to it and give the right sensations to a visitor [8]. This extends to typography, colour and shapes being used. This is pathos effecting the ethos. If it is donating someone else's money, aesthetics is the dominant decision-making factor. This means that not only should the visuals match the goal and the cause, but it should also look good to attract as many supporters as possible.

In short, the literature supports the concept of ethos, logos, and pathos to gather more donations. A closer look is taken at the literature of colour and typography, as these make up the bulk of how a website looks and feels, and is thus an important aspect of pathos.

2.2.2. Colour and colour harmonies

Colours are one of the most important aspects of any design, and therefore severely relevant to the envisioned online communication platform. They need to be chosen with care. Colours can evoke emotions and are therefore important in what people like and dislike [9]. This, and for reasons stated before, is why it is important to choose colours that evoke the correct emotions for the context.

This is also important for colour combinations [10]. Colours are always combined, as even white with grey is in fact a combination of two colours. To ensure that the colours are in harmony together, colour harmonies are used [11]. These harmonies provide contrasting colours, in different numbers. A good and a bad example of colour combinations can be seen in Figure 1. Colours can also be used to “help distinguish different kinds of information, as well as create relationships among components” [12]. In short, colours can be used to distinguish elements and to evoke emotions to these elements. It is recommended that these colours are in harmony with each other. The difficulty then lies with choosing the right colour for the right context.



Figure 1: A bad colour combination (left) and a good colour combination (right)

To help choosing the right colour, Chen et al [13] have created a three-step colour selection method, based on the colour selection process of many designers. The three steps work as follows: first,

requirements of the assignment the designer is working are collected and analysed. Second, from these requirements and topic, related concepts are found. And third, a colour is chosen based on its meaning, taking the harmonies and combinations into account. Though according to Chen et al, designers know largely from personal experience what meaning a colour has and how it combines with other colours.

Instead of working from personal experience, other resources can be used to find colour meaning and colour harmonies: Sahara's work [12] gives an extensive overview of how colours match and discusses the meaning of a few colours. Adams' work [14] gives a detailed description of each colour meaning, describing the history and cultural meaning of 30 different colours. Both Chen's work and Adams' work are in agreement with Sahara's work. Combined, these resources work as a sufficient theoretical basis to look into which colours should or should not be used for the Tobias Sybesma Foundation's online communication platform in the ideation phase, to ensure pathos.

Colours that are relevant to this research are butter, red, white, and light blue. An example of these colours can be found in Figure 2. Butter is a colour that can remind of school and hospitals, as it is often used there, and it is close to yellow, a colour that reminds of children. Red is a more dominant and intense and can remind of blood and violence. Combined with white it gives a medical feeling. White is often used as the background colour, and when used in large amounts it can give off a sterile feeling. Light blue can look reassuring and reliable, but more calming than blue. It can also remind of new-borns [12] [14].

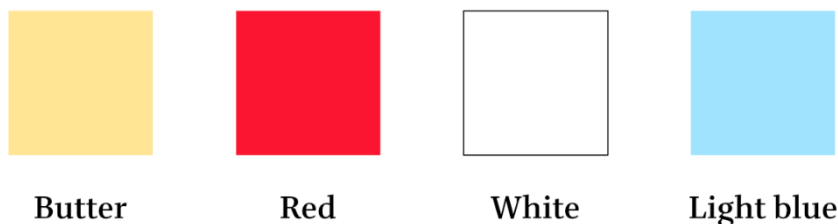


Figure 2: Examples of butter, red, white and light blue

2.2.3. Typography

Typography is a rather broad subject, as it reaches from typesetting to typeface choice. For typesetting, some general guidelines exist, extensively described by Butterick [15], of which several findings are supported by academic research. For example: the length of a line of text should be about 55 characters per line [16] when reading from a screen. This supports a fast reading rate and comprehension of the text. In addition, Van Nes [17], also gives a short list of practical guidelines, which coincides with Butterick. These guidelines include, but are not limited to, the following:

- The emptier a page, the easier to find something on it.
- Dark text on a bright background is more legible than light text on a dark background.
- A part of a text with a different colour attracts attention to itself.
- All upper-case text, i.e. all caps, is less legible than mixed case text.

These guidelines are very useful for creating general legible texts, which is important for the user to trust the website [18]. In other words, better legibility creates more trust and thus works towards ethos. The extent of these guidelines is very large. However, the work of Butterick is sufficient as a guide on the topic of typesetting in the context of this research. This report has been created using these guidelines, and is therefore an example of it.

Now that the subject of typesetting is discussed, the topic of typeface choice is to be covered. According to Sasidharan and Dhanesh [19], serif typefaces and sans serif typefaces create the most trust from users, as opposed to script and monospace typefaces. This is echoed by what Hyndman [20] mentions on the topic: Script and monospace typefaces do not look very professional. Examples of serif, sans serif, monospace and script fonts can be seen in Figure 3. Josephson [21] adds to this that more modern typefaces, designed for screens, are more legible than older typefaces, not created with a computer in mind. She also states that serif typefaces may be less legible on screens, as the detail of the serif renders poorly on low-resolution computer screens. In contrast, Csilla et al [22] state that there is no difference between serif and sans-serif in reading speed or comprehension, either on a computer screen or on printed material.

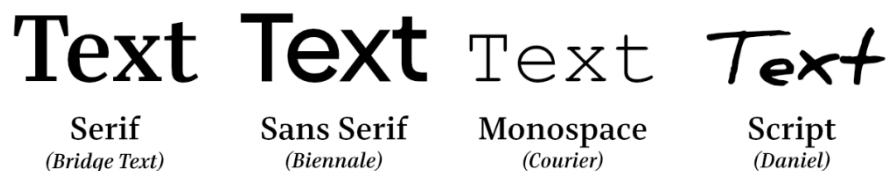


Figure 3: Examples of serif, sans serif, monospace and script fonts, with the name of the font below the respective font

However, the study of Csilla et al was done five years after the study of Josephson, so possibly screen technology had improved substantially in the meantime, or simply a higher resolution screen was used. Josephson's study did, however, only use six participants, meaning that there were no statistically significant results from that study.

For the sake of ideation, the options should be kept open. A distinction can be made between body text and headings, which can be different fonts. A serif typeface could be chosen for headings and a sans serif for the body, for example. This could also be extended to script and monospace fonts as the study by Sasidharan and

Dhanesh was done with a banking website. This could mean that the pathos of the banking website required a sans serif or a serif, while the Tobias Sybesma Foundation requires something else.

The fonts which will be examined for this research will be limited to the set professional fonts available to the researcher. Professional fonts are paid fonts, and fonts made by esteemed typeface designers. According to Butterick, “[t]he best professional fonts are better than any system font or free font” [15], and since there are many available, Butterick advises to narrow down based on practical requirements—in this case being availability. During the ideation phase, various fonts are examined to see if they fit to the various concepts.

2.3. State of the art

The Tobias Sybesma Foundation is not the first website directed at raising awareness, raising money, and looking for a way to stimulate research. StopDIPG will not be on its own either. Therefore, there are many other, similar websites and platforms that can be looked at, and learned from.

The websites of KiKa [23], Children with Cancer UK [24], Michael Mosier Defeat DIPG foundation [25], DIPG.org [26] and Duchenne Parent Project [27] were analysed. These sites were chosen because they all gather donations for a children’s disease, two of them for specifically for cancer and two specifically for DIPG, making this selection having a very similar goal as the Tobias Sybesma Foundation.

2.3.1. Top of the home page

In all cases of the websites, the top of the home page is used for a large image, also known as a hero image. In all cases this image features a child. It is implied that this child has the disease the organisation is fighting against. Figure 4 shows the top of the homepage of kika.nl. The first thing that a viewer sees is a little girl looking at the visitor of the website. She wears a scarf over her head and has no eyebrows and is thus presumably bald—a sign the public

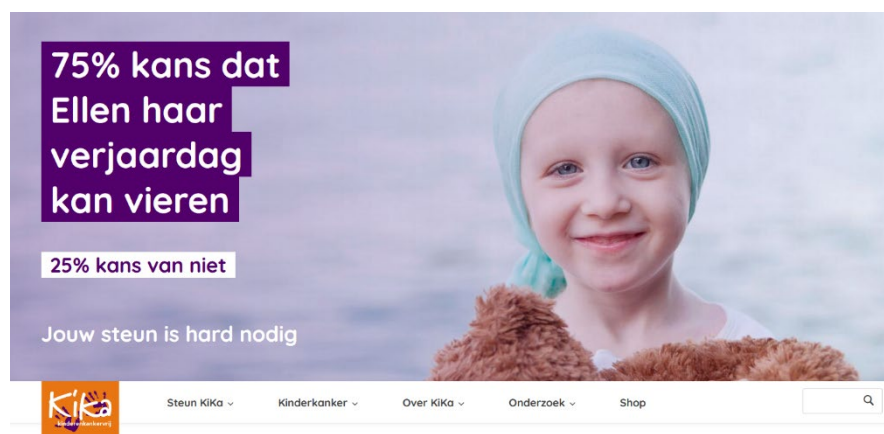


Figure 4: A screenshot of the homepage of kika.nl

associates with treatment of cancer. The second thing that is noticed is the large text on the left, which says the following: “75% chance that Ellen can celebrate her birthday” followed by smaller text, in white: “25% chance she cannot”. At the bottom of the image white text states “your help is much needed”. This text implies that the girl is named Ellen, and there is a 25% chance she will die within a year. However, you can do something to help to prevent this.

Children with Cancer UK has a very similar layout, as can be seen in Figure 5. There is text on the left, and a child on the right. The child is in a hospital bed and has a tube in her nose. It is very clear this child is ill, probably with cancer. There are two big differences between these two homepages. The first is the text on the left. Where KiKa calls more attention to the child, and the possibility of her dying, Children with Cancer UK tells something about their foundation, and that they have been struggling due to COVID-19. The other big difference is in the image itself. KiKa shows the child smiling, in front of a body of water. The image is bright, with low contrast and on the left the water turns purple, giving the image a warmer feeling. Children with Cancer UK on the other hand, has a very sad looking child, with higher contrast and a lot of blue, making the image a lot colder.

Both KiKa and Children with Cancer UK want to make you feel empathy for the children, as this is part of the pathos. However, they achieve this in different ways. Children with Cancer UK makes the image do all the work for the pathos, while KiKa combines image and text to do this. It is not evident from the websites themselves which one works better, or if the difference is significant. An expert has been asked about this, and this can be found in chapter 2.4: Expert Opinion.

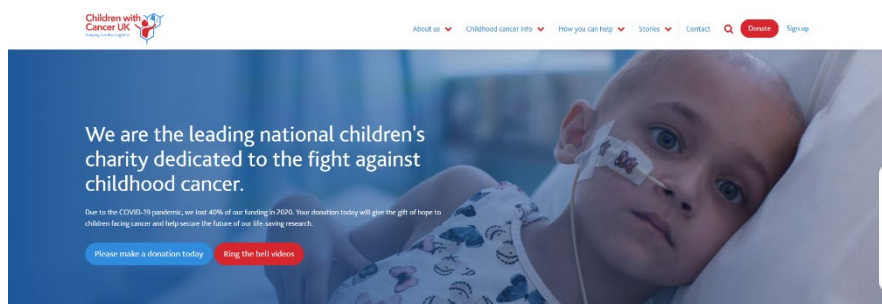


Figure 5: A screenshot of the homepage of childrenwithcancer.org.uk

The Michael Mosier Defeat DIPG Foundation shows two children, one of them presumably Michael Mosier, with the text “two families unite to defeat DIPG”. Reading on reveals that they merged with another foundation and this other child is Chad, from the ChadTough Foundation. These are children that have died of DIPG, according to the website’s information. Here, they seem to want to achieve the same as KiKa and Children with Cancer UK do, however, it simply does not have the same impact. The photos do not give enough information visually to tell you what is going on.

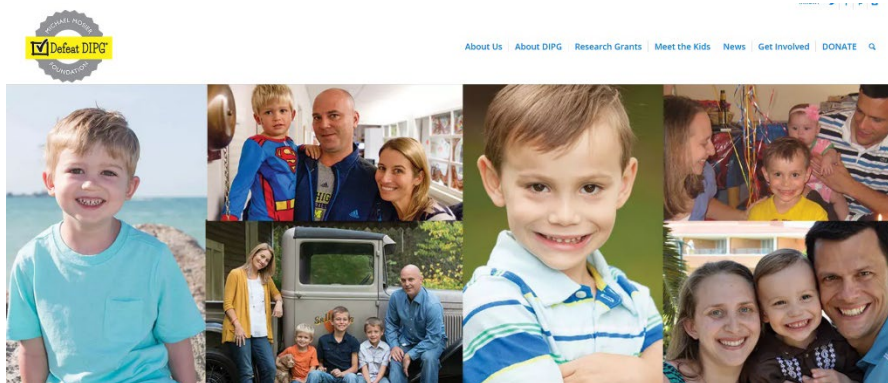


Figure 6: Homepage of the Michael Mosier Defeat DIPG Foundation

DIPG.org has an image that focuses more on the parents in the image than on the child. The top of their homepage can be seen in Figure 7. Two adults are hugging a child, and it can be assumed these are parents. It seems to be in a hospital setting; however, this is not very clear, one has to dig a little deeper for that. For this reason, the picture might be misunderstood as parents simply hugging a child, even though the father looks a bit sad. The focus on the parents is also interesting, as it might cause parents to identify with these parents, and therefore the pathos might be successful here anyway. However, this might limit the target audience for this image to parents only, as childless people might not identify with this image at all. The accompanying text also does not clarify the situation. Instead, it tells a bit about the effectiveness of research into the disease. No use of pathos can be found in this text. Instead, a form of ethos is used there.

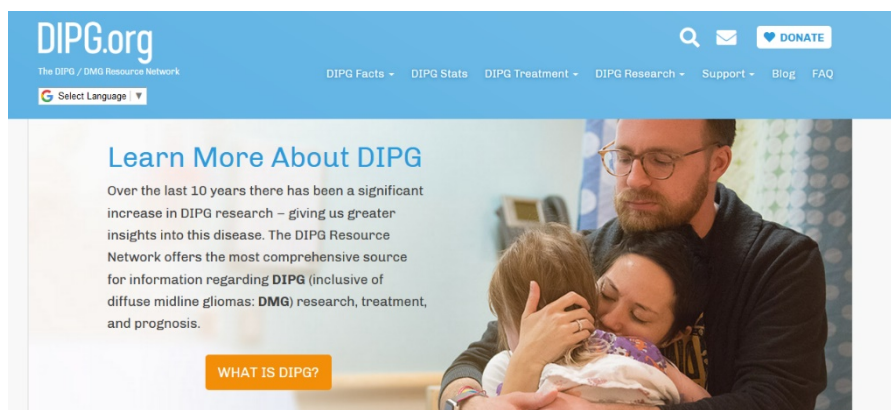


Figure 7: The homepage of DIPG.org

The Duchenne Parent Project does some things differently. The homepage can be seen in Figure 8. Again, a child is seen. But instead of showing the child in a wheelchair for example, they show a child looking at the ocean. This could mean that they are showing the potential tragedy to come. Also interesting is that the child is looking away from the camera, in contrast with the other examples, where eyes were always visible. It seems that this website is playing with a sense of mystery, and with expectations. A visitor might expect the child to have Duchenne, simply because it is the Duchenne website. But for now, the child is still healthy. For now, the disease is not visible. This can also work towards pathos.

Also interesting is that the only text here is “Duchenne Spierdystrofie”, “start your action” and “donate”. “Spierdystrofie”, meaning muscular dystrophy, gives one a clue what it does; it destroys a child’s muscles. This supports the notion that the child indeed has muscular dystrophy and thus helps the pathos.

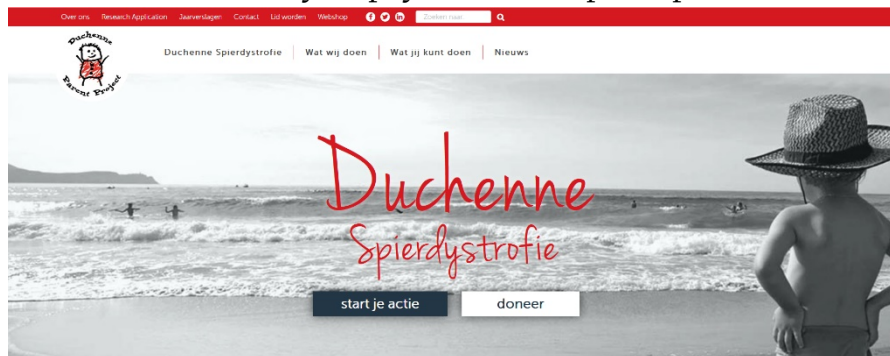


Figure 8: The homepage of the Duchenne Parent Project

In summary, it seems that every website starts off their homepage with a striking image intended to create pathos. The images are of people, often in a position that creates sadness for the visitor. The way they are presented vary a bit, and an expert will be asked to give their opinion on the matter, in order to get a more detailed idea of why specifically these images were chosen. The conclusion from this can be found in chapter 2.4: Expert Opinion.

2.3.2. Home page body

When scrolling down from the image at the top of the homepage, more information is revealed to the visitor. This can be seen in Figure 9. At KiKa's website, they state what they do in a single sentence. This is important for ethos. The second piece of information they give is about the impact of COVID-19 and stating that they will continue their research. This shows reliability and thus ethos. After this, a personal story of a boy named Roef is introduced, with a picture of a smiling boy. This is pathos. Scrolling even further down, we see the first clear example of logos: A breakdown of how a supporter's donation will be spent. At the bottom of the page, two logos are shown. Both are from an organisation that certifies KiKa as a charity. This is also an important part of ethos.

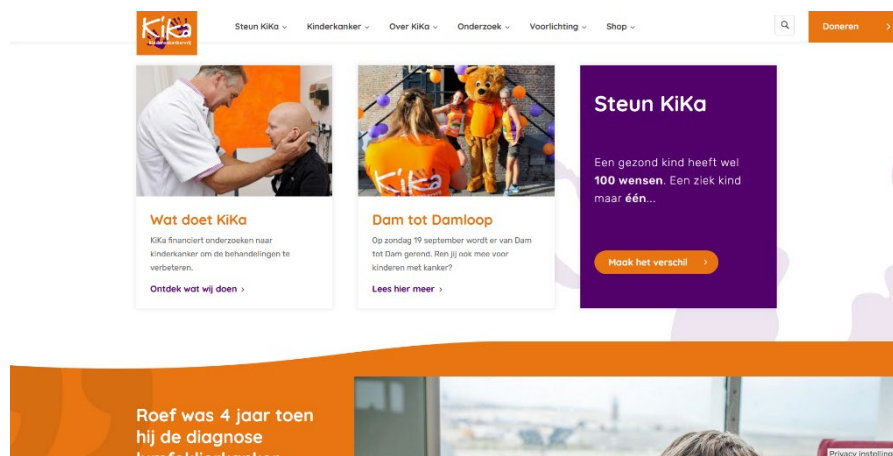


Figure 9: The homepage of Kika.nl when scrolled down

Children with Cancer UK does something similar. Below the initial image, an image slider is shown. The messages there are about various items. These items are about how COVID-19 might affect cancer patients, about an innovation award they received, and about a joint initiative from multiple UK cancer charities to urge the UK government to put the cancer treatment back on track, which presumably went off-track due to COVID-19. These all work towards ethos and show the reliability of the foundation itself. Right below that is a similar breakdown of donations shown that KiKa also has, as can be seen in Figure 10. Underneath that part is a row of items that combine pathos and logos. They give various numbers that show how badly children affected in the UK, and that without donations, a lot of research towards children's cancer would go unfunded.

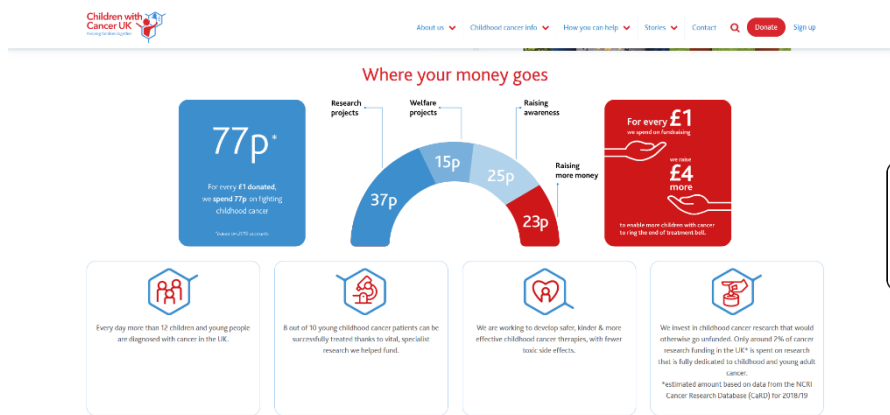


Figure 10: The donation breakdown from Children with Cancer UK

The website of the Michael Mosier DIPG Foundation has an announcement in the form of a video when one scrolls down. This video announces the merger between the Michael Mosier DIPG Foundation and the ChadTough Foundation. This could be seen as logos, as it means that the foundations will be bigger, however, it is not a strong case. Below that are a section about children who have been struck by DIPG, information about the foundation and information about DIPG. These work towards pathos, ethos, and logos, respectively. Underneath that part there is a link to a run that was done in 2020, the impact report of the foundation in 2019 and a link to their store. The run and the impact report are ethos and logos, respectively. At the bottom of the page a seal of transparency is shown, which also works towards the ethos.

DIPG.org has below the top image three items. The left-most item talks about how a parent can help their child when diagnosed with DIPG. The second item directs you toward the statistics of certain patient data. The third item talks about clinical trials related to DIPG. These three items do use ethos, pathos, or logos. Instead, they give information to families struck by the disease. This reinforces the observation mentioned before: that this website is more directed at parents than towards supporters of the cause. Underneath the three blocks of information, a sign-up form is shown, to keep one up to date. Below that is a logo of the DIPG/DMG symposium, with a link to learn more about it. In the footer is a mention of being part of a certain network, which works towards ethos.

The Duchenne Parent Project has much of the same we have already seen. They direct visitors towards research, to events they've recently organised or are coming up and have some information for parents of children struck by Duchenne. Below that, they give some information about what the disease is, and below that a slider of videos from the Foundation. Below that there are links to their social media and their newsletter.

In summary, the websites give a very short overview of what they do which contributes to logos, provide more information on the disease

which also contributes to logos, and give personal stories of children struck by the disease which contributes to pathos. On top of that, the foundations give an overview of what is being done with the donated money, as the literature suggested and which contributes to logos. Most websites also give some sort of seal or logo of an organisation that verifies them as a charity that contributes to ethos. In any case, we can see a clear combination of pathos, ethos and logos coming back on every site, with the most emphasis on pathos.

2.3.3. Other pages of the websites

Many of the analysed websites do not only ask for donations. Instead, they can also ask you to set up an action or event for them, to gather donations in that way. The Defeat DIPG website also asks for tissue donation of children struck by DIPG, because this tissue can help with research a lot. Some websites also have a shop. This generates extra income, but instead of donations, contributors will get a physical thing in return.

All websites give a bit of information on the disease, in varying amounts of detail. None of them aim this information at people struck by the disease. Instead, the information is much more driven at possible supporters. Children with Cancer UK has a section on “coping with cancer”. This is, however, aimed at parents, not at children themselves. Instead, they link to other actions and organisations that are more aimed at support. All websites also direct you towards what research has been funded by the foundation in question.

2.3.4. Colours and typography used

The colours being used by the various websites are mostly blue and red. Blue stands for honesty and loyalty, is associated as a calm colour [14]. In contrast, red is energy, passion and very vibrant. Combined with blue it quickly associates with hospitals and other medical institutions. Overall, however, white is the dominant colour. This reinforces the medical idea. This also helps with both ethos and pathos.

KiKa however, is an outlier on the area of colour. Using orange and purple, which can be seen in Figure 11, they have a more unique looking colour palette. This can help with branding. Orange is vibrant and energetic [14], and is probably there to connect to children. The purple is less obvious in why it was chosen; however, it can be found in a square harmony with the orange. The meaning of purple does not seem to support the cause of KiKa, as purple means royalty, wealth or luxury. It might be chosen because purple is less used as a brand colour, for reasons mentioned before, and therefore stands out more.



Figure 11: The two colours, other than white black, used by KiKa.nl

When it comes to typography, we see that every website uses sans serif fonts for texts, menu items and buttons. For other types of text, such as the logo and headings, different fonts are used as well. KiKa uses a playful handwritten font for their logo, the Michael Mosier Defeat DIPG Foundation uses a playful condensed serif, DIPG.org uses a condensed font for their logo and Duchenne Parent Project uses a playful serif as well. The Duchenne Parent Project uses a somewhat elegant handwritten font for their headings. KiKa uses a very soft font for headings, but also for the menu items and buttons. Presumably because this font is legible enough to be comfortable read at the size of the menu items and buttons.

In conclusion it can be said that every website analysed are mostly focused on gathering money. They do this by making the visitor sympathise with the children and their suffering, by convincing the visitor that the money you donate will go towards the actual research and by asking the visitors to set up events or join in on events. This is backed up by literature mentioned previously.

2.4. Expert Opinion

An expert in graphic design was asked to give his opinion on the selected websites, especially the top of the homepage. On the homepage of KiKa, as can be seen in Figure 4, there is a smiling child with text next to it saying that she has 25% chance to die before her birthday. Children with Cancer UK shows a sad looking child, as can be seen in Figure 5. The accompanying text is not related to the image.

The expert pointed out that the KiKa child is not in a medical setting, while the Children with Cancer UK child clearly is. He also pointed out that the KiKa child shows more hope; the child is smiling even though she is suffering. The image used by children with Cancer can be too sad, too distancing for visitors. A smiling child might also be more inviting and comforting for visitors, and thus creating a more suitable form of pathos.

The website of the Duchenne Parent project, as can be seen in Figure 8, reminded the expert more of the 50s than of a disease. The black-and-white photography makes the images look like they were in the past. The red colour was in that context also too demanding, according to him.

The website of the Michael Mosier Defeat DIPG Foundation looks unprofessionally made. This gives the website a certain charm, as you can see that it was made by the parents themselves. It is personal, and that is an aesthetic choice that can work, as this creates pathos in its own way. It then depends on what you want to achieve, how big you want visitors to think your organisation is, and the kind of impression you wish to make. It also matters what people would expect from your website. If they expect you to be a big

foundation, it is important that you can confirm that with a pristine looking website. If they expect that you are just a small foundation, you can gain sympathy by reflection that.

In conclusion, there is no objective right or wrong, but mostly depends on what a foundation wishes to communicate, and how. Matching expectations and presentation is key. It is, however, likely that a certain hand-done quality to the website can enhance the expectation. Also, a smiling child with text will probably work better than a sad child, as the hope from the smiling child can motivate people to engage more, instead of getting too uncomfortable from the child.

3 Method

In this chapter, the process which is being used during this project is outlined. First, the broad process is described, after which each part of that process is described. After that, the specifics of stakeholder identification and analysis, requirements identification and analysis and the evaluation method are described.

3.1. Design process

For this research project, the Creative Technology Design Process has been used, as developed by Mader and Eggink [28]. The process consists of several phases: First is the ideation phase, in which various ideas are generated. Second is the specification phase, in which the preferred product concept from the ideation phase is further explored. Third is the realisation phase, in which a prototype will be produced. Lastly, the prototype will be evaluated. These phases are further explained below. It is not necessarily a linear

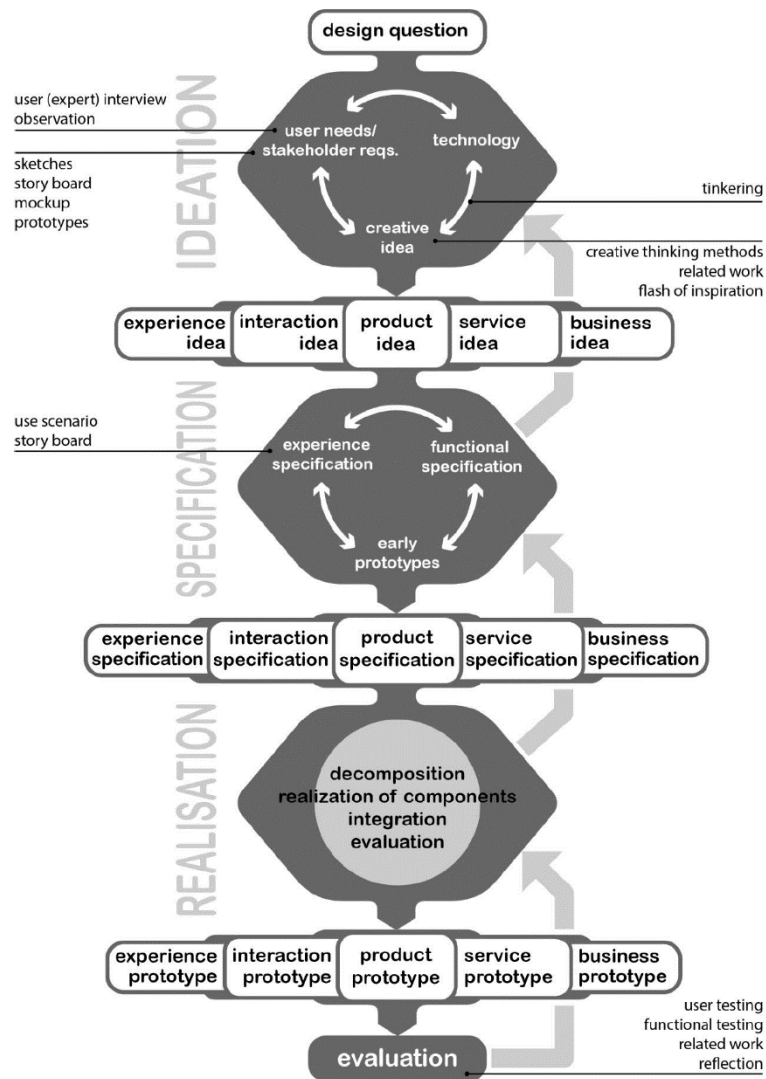


Figure 12: A Creative Technology Design Process [28]

process, and the steps can be used iteratively. A visualisation of the process with more detail is shown in Figure 12.

3.1.1. Ideation phase

The ideation phase is started by the design question, which has been posed by the client. Following from this, stakeholders need to be identified. How this is done is described in section 3.2. The needs of these stakeholders, i.e. the preliminary requirements, are identified by interviewing the client. In order to be able to accommodate the user needs, background research was done. The background research existed out of a literature review and of a state of the art review, combined with an expert interview. This research was then used to generate many ideas for this phase in various rounds. After each round, a semi-structured interview was held with the client to gather feedback on the concepts. A semi-structured interview was chosen so that it was possible to delve into the feedback of the client, without missing anything, and so that the client could speak freely.

The first round of concepts are created by rapid prototyping these in a diverging way, and with each round of feedback, the concepts were created in a more converging way, until a final concept is chosen.

3.1.2. Specification phase

In the specification phase, scenarios and storyboards are created to gain more insight into the interaction of the possible users of the online communication platform. This is based on the final concept of the ideation phase. Scenarios are fictional descriptions of fictional people using the product. These descriptions are based on what is known about the target audience and as realistic and accurate as possible. This allows for a cognitive walkthrough of the product without having a completed prototype. Storyboards are based on scenarios, but also use images to better visualise what people are doing. The cognitive walkthrough that is necessary to complete the storyboards can identify use cases and possible problems that users might run into. This allows for insight in how people interact with the product, and to get functional requirements for the final product.

The final concept from the ideation phase is then expanded upon, and a wireframe of the online communication platform is created for the realisation phase. This wireframe gives a clear overview of what should be on each page, and enables discussion based on what should be on the platform and where, without having to build the complete platform. Finally, a final set of (non-)functional requirements is created based upon the final concept which can be evaluated in the evaluation phase. The requirements are categorized using a MoSCoW analysis.

3.1.3. Realisation phase

Based upon the wireframe and the requirements, an interactive prototype is created. The tools used to create it and the design elements of the prototype are outlined. The design will be split up in parts, each page being a separate part. After each part has been created, a look will be taken at the previous parts, to see if items are reusable.

3.1.4. Evaluation phase

During the evaluation phase the prototype will be analysed with a functional evaluation and a user evaluation. The functional evaluation will be done using the functional requirements obtained in the specification phase, during which the prototype will be checked against the requirements, in order of priority. The user evaluation will be done using an online survey in which the participants are asked to use the prototype and then answer questions about it. In this survey the non-functional requirements will be evaluated, and the questions will be based on these requirements. The client will be asked about the prototype in a semi-structured interview.

3.2. Stakeholder identification and analysis method

For each and every step, the stakeholders need to be kept in mind. These are people who in some way have an interest and influence in the project. This ranges from the users of the end product, to the client. To identify them, the client is interviewed and a small brainstorm will be held, to create a list of stakeholders with an explanation of their interest.

These stakeholders will then be analysed using a power/interest grid, as described by Mendolow [29]. In this grid, power is plotted on the Y-axis, and interest is plotted on X-axis. Some stakeholders have a lot of power, but not a lot of interest. An example of that is the government: One must comply with their rules, but once you do, they have no interest in what you're doing. Other stakeholders don't have a lot of power, but do have a lot of interest. High school children are a good example of this—they have very little power to change anything within the school, but are highly interested in what is going on. An empty grid which clarifies how each segment should be treated can be seen in Figure 13.

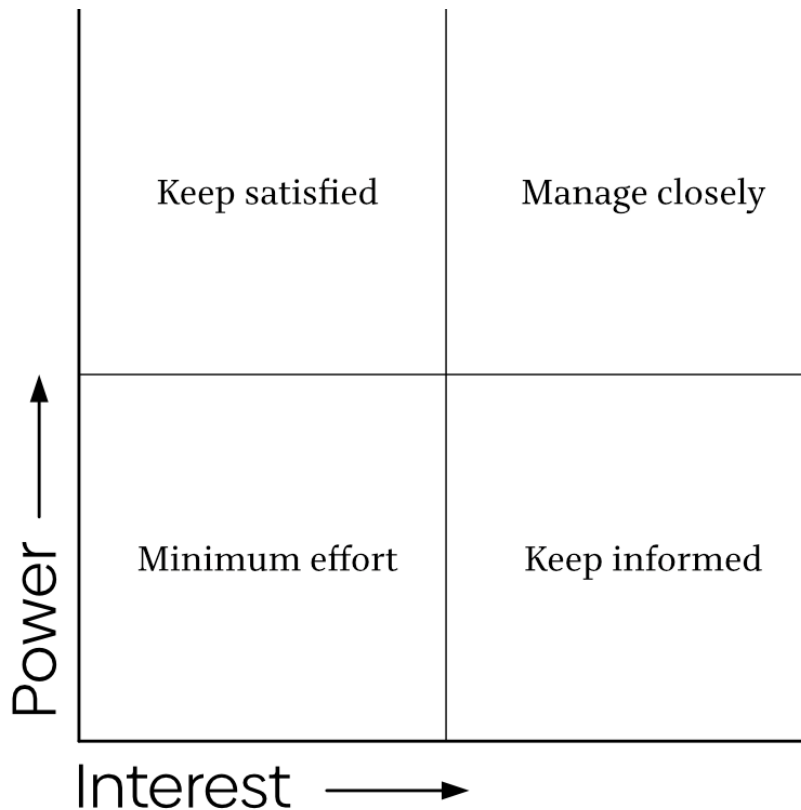


Figure 13: An empty power/interest grid, clarifying the segments

By analysing the stakeholders and putting them on this grid, it becomes more clear how to manage each stakeholder. Low power and lower interest means that there should go minimum effort into that stakeholder. Low interest and high power means that the stakeholder should be kept satisfied. Low power and high interest means that they should be kept informed. Finally, high power and high interest means that the stakeholder should be managed closely [29].

3.3. Requirements identification and categorization

Identifying the requirements follows from various steps. During the ideation phase, requirements are identified from the meetings with the stakeholders. Others follow from the background research. These are checked by the stakeholders during interviews and lead to the preliminary requirements. A MoSCoW analysis [30] is done on these requirements. It lists the importance of each item in Must have, Should have, Could have and Won't have. From must have to won't have, there is a decreasing amount of importance. Without the must haves, the product will not be minimally viable as accepted by the most influential stakeholders, which will be in the top right corner in Figure 13. The won't haves, however, will certainly not be included in this version for various reasons.

During the specification phase, these requirements are split into functional and non-functional requirements. The requirements are

also more specified and some requirements are added from a designer's perspective. The MoSCoW analysis is done again.

3.4. Evaluation method

During meetings with the stakeholders, some feedback is already gathered. This ensures that the project and the prototype don't diverge much from what the client and supervisors intended, and to ensure that previous feedback is properly understood. However, both a user evaluation and a functional evaluation are still required.

The functional evaluation will be done using the functional requirements specified in the specification phase. The designer can check if these requirements are met, and to what extent. Using the MoSCoW analysis, the prototype can be deemed sufficient or not.

The user evaluation will take place completely online due to the COVID-19 pandemic. An online survey will be used, as this is more time-efficient for both the participant and the researcher compared to an interview. The survey will ask questions regarding the non-functional requirements and the research questions, and check if these are sufficiently met by participants.

4 Ideation

In the ideation phase, the stakeholders are identified and analysed, and preliminary requirements are created based on the stakeholders and the background research. After that, multiple rounds of concepts are described, after which the final concept is presented.

4.1. Stakeholder identification and analysis

Below, the identified stakeholders are mentioned, with their interest explained.

- The Tobias Sybesma Foundation
 - o The foundation is the client of this project, and therefore has a very high interest and power in this project. They make certain decisions about the communication platform, and decide on the direction of the project.
- (Possible) Supporters
 - o These are generally people who have heard about brain stem cancer, and wish to learn more about it. They google it, and find the platform. They want to learn more about DIPG, and might be inclined to support the Foundation's cause, either by setting up actions or by donating money. They have for this project low power and high interest.
- (Possible) Researcher volunteers
 - o Knowledgeable people might be able to help out by donating their time or money e.g. volunteer to help with research. They are in many ways similar to supporters, however, due to their more academic inclination, they have a bit more power and interest than a normal supporter.
- Child patients
 - o These are children that have been diagnosed with DIPG and wish to learn more about their ailments. They have high interest in the platform itself, and very low power.
- Parents of child patients
 - o The parents might also wish to learn more about DIPG themselves, and of course hold stakes in what their child might see on the platform. Because of this, they have significantly higher interest and power than the child patients.
- Supervisors
 - o These are not end users of the product, however, being supervisors of this project, they are highly influential on the end.

Within the scope of the research project, it is not possible or desirable to involve child patients or the parents of child patients. It would not be ethical to include these stakeholders, going through a difficult time, in the research. For this reason, they are not active stakeholders. Their interest will therefore be held by the Tobias Sybesma Foundation. For this reason, they are not included in the

stakeholder analysis. For this analysis, a power/interest grid has been created and can be seen in Figure 14.

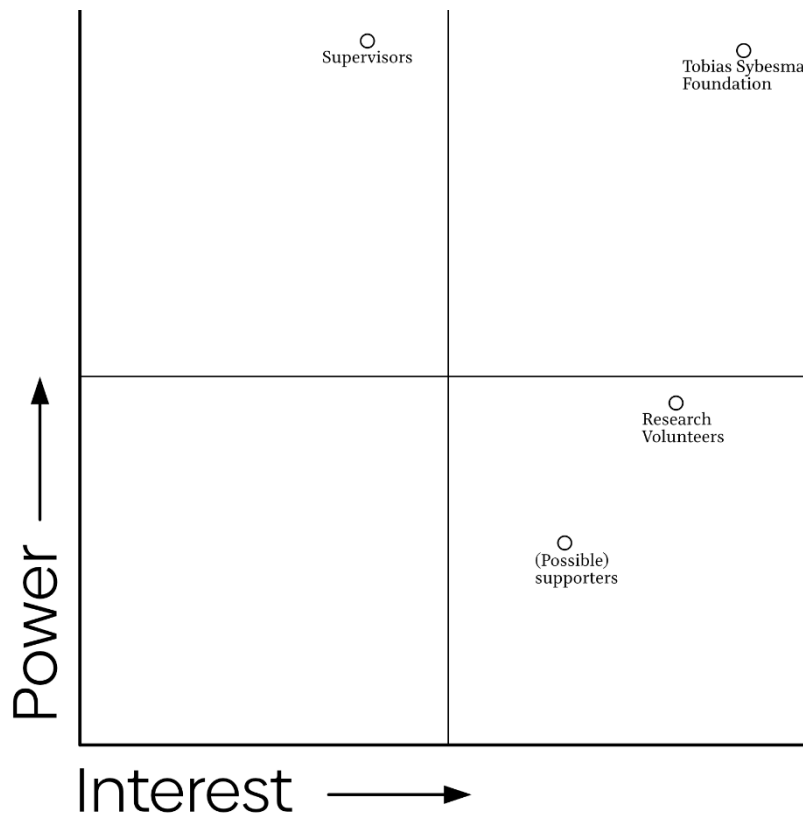


Figure 14: A power/interest grid as described by Mendelow [29].

4.2. Preliminary requirements

The client wants to have an online communication platform on which more information regarding DIPG, or brain stem cancer can be found. This project has its focus on the possible supporters, as other researchers are working on focus for the child patients and the family of those child patients. In Table 1 there is a list of preliminary requirements gathered during the background research and meetings with the client.

Requirement	Must	Should	Could	Won't
Online	X			
Clear language	X			
Splitting the target audiences	X			
Containing clear, factual information about DIPG	X			
Motivates possible supporters to becomes supporters	X			
Interactive		X		
Platform comes across as reliable		X		
Visitors feel empathic for the cause		X		
Easy to navigate		X		
Platform is in English		X		
Clear and fitting typography			X	
Clear and fitting colours			X	
Consistent visual style			X	

Table 1: MoSCoW analysis of the preliminary requirements

4.3. Preliminary concepts

During the ideation phase, multiple rounds of concepts were created. After each round, feedback is asked from the client and supervisors.

4.3.1. First concept round

During the first concept round variants of the top of the homepage were created. This was because the top of the homepage is usually the most unique page, and immediately gives a clear idea of what the rest of the website looks like. It is, after all, the introduction to the website.

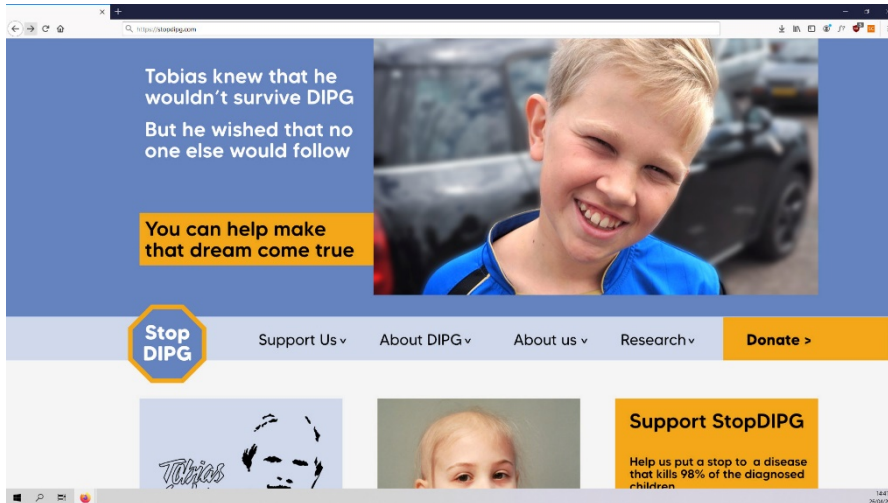


Figure 15: First concept of the first round

The first concept focuses on Tobias Sybesma and his inspiring words, which can be found on the website of the Tobias Sybesma Foundation. This concept can be seen in Figure 15. On top of that, it uses calming and vibrant colours combined with white to remind both of children and of hospitals. Using Tobias like this connects the platform to the Tobias Sybesma Foundation, makes it very personal. This creates pathos for the Foundation and the platform and a bit of ethos, as it makes it feel more real.

The second concept focuses more on the hospital theme. It uses red, white and blue, which are more intense colours, and more related to hospitals. The concept can be seen in Figure 16. The imagery creates empathy and works towards pathos, while the text at the top works on the logos. Combined, this creates an impactful image.

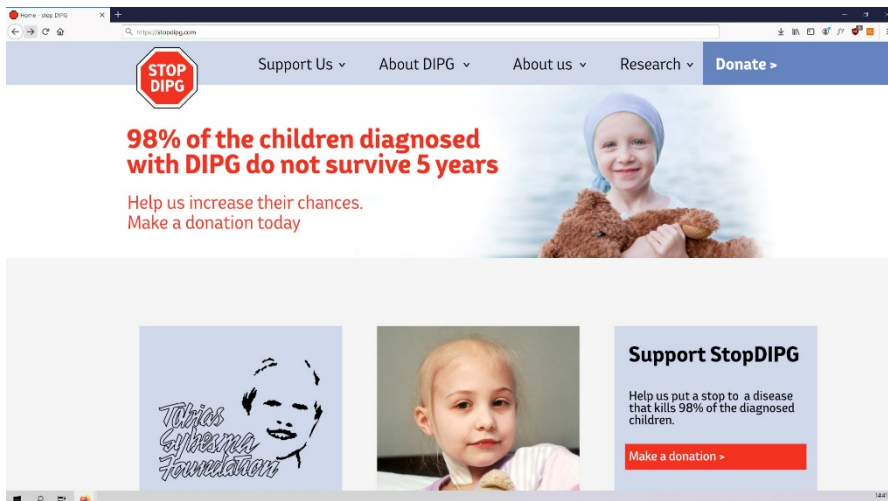


Figure 16: Second concept of the first round

The third concept combines elements from the previous two, with a handwritten font, to reinforce the child-like nature. This works towards pathos, as it gets more personal, as if Tobias himself has written it. The concept can be seen in Figure 17. The blue colour is more vibrant in this concept than the previous two, as to make it a little less clinical and to remind a bit more of children.

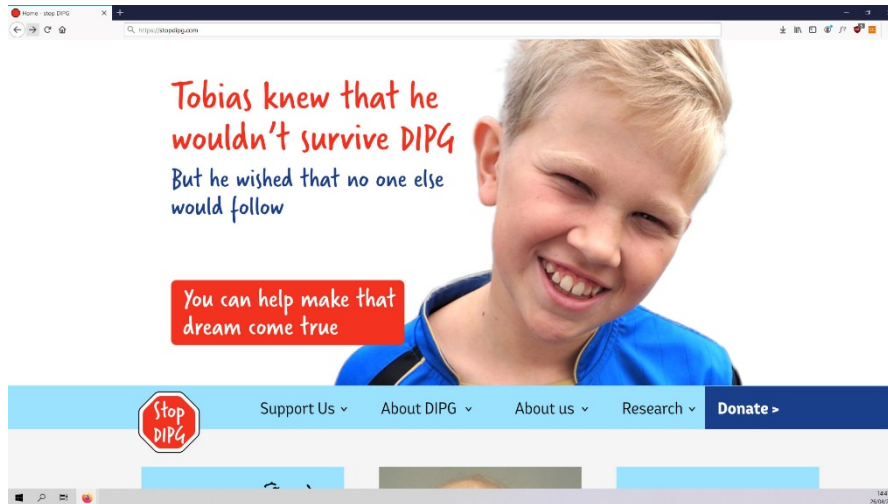


Figure 17: Third concept of the first round

The fourth concept goes into a different direction. It can be seen in Figure 18. It uses a butter yellow, a colour often seen in schools and hospitals. Each picture has two years attached to them, which reminds people of birth and death date. Below the pictures is a statement about the survival rate of DIPG. This creates a lot of pathos for these children and the cause of the Foundation.

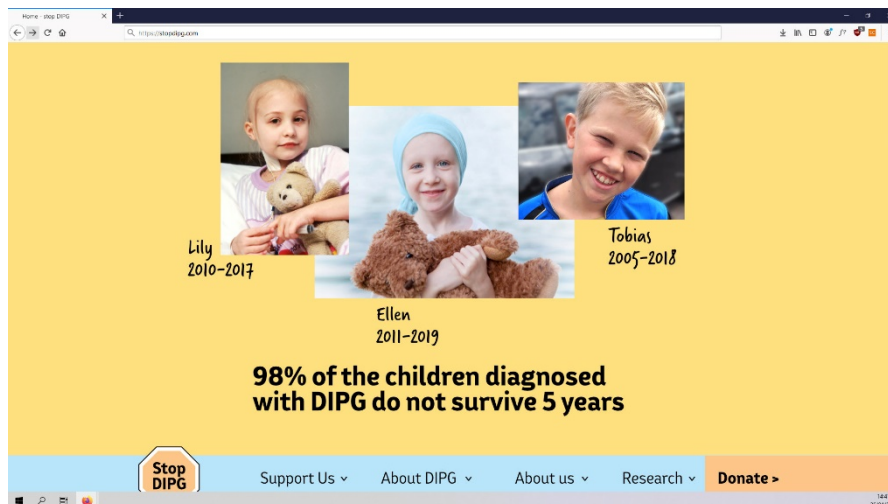


Figure 18: Fourth concept of the first round

The fifth concept is a drastically simplified iteration. It tries to split the target audiences at the homepage, subtly, using imagery that connects to the target audiences in question. The concept can be seen in Figure 19. Imagery of children and parents are used so that pathos is created.

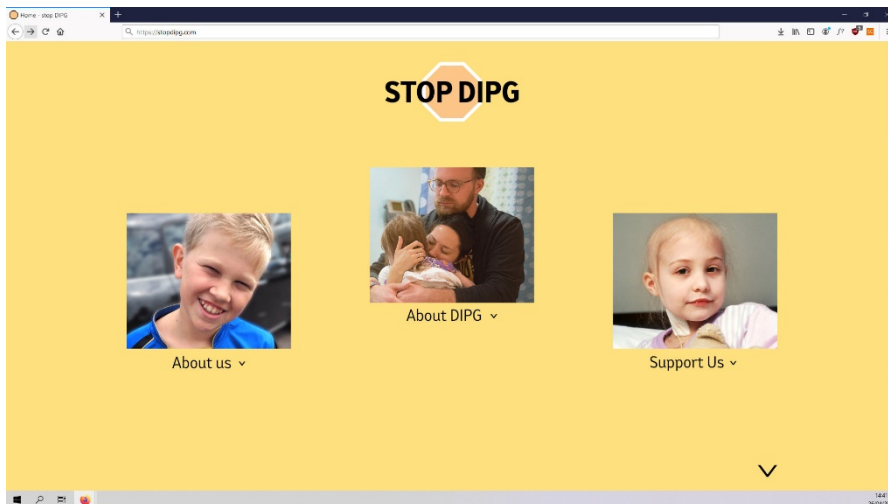


Figure 19: Fifth concept of the first round

4.3.2. Second concept round

After discussing the concepts with the client, it appeared the direction of the concepts was a bit off. On top of that, the client did not wish to have Tobias Sybesma represented anywhere on the envisioned product. Therefore, a second round of iterations was done. These are more focused on splitting the target audience on the homepage. The client preferred the colour palette of the fourth and fifth concept of the first concept round.

The first concept uses monochromatic icons from Flaticon [31]. The icons are accompanied by text, further explaining the icons. The separation is also colour coded, giving potential for making clear on what section of the site the visitor is. This together creates a more professional, corporate look, which looks reliable and therefore creates ethos. This concept can be seen in Figure 20.



Figure 20: First concept of the second round

The second concept reinforces the hierarchy of the previous iteration by putting the adults top left, the children top right and the supporters below, as can be seen in Figure 21. The adults and the children are the more important target audiences here, as they are in a stressful situation, while supporters typically are not. The icons have been changed from clear lines to pencil-like drawings, to get a more hand-done and child-like feeling to it, which creates pathos.

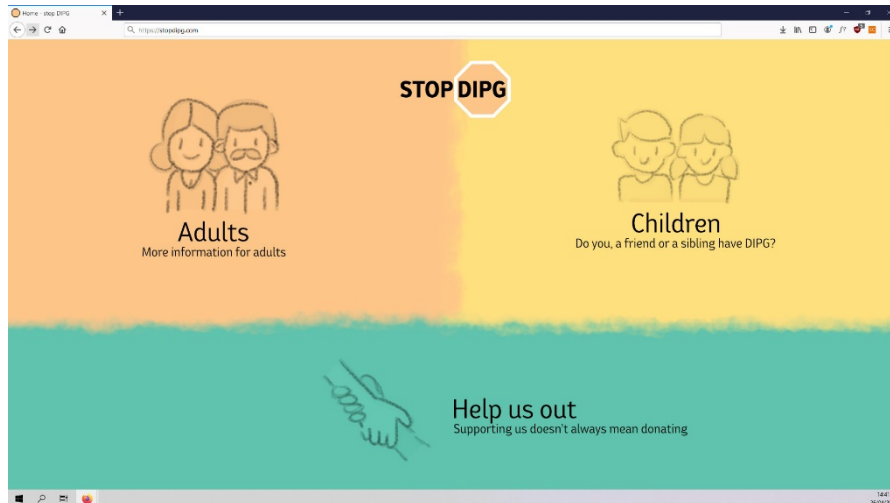


Figure 21: Second concept of the second round

The third concept eliminates the icons, and instead attempts to achieve the same effect using different typefaces. This simplifies the homepage, but also makes it more abstract. The colour for adults has been changed to blue, as this is a more serious colour, and thus feels more appropriate here. It also opens up orange as a colour used for highlighting things, such as buttons and the logo. This helps with the ethos. It can be seen in Figure 22.



Figure 22: Third concept of the second round

The fourth and last concept of the second round reverses the previous concept, and instead only uses the icons. It creates a very simplified feeling, which could create more ethos, although it can possibly reduce pathos, as it becomes more clinical. It can be seen in Figure 23.



Figure 23: Fourth concept of the second round

There was also ideation with animations on the drawings. However, after consulting with stakeholders, the idea was seen as seeming too cheerful for the context. Similarly for having the drawings on the homepage coloured in; this was also deemed too cheerful for the context.

4.4. Final Ideation concept

After the last round, the client was quite enthusiastic about the second concept of the second concept round, as the hand-drawn feeling felt more personal, and he felt that it best represented the platform. Based on his feedback and the supervisors' feedback, the final ideation concept was created. The concept created for the landing page can be seen in Figure 24.



Figure 24: Chosen concept for the homepage

The colours light blue, butter and green were chosen because these colours in harmony together. Butter was chosen because it reminds of hospitals and schools, and of children, and thus creating pathos. Light blue was chosen because it is a more serious colour, and therefore more appropriate for adults, which works to create ethos. Green was chosen because it is in harmony and followed from the other colours. It also gives a calm feeling, and in the combination presented here, the total home page image reminds of children, while still remaining calm, reinforcing the pathos. The green here is also the darkest of the three colours, resulting in less contrast with the image and text, meaning that the focus will lie on the adults and the children, which are the two more important target audiences.

The adults and children are also placed on top, placing them higher in the hierarchy. This also creates the symbolism that the possible supporters visually support the adults and the children. The adults are placed left, placing them higher in hierarchy based on location. However, the butter colour of the children has the most contrast, it being the brightest colour. Therefore, the adults and children are at a similar place in the hierarchy.

The font chosen here is Bw Helder, designed by Branding with Type [32]. A small sample of the font can be seen in Figure 25. The font is a humanistic sans serif, and according to the designers, “[i]t instils a friendly yet professional tone of voice” [33]. This fits well with the tone that the rest of the imagery instils, which reinforces both the pathos and the ethos.

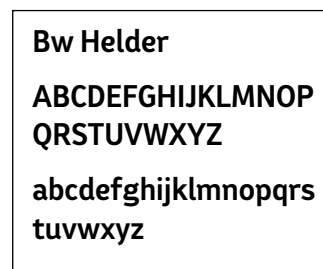


Figure 25: A sample of Bw Helder

The font being a sans serif was also advised by the literature research done.

The icons on the homepage look like they have been drawn by pencil. The borders of the three areas also look like this. This reminds of children and childhood but does this while staying serious. Colourizing the icons or making them coarser would make them too playful, and make the page look less trustworthy and thus reinforcing the ethos. Using more professional-looking icons would look too standard and was not in line with the client’s wishes.

The logo of StopDIPG is not the focus of this project; however, it was still taken into consideration. The logo resembles a stop sign, as can be seen in traffic. However, the red has been replaced by a friendly orange, which is in harmony with the other colours. The octagon also has been moved from behind ‘stop’ to being behind ‘DIPG’. This puts the emphasis on the DIPG instead of on stop and focuses more on what the foundations is trying to accomplish.

The concept doesn't stop at the homepage. After having clicked on "Help us out" in the green area on the home page, a visitor will be taken to the page that can be seen Figure 26. When the visitor hovers over one of the drawings, the photograph on which the drawing is based fades in. After the visitor has hovered over one of the images, a link will appear, as can be seen in Figure 27. This will also reveal a name and two years. The name will identify the child and make it more personal. The years will quickly remind people of birth date and death date. This tells the visitor not only that the child has died, but also that they have died at a young age. This is based on pathos.

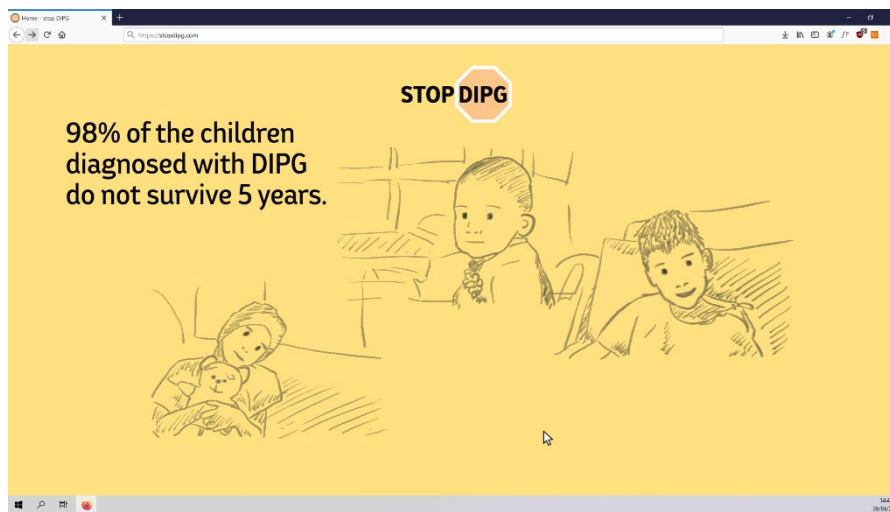


Figure 26: The page that is seen after clicking on "Help us out" on the homepage.

Going through this page every time when a visitor quickly wants to look up something can be very tedious. That is why this page will only be shown once, the first time someone visits the site. Using functional cookies, the site can keep track of who has visited before and who has not.

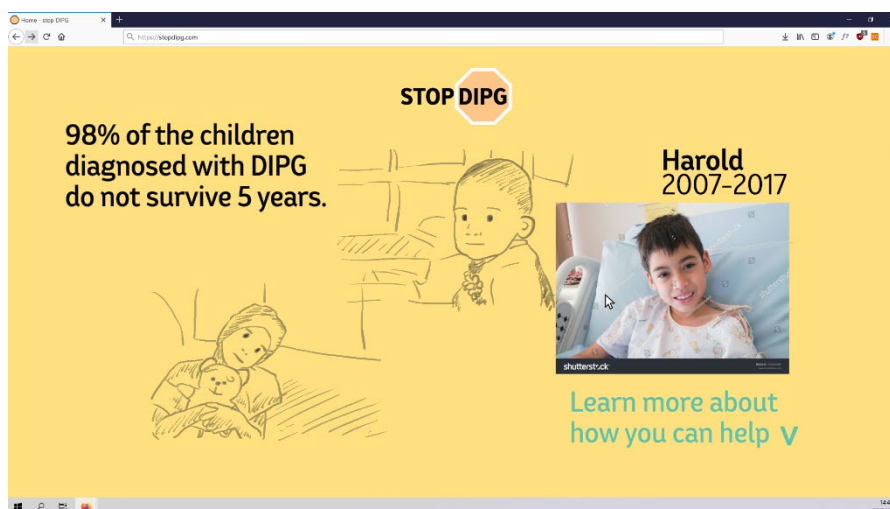


Figure 27: Hovering over a drawing will reveal an image.

After going through this page, or having skipped it if someone has visited the page before, one will continue to a page on which a supporter can find more information about StopDIPG. The concept for this can be found in Figure 28. The backgrounds of the items resemble being painted or drawn, to tie it in with the rest of the website. There is some redundancy in the menu items at the top and the blocks in the middle. This is present to ensure a consistent menu structure on all pages, and ensuring these items are easily reachable from every page. However, from the central page, these menu items would require extra attention in order to help the visitor choose a page and are therefore presented again with an image, a short piece of text and an extra link to them.



Figure 28: Concept of the page from which more information can be found.

4.5. Conclusion

Pathos, logos and ethos are three modes of persuasion, and when used together, can be used to effectively convince someone. However, they fulfil another function—creating reliability is also necessary in order to make sure that visitors feel like they got reliable information. The final concept hits all points of the modes of persuasion, conforms to the research done and satisfies the wishes of the stakeholders and in particular the client. Therefore, it can be concluded that this concept is sufficient to continue to the next phase.

5 Specification

The final concept from the ideation phase is specified in the specification phase. Various scenarios will be presented of which storyboards are created, to give an idea of how a user interacts with the online communication platform, and what they might want from the platform. After that, the wireframe for the website is presented. Lastly, the functional and non-functional requirements are set, that are used for the realisation phase.

5.1. Scenarios

The scenarios below each describe a type of user, with more focus on supporters. The accompanying storyboards can be found in Appendix A: Storyboards.

5.1.1. Toni

Toni has recently been diagnosed with DIPG, at 8 years old. He does not fully understand what this means, and while the doctor has explained it to him, it's still difficult to grasp. Because he wants to know more about his situation, his mother, Mary, looks for a suitable website for him online. She finds StopDIPG.com Under supervision of his mother, Toni pays a visit to the website. He sees the three areas: Adults, children and supporters. It is obvious he is a child out of these three and clicks there to continue.

What he finds here, is dependent on the research of Hillebrand [34].

5.1.2. Tamara

Tamara, who is 12 years old, recently was told that her little brother is really, really ill. He has something called DIPG. Her parents are very sad about this. Tamara doesn't know what this is, and decides to look online for more information. There she finds the website "StopDIPG.com". She goes and takes a look at it. There she sees the three areas: Adults, children and supporters. Even though she doesn't feel like a child, she's also really not an adult, and really not a supporter, so she clicks children anyway.

What she finds here, is dependent on the research of Hillebrand [34].

5.1.3. Mary

Mary is in distress. She's in a crisis situation. Her son has been diagnosed with DIPG. Mary needs help and support. She wants to understand the disease better. So, she starts looking online. There she finds the website "StopDIPG.com". On it, she sees three areas. Adults, children and supporters. She clicks on Adults.

There she finds information about DIPG and how to support her child and how to deal with upcoming months.

5.1.4. Keighley

Keighley recently learned about brain stem cancer. A kid on the news had it, and she heard that there is currently no cure. She wants to learn more about it, and maybe help. Keighley starts looking

online and comes across “StopDIPG.com”. She visits it and, on the homepage, she almost clicks on “Adults” when she notices the Supporter option. That sounds more like her. She clicks there and she sees three drawings of children. She hovers over one of them and the drawing fades into an image, and two years appear and a name. “Harold. 2007–2017”. It dawns on her that Harold has died, and only got to be ten years old. A link has appeared that states “learn more about how you can help”. She clicks it and she is now on what she is more used to for a website. She starts looking into it and she learns more about what DIPG is. She learns that StopDIPG is part of the Tobias Sybesma Foundation. She finds out more what the foundation does. In the end, Keighley feels really bad for the children struggling with this disease and decides to donate some money.

5.1.5. Finn

Finn is doing research at a university at the biomedical faculty. During his time there, he comes across DIPG. He knows little of this specific disease, but that it hits little children breaks his heart and he wants to know more about it. Looking online, he comes across StopDIPG.com and visits the website. He sees the three groups and immediately recognizes himself as a supporter. Finn clicks on it and sees the three drawings. He hovers over each of them, viewing the pictures that fade in when he does. When he gets to the next page, he notices that money isn’t the only thing he can donate. He can contact the foundation and work directly on the solution. Even though he isn’t directly familiar with DIPG, he does know plenty of other related areas. He scrolls down and sees a monetary breakdown, and the foundation’s finances. This instills trust in him, because he sees that the money goes to the right places. He reaches out to the foundation by going to the contact page, willing to donate his time.

5.1.6. Eduard

Eduard heard that a boy in his street was diagnosed with DIPG. Not knowing what this is, he looked it up online, and found the website “StopDIPG.com”. There, he clicks on supporter, and sees the children with the years. He draws the conclusion that the years are birth and death years of these children. He feels for these children, especially because he knows a boy just like them living close by. Eduard sees that he can help, and not only by donating money. He looks at the rest of the website and learns a bit more about DIPG. He looks at the various ways someone can help the foundation. While he himself doesn’t study or research anything remotely related, he does know someone. A high school friend with whom he still has contact. Eduard shares the website with him by clicking the share button on the website. He also donates some money. Then he starts to think what else he can do. There’s an annual run close by, organized by someone Eduard knows. Every year, the proceeds of

this run go to a charity. Eduard thinks he just found next year's charity and contacts both StopDIPG and the organization of the run to bring the two together.

5.2. Wireframe

Wireframes were created for the whole website. The wireframe will be used during the realisation phase as a template, and to get feedback on the entire design before creating it. It is essentially a lo-fi prototype. It can be seen Appendix B: Wireframe.

The first page shows the supporter home page, which is the page visitors will get to after having clicked "supporter" on the landing page. It shows three sections, which contain items from the menu. This is there to highlight these sections. These sections are "About DIPG", "About us" and "How you can help". Below that is an area with "The story of Harold" in short. Harold is a fictional child with DIPG. There is a button which would direct the visitor to the full story of Harold. Below that is a breakdown of where the donated money goes, together with a download button for the full financial report. Underneath that is an area similar to the story of Harold, but this time it is dedicated to research being financed or organised by the Tobias Sybesma Foundation. Below that is a short piece of text about the Tobias Sybesma Foundation, together with their logo. At the bottom of the page is a short call to action in the form of a "help us out" area with buttons asking for money, knowledge and network.

On the "About DIPG" page, there will be information about DIPG, with added images. This is somewhat subject to change, as not all information is always available. At the bottom, the same call to action as on the previous is shown.

On the "About us" page, it starts off with a part about why StopDIPG.com was created. After that, it shows a part about the Tobias Sybasma Foundation, together with their logo and a link to tobiassybesma.nl. Below that, a part about Mr. Reitse Sybesma himself, together with a picture of him. This makes it more personal and direct. Underneath that, a part about what the Tobias Sybesma Foundation does and the breakdown of the costs is shown again. At the bottom, once again, the same call to action.

On the "Stories" page, there are multiple areas, each one for a different story of a different person. Below these areas, there is a button for people who want to share their story on the page too.

On the "Research" page, there is a general text about the research, and then a section for each research that is going on, along with an image if possible. At the bottom there is a specific call to action, asking if the visitor wants to help with research specifically, or if they know someone who can help with research.

On the “How you can help” page there are three areas for each type of donation: Money, knowledge and network, although it’s not necessarily phrased like that. Each area has a button with the action relevant to that area: Donate, contact and share button respectively. Below this are parts further explaining about donating money, helping out directly by sharing your knowledge and how one’s network is beneficial. Below that is an area similar to the call to action on other pages, however, this time the buttons are directly a donate button, a button to the contact page and a button that shares the website.

5.3. Personal stories of children

A part that was planned for this website was a page dedicated to the personal stories of children who suffer or have suffered from DIPG. This can be seen in the wireframe in Appendix B: Wireframe on page 62. However, the choice was made to remove this page and other parts related to personal stories.

The first reason came from the ethical evaluation [35] that was done parallel with this research project. From that evaluation, it turned out that asking for the stories and/or photos of children who are dying of DIPG or who have died of DIPG is not ethical. The certainty that a child will die of DIPG makes it different from the analysed websites, such as KiKa and the Duchenne Parent Project, where you could use the stories of children who might get better or who have gotten better.

On top of that, the client did not wish it to be in there, both for the ethical reason as for the reason of it being difficult to gather such stories. The website should not be more work for him and the foundation. Therefore, the parts of the wireframe concerning personal stories of children, were removed from the wireframe, and not executed in the realisation phase.

5.4. Final requirements

The requirements were updated to reflect the changes found in the specification. They have also been split into functional and non-functional requirements. These can be seen in Table 2.

Functional requirement	Must	Should	Could	Won't
Online	X			
Use laymen's language and avoid jargon	X			
Splitting the target audiences into children, adults and supporters	X			
Containing clear, factual and medically correct information about DIPG	X			
Does not contain stories or photography of children	X			
Contains a way to donate money, contact the Tobias Sybesma Foundation and share the platform via a link	X			
Should always allow a visitor to go back to a previous page	X			
Contains information about current research funded or organised by the Tobias Sybesma Foundation		X		
Contains information about StopDIPG.com and the Tobias Sybesma Foundation		X		
Contains contact information and a contact form		X		
Interactive, clickable buttons that link to other pages		X		
Platform is in English		X		
Containing typography which follows the guidelines as set by the background research			X	
Containing colours which are in harmony			X	

Contains a breakdown of where the donated money goes to				X
Consistent visual style				X
Non-functional requirement	Must	Should	Could	Won't
Motivates possible supporters to becomes supporters	X			
Platform comes across as reliable		X		
Use a professional, friendly, sans serif, typeface		X		
Use professional, friendly colours		X		
Visitors feel empathic for the cause		X		
Use a hand-done feeling		X		
Easy to navigate		X		

Table 2: The final requirements

6 Realisation

In this chapter, the way the prototype has been created and the prototype itself are laid out. First, the tools are discussed. Then, the content of the prototype is discussed in detail, and lastly, the prototype itself is discussed.

6.1. Tools

In order to create the interactive prototype, Adobe XD was used. Adobe XD is a prototyping tool created specifically for web and app development [36], and thus ideally suited to create this prototype. The main advantage is that a website can be created quickly, while being as close to a real website as possible. On top of that, the prototype can be easily shared via a link, which is necessary to evaluate it during COVID.

To create the images, drawings and textures of the website, the Affinity suite [37] was used, existing out Affinity Photo, Affinity Designer and Affinity Publisher. This was chosen because it allows the developer to quickly switch between vector and raster tools. This allows for faster creation of assets and faster iteration in the creation of the right assets.

6.2. Content

6.2.1. General

There are in total 4 colours used, together with white, black and grey. These colours are green, with the hex code of #60C3AD, light blue, with a hex code of #B9E5FB, butter, with a hex code of #FFE07F and orange, with a hex code of #FDC689. These colours are in harmony with each other. Icons and drawings were made with a 50% grey digital pencil brush in Affinity Photo.

The typeface used everywhere is Bw Helder. For pieces of text, the font size is set to 25pt and the weight used is regular. For headings, the size is set to 53pt with the bold weight. Subheadings and buttons are also 53pt, but with the regular weight. The menu items are set to 25pt and in the bold weight. The menu items in the footer are set to 34pt and in the regular weight.

6.2.2. Assets

The created assets were in many cases made to be reusable across the prototype. In other case, unique assets were necessary. For example, the background panel, of which a screenshot can be seen in Figure 29, is reusable and can be used again on another page without visitors noticing it is the same panel. Some assets that were created in the ideation phase can be reused, or simply updated.



Figure 29: A reusable background panel used in the prototype

An example of an asset that has been updated can be seen in Figure 30: The drawn icons for the Children page. This asset has already been created in the ideation phase, however, it has been redrawn to get a better quality.

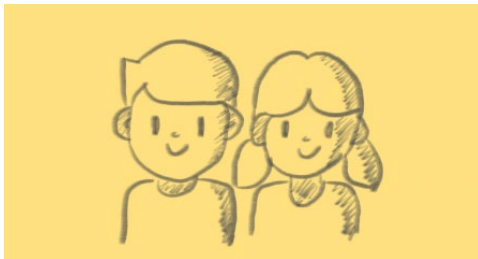


Figure 30: The drawn icons for the Children page

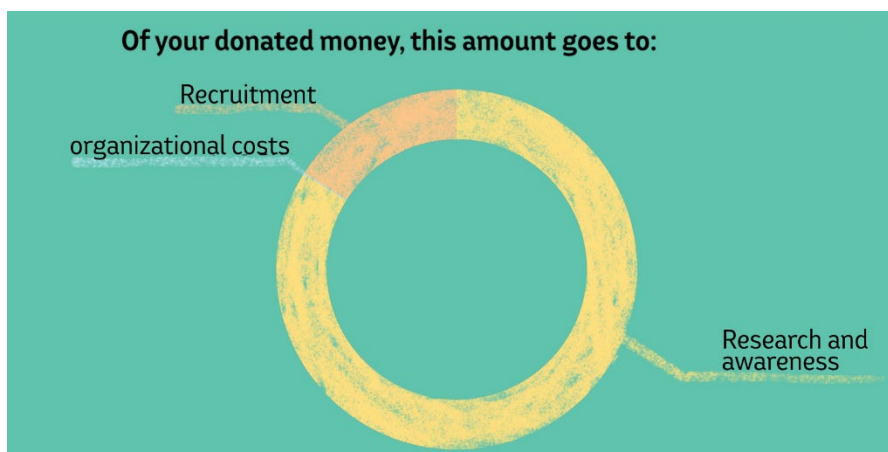


Figure 31: breakdown of costs per donated amount

Another asset of interest is the breakdown of the donated money, which can be seen in Figure 31. It is based on the financial report found on the website of the Tobias Sybesma Foundation [38]. To make it fit the style of the rest of the website, the chalk-like texture

is applied to the figure as well. The edges however, remained sharp for it to remain a clear and accurate data visualisation.

6.2.3. Texts

The texts on the pages were mainly written by the researcher. However, the “About DIPG” page containing the most sensitive information, has been based on the research done by Hillenbrand [34] and on information provided The Cure Starts Now Cancer Resource Network [39]. This ensures that this information is reliable. The information on the “about us” page has adapted based on text provided by the client, as the client has the clearest information on who they are.

6.3. Prototype

The prototype is built as pages in Adobe XD. Each page was created in order, starting with the landing page. A bird’s eye view of all completed pages can be seen in Figure 32. Pages were created from left to right in this overview. Since the supporter home page contained the most elements, a lot of those could easily be reused on other pages. A more detailed view of all the pages can be found in Appendix C: Prototype screenshots. These pages are interconnected with hyperlinks. All pages are sufficiently connected, just like a real website would be.

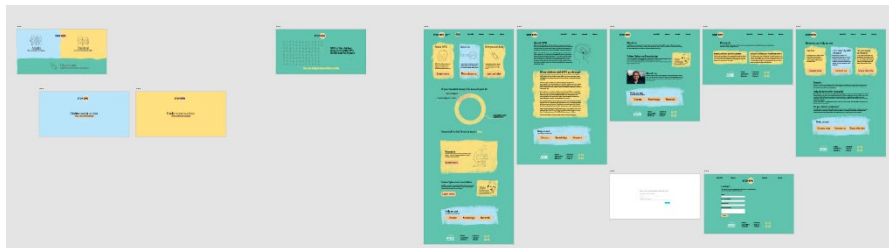


Figure 32: Overview of all pages in Adobe XD

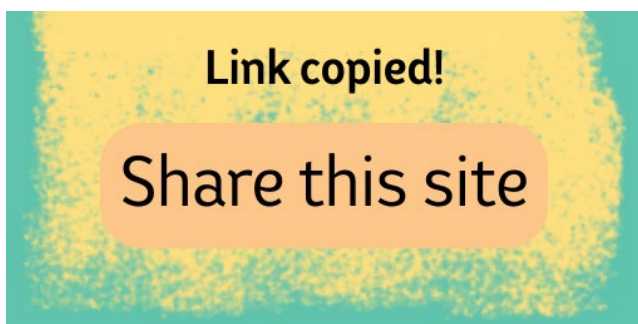


Figure 33: The prototype tells you that the link has been copied. In reality, nothing has happened other than the pop-up.

Other than a real website however, external links, the copying of links and downloads will not work. The prototype might act as if such an action will work, but it will not actually do anything. An example of this can be seen in Figure 33. After clicking the button “Share this website”, “Link copied!” will appear. However, no link whatsoever will have been copied.

7 Evaluation

The prototype was evaluated in a user-test. The goal was to assess whether the requirements specified in the specification phase were met. Due to the COVID-19 pandemic, the user-testing was organised online. A survey was designed and sent via WhatsApp and Discord to various groups the researcher is part of. This was done to get as much responses as possible. In total, 25 people aged between 18 and 65 answered the survey.

The respondents were asked to first click on the link to the prototype, and are asked to use it, look around and see if they can learn more about DIPG. This would be similar behaviour with which someone would start using the website. After going through the website, the participants were asked to fill in the survey.

The survey consisted of ten questions about the prototype and two about demographics. The full survey and the results can be found in Appendix D: Survey and survey results.

The client was also interviewed in a semi-structured interview. The client was asked to look through the prototype and give his opinion. The client was overall quite positive. He liked the colours, mainly because they were quite calm. He did not like that the buttons for the donating of money, knowledge and network pointed to the same page, where a possible supporter would have to click again in order to donate, instead of being to do that in a single click. The client was also not too happy with the term “recruitment” in the monetary breakdown. Instead, he’d prefer “Public Relations”, as that is more accurate to what that money is used for.

7.1. Results

Reactions overall were very positive. On all questions asked, the majority responded positively. There were two respondents who gave only negative replies on all questions. Both were between 18-25 and female. These can be seen as outliers, as there doesn’t seem a clear reason why they are negative on each question, nor does it seem likely they would in reality be negative about each question. Colour coded responses are shown in Figure 34 and Figure 35, where darker green is more positive and darker red is more negative. Blue is used for neutral responses.

How easy to use did you find the rest of the website? (The landing page was easy to navigate)	How easy to use did you find the rest of the website? (The supporter home page was easy to navigate)	How easy to use did you find the rest of the website? (The website as a whole was easy to use)	How easy to use did you find the rest of the website? (Information was easy to find)	How easy to use did you find the rest of the website? (Information provided was reliable)	How easy to use did you find the rest of the website? (I feel like StupidPG is trustworthy)	How easy to use did you find the rest of the website? (I feel like the Tobias Sjöbom Foundation is trustworthy)
Completely agree	Partly disagree, partly agree	Agree	Agree	Agree	Agree	Agree
Completely agree	Agree	Completely agree	Completely agree	Agree	Completely agree	Completely agree
Agree	Agree	Agree	Agree	Agree	Completely agree	Completely agree
Agree	Agree	Partly disagree, partly agree	Partly disagree, partly agree	Agree	Agree	Agree
Agree	Partly disagree, partly agree	Partly disagree, partly agree	Agree	Agree	Completely agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Completely agree	Completely agree	Completely agree	Agree	Completely agree	Completely agree
Partly disagree, partly agree	Agree	Agree	Completely agree	Partly disagree, partly agree	Completely agree	Agree
Completely agree	Completely agree	Completely agree	Completely agree	Completely agree	Completely agree	Completely agree
Completely agree	Agree	Agree	Agree	Completely agree	Completely agree	Completely agree
Completely agree	Completely agree	Completely agree	Completely agree	Completely agree	Completely agree	Completely agree
Completely agree	Completely agree	Completely agree	Completely agree	Completely agree	Completely agree	Completely agree
Partly disagree, partly agree	Agree	Agree	Completely agree	Agree	Agree	Agree
Completely agree	Agree	Completely agree	Completely agree	Agree	Agree	Agree
Completely agree	Completely agree	Completely agree	Completely agree	Agree	Agree	Partly disagree, partly agree
Completely agree	Agree	Partly disagree, partly agree	Disagree	Disagree	Partly disagree, partly agree	Disagree
Partly disagree, partly agree	Agree	Disagree	Partly disagree, partly agree	Disagree	Partly disagree, partly agree	Agree
Partly disagree, partly agree	Partly disagree, partly agree	Disagree	Disagree	Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree
Partly disagree, partly agree	Agree	Agree	Partly disagree, partly agree	Partly disagree, partly agree	Agree	Agree
Partly disagree, partly agree	Partly disagree, partly agree	Disagree	Agree	Partly disagree, partly agree	Disagree	Disagree
Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree
Completely agree	Completely agree	Completely agree	Completely agree	Completely agree	Completely agree	Completely agree
Agree	Agree	Agree	Partly disagree, partly agree	Partly disagree, partly agree	Agree	Agree
Partly disagree, partly agree	Partly disagree, partly agree	Agree	Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree

Figure 34: Colour coded responses to the survey, part 1

How easy to use did you find the rest of the website? (I think the Tobias Sybesma Foundation is making a difference)	How easy to use did you find the rest of the website? (I feel better informed about DIPG)	How easy to use did you find the rest of the website? (I would use this site again if I wanted more information about DIPG)	How do you feel about what the Tobias Sybesma Foundation is doing?	Based on your impression of this website, do you think you would be willing to support the Tobias Sybesma Foundation by means of knowledge, network or money? (hypothetically, you're under no obligation to so if you fill in yes)	What is your age?	What is your gender?
Agree	Agree	Agree	DIPG indeed needs more public after	Yes, with knowledge	50-65	Male
Agree	Agree	Agree	Important to do to spread info	Yes, with network	18-25	Female
Agree	Agree	Agree	Very positive	Yes, with network	30-35	Male
Agree	Agree	Agree		No	18-25	Prefer not to say
Agree	Agree	Agree	good	Yes, with money	50-65	Female
Agree	Agree	Agree	I really like that there are multiple opt	Yes, with network	18-25	Female
Agree	Agree	Agree	It's something that can change lives	Yes, with network	18-25	Non-binary
Partly disagree, partly agree	Agree	Completely agree	I think that what they're doing is great	Yes, with knowledge	18-25	Non-binary
Completely agree	Completely agree	Completely agree	Seems like they're doing good things	Yes, with knowledge	18-25	Male
Completely agree	Completely agree	Completely agree	This foundation appears to be doing	Yes, with money	26-30	Male
Completely agree	Completely agree	Completely agree	I feel that it is a noble effort	Yes, with money	30-35	Male
Completely agree	Completely agree	Completely agree	While not being a widespread diagn	Yes, with money	26-30	Male
Completely agree	Completely agree	Completely agree	The Foundation helps a lot with learni	Yes, with knowledge	18-25	Female
Completely agree	Completely agree	Completely agree	I think it is a good initiative and the st	Yes, with network	50-65	Female
Partly disagree, partly agree	Completely agree	Completely agree	I think it's very important. It might pro	Yes, with money	18-25	Non-binary
Completely agree	Completely agree	Completely agree	I feel like it is a very good cause. It is	Yes, with knowledge	18-25	Female
Agree	Completely agree	Completely agree	It sounds really good. I was missing i	To be honest I would be more incline	30-35	Male
Partly disagree, partly agree	Disagree	Completely disagree	Mixed feelings	No	18-25	Female
Disagree	Partly disagree, partly agree	Disagree	Good hour	Yes, with money	26-30	Prefer not to say
Partly disagree, partly agree	Disagree	Disagree	admirable	Yes, with network	30-35	Male
Agree	Completely agree	Disagree	It is good that there is awareness for	Not now, but I would think about it	18-25	Female
Disagree	Disagree	Disagree	There is a lot still in progress.	No	18-25	Male
Partly disagree, partly agree	Partly disagree, partly agree	Partly disagree, partly agree	Good	No	18-25	Female
Partly disagree, partly agree	Agree	Partly disagree, partly agree	It is a good effort, but the prospects r	Yes, with network	18-25	Female
Partly disagree, partly agree	Completely agree	Partly disagree, partly agree	It appears as if they are making a val	Yes, with network	18-25	Female

Figure 35: Colour coded responses to the survey, part 2

To the question “The landing page was easy to navigate”, eight responses were “completely agree” and nine were “agree”. The others were “partly disagree, partly agree” and one “completely disagree”. This indicates that the large majority, 17 out of 25, thought the landing page was easy to navigate.

Respondents were a bit less satisfied with the supporter home page, with eight people stating they “completely agree” with that “the supporter home page was easy to navigate”. Still, 12 respondents stated that they “agree” with this, meaning that 20 out of the 25 thought it was easy to navigate. One person disagree with this, the other four were neutral on this matter.

When asked if the website as a whole was easy to use, three respondents stated that they “disagree” and don’t think it’s easy to use. Six people “completely agree” and think it is easy to use. 12 people “agree” with that. That means that 18 out of the 25 respondents “agree” or “completely agree” that the website was easy to use, however, 3 people “disagree” with that. The rest was neutral.

To the question “Information was easy to find”, 18 out of the 25 respondents stated they “agree” or “completely agree”. Two people responded with “disagree” and the rest with “partly agree, partly disagree”.

When asked about the reliability of the information, responses are not as positive as the previous questions. Seven people “partly agree, partly disagree” and two people “disagree”. Ten people stated that they “agree” that the information was reliable and six people said they “completely agree”.

Respondents did mostly agree that StopDIPG is trustworthy. 12 people stated they “completely agree”, 8 people stated that they “agree” and two people stated they disagree. Three people were neutral on the matter.

When asked the same question about the Tobias Sybesma Foundation, people felt a little differently. Only one person responded with “disagree” to the question “I think the Tobias Sybesma Foundation is trustworthy”. 8 people said that they

“completely agree” with that statement. 12 people responded with “agree” and four people with “partially agree, partially disagree”.

To the question “I think the Tobias Sybesma Foundation is making a difference”, only 6 people stated that they “completely agree”, 10 people stated that they “agree” and 2 people that they “disagree”. 7 people were neutral on this.

When asked “I feel better informed about DIPG” one person said they “completely disagree” and two others said they “disagree”. Two people responded with “partly disagree, partly agree”, while the other 20 people either said “agree” or “completely agree”, of which 10 people said “completely agree”.

The last question that was asked to which people could respond with levels of agreement, was “I would use this site again if I wanted more information about DIPG”. 10 people completely agree with this statement and 7 people agree with it. Three people partly disagree, partly agree and four people disagree. One person completely disagrees.

The five people who answered “disagree” or “completely disagree” to the last question, were also the only ones who disagreed with anything. None of the other respondents did so. When not disagreeing, they were more likely to respond with “partly disagree, partly agree”. When looking further, at the questions “how do you feel about what the Tobias Sybesma Foundation is doing”, the responses of these five people were still generally positive, although very short. When being asked if they would hypothetically donate, of these five, two would still donate. One would not donate now, but would think about it. These five have no demographics in common.

The other respondents were quite positive about the Tobias Sybesma Foundation. Many found it a difficult topic, but thought it is good it is being researched. When looking at the question asking if people would hypothetically donate, 19 people would donate with money, knowledge or network. One person states that they would be more inclined to donate if research was being towards a cure. This kind of research is currently absent from the website. Of the people who would not donate, one filled in “partly agree, partly disagree” on every singly question. Another was pretty positive on the other questions, and did not fill in the open question asking how they feel about what the Tobias Sybesma Foundation is doing.

7.1.1. Analysis

It seemed that the navigation of the website overall is still a bit difficult for some people, based on the responses on the questions about how easy to use certain parts are, but for most people it works well and think the website is easy to use. One in five respondents is negative on each question on average, which could indicate that for a fifth of the people, the website does not work well. However, the

sample size is too small to make statements about the general population. Overall, no patterns can be found under gender, age, or whether they would donate or not.

7.2. Requirements evaluation

Functional requirement	Met?
Online	No, it was not an actually online website, but a prototype
Use laymen's language and avoid jargon	Yes, visitors felt better informed about DIPG
Splitting the target audiences into children, adults and supporters	Yes, people found the navigation clear
Containing clear, factual and medically correct information about DIPG	Yes, the information was from reputable resources
Does not contain stories of photography of children	Yes
Contains a way to donate money, contact the Tobias Sybesma Foundation and share the platform via a link	Yes
Should always allow a visitor to go back to a previous page	Yes
Contains information about current research funded or organised by the Tobias Sybesma Foundation	Yes
Contains information about StopDIPG.com and the Tobias Sybesma Foundation	Yes
Contains contact information and a contact form	Yes, although not functional
Interactive, clickable buttons that link to other pages	Yes, visitors could click on buttons and there were interactive animations, just like on a real website would be
Platform is in English	Yes
Containing typography which follows the guidelines as set by the background research	Yes, conforms to research in chapter 2
Containing colours which are in harmony	Yes
Contains a breakdown of where the donated money goes to	Yes
Consistent visual style	Yes
Non-functional requirement	

Motivates possible supporters to becomes supporters	Yes, most respondents to the survey replied they would donate
Platform comes across as reliable	Yes
Use a professional, friendly, sans serif typeface	Yes, the typeface used is Bw Helder
Use professional, friendly colours	Yes
Visitors feel empathic for the cause	Yes
Use a hand-done feeling	Yes
Easy to navigate	Possibly could be easier

Table 3: Requirement evaluation

8 Conclusion

The goal of this project was to create a communication platform for the Tobias Sybesma Foundation to reach more people and raise awareness, and to help inform child patients and families of these children. In order to do this, a research question was formulated: *How to develop an online platform for the Tobias Sybesma Foundation that enables targeted communication to special interest groups?*

To this end, a website has been developed in this research project. The website splits the target audience in three groups: Possible supporters, child patients and the family of child patients. This split happens on the landing page. After that, a visitor is guided to the home page of that area. This research focused on possible supporters, and therefore that part is the furthest developed. This website was then evaluated.

This research focused on possible supporters. A key part of targeted communication to them, is motivating them to become a supporter. Research shows that the motivation largely depends on Aristotle's modes of persuasive communication: logos, pathos and ethos. Logos is convincing people by logic. A way this has been used is by showing the numbers of children struck by DIPG. Pathos is in this case mostly about empathy, and to ensure that possible supporters not only logically understand the importance of the topic, but also feel it, and feel empathic for the children. Ethos is mostly about showing you're reliable, and showing that a foundation is honest and reliable. These three combined, reinforce each other. From these follow other results, such as a monetary breakdown of where the money goes. It instils trust by showing logically, that the money goes to the right places.

Aristotle's theory of persuasion has been applied to the prototype. From the evaluation it turned out that the large majority of the people would hypothetically become a supporter by either donating money, knowledge or network. From that it can be concluded that the question has been answered properly.

Another key part of communicating to the special interest groups, is ensuring that they are guided to the right section. From the evaluation turned out that people did not find it confusing, meaning that visitors likely got guided towards the right section on the website.

The special interest groups in the research question are child patients, family of child patients and the supporters. Two of these, the child patients and the family of the child patients, were not the focus of this research. This was due to time constraints and it not being ethical to approach these people during the difficult times they're going through. Therefore, the question cannot be fully answered. A part of the answer is guiding the visitors to the right

section, and in the case of supporters, a part of communicating to them is motivating them to become supporters.

Not everything on the website is aimed at motivating visitors to become supporters. There is more communication, and an important part of this is explaining about DIPG. This part of the communication has its own page on the website. The goal of it is to make people better informed about DIPG. This also has been evaluated, and the large majority of the respondents stated that they felt better informed after having visited the website.

These things combined answer the main research question as much as possible within the scope of the project. The question has been answered satisfactorily, although further research would be needed to fill the gaps that currently exist.

8.1. Discussion

Further research will be necessary for the other parts of the website. Research to the other special interest groups is already being done by other researchers, however, their research is not necessarily focused on the creation of a website. How this will be implemented requires further research.

The evaluation of the prototype was constrained due to the COVID-19 pandemic. Therefore, it was not possible to sit with people who use the prototype and ask them what they think. That would have delivered a lot more useful information about why someone thinks something, which is not always clear right now. That makes it hard to find where improvements are possible.

The prototype was not a fully functional website, and this could have influenced the evaluation. After the survey was sent out, some mistakes and typos were found in the prototype. On top of that, it is inherently a prototype, and not a fully functional website. Not all functionality is there, not everything works optimally and some parts are lacking. Even though it was as close as it could be, given the possibilities Adobe XD offered, it is not the same. All these things could influence the results of the survey.

The design would likely benefit from another round of evaluation and tests. The survey mostly asked general questions, so it lacks detail. Asking more specific questions could have improved that, however, it would have made the survey more lengthy, which would lead to fewer completed surveys. Some parts of the website might still be improved by evaluation more in detail, which would also improve the whole. The basis is already sufficient, but improvement is still very much possible.

9 References

- [1] The Cure Starts Now, “The Cure Starts Now,” 2020. [Online]. Available: <https://thecurestartsnow.org/impact/news/are-there-any-survivors-of-dipg/>. [Accessed 26 Februari 2021].
- [2] DIPG org, “DIPG Statistics,” 26 02 2021. [Online]. Available: <https://www.dipg.org/dipg-stats>.
- [3] Tobias Sybesma Foundation, “Tobias Sybesma Foundation,” [Online]. Available: tobiassybesma.nl. [Accessed 2021].
- [4] A. Detisch, “Ethos, Pathos & Logos: Persuasive Advertising Techniques,” StudioBinder, 12 December 2021. [Online]. Available: <https://www.studiobinder.com/blog/ethos-pathos-logos/>. [Accessed 22 April 2021].
- [5] D. M. G. F. S. a. C. D. F. (. Eberhard, “Ethnologue: Languages of the World. Twenty-fourth edition.,” Dallas, Texas, 2021.
- [6] L. Küchler, G. Hertel and M. Thielsch, “Are you willing to donate? Relationship between perceived website design, trust and donation decisions online,” *Mensch und Computer*, pp. 223-227, 2020.
- [7] G. Rossi, C. Leardini and S. Landi, “The more you know, the more you give: influence of online disclosure on European community foundations' donations,” *Nonprofit management and leadership*, vol. 31, no. 1, pp. 81-101, 2020.
- [8] K. Molek-Kozakoska, “Graphic emotion: a critical rhetorical analysis of online children-related charity communication in Poland,” *Taylor and Francis group* , pp. 72-90, 2018.
- [9] L.-C. Ou, R. M. Luo, A. Woodcock and A. Wright, “A Study of Colour Emotion and,” *Color Research and Application*, vol. 29, no. 3, pp. 232-240, 2004.
- [10] L.-C. Ou, M. Lou, A. Woodcock and A. Wright, “A study of colour emotion and colour preference. Part II: Colour emotions for two-colour combinations,” *Color Research and Application*, vol. 29, no. 4, pp. 292-298, 2004.
- [11] M. Nazar, R. Khan, M. Perveen and W. Khan, “Web Branding Harmonizer: Need of Color Harmonies and its,” in *International Conference on Infocom Technologies and Unmanned Systems: Trends and Future Directions*, Dubai, 2017.
- [12] T. Sahara, *Design Elements: a Graphic Style Manual*, New York: Rockport Publishers, 2014.

- [13] Y. Chen, L. Yu, S. Westland and V. Cheung, "Investigation of designers' colour selection process," *Color Research and Application*, pp. 1-9, 2021.
- [14] S. Adams, *The Designers Dictionary of Color*, New York: Abrams Books, 2017.
- [15] M. Butterick, *Practical Typography*, Los Angeles: Self Published, 2013.
- [16] M. Dyson, "The influence of reading speed and line length on the effectiveness of reading from screen," *International Journal of Human Computer Studies*, vol. 54, no. 4, pp. 585-612, 2001.
- [17] F. Van Nes, "Space, Colour and typography on visual display terminals," *Behaviour and Information Technology*, vol. 5, no. 2, pp. 99-118, 1986.
- [18] C. Nadeem Faisal, M. Gonzalez-Rodriguez, D. Fernandez-Lanzvin and J. d. Andres-Suarez, "Web Design Attributes in Building User Trust, Satisfaction, and Loyalty for a High Avoidance Culture," *IEEE Transaction on Human Systems*, vol. 47, no. 6, pp. 847-859, 2017.
- [19] S. Sasidharan and G. Dhanesh, "Font Personality and B2C E-Commerce Trust," *Americas Conference on Information Systems*, vol. 4, pp. 2587-2597, 2008.
- [20] S. Hyndman, *Why Fonts Matter.*, London: Penguin Random House, 2015.
- [21] S. Josephson, "Keeping your readers' eyes on the screen: An eye-tracking study comparing sans serif and serif typefaces," *Visual Communication Quarterly*, vol. 15, no. 1-2, pp. 67-79, 2008.
- [22] K. Csilla, S. Péter and J. Ádám, "The impact of reading printed or monitor displayed texts and of the use of serif and sans-serif typeface on the knowledge acquisition process," *Magyar Pszichologiai Szemle*, vol. 71, no. 1, pp. 91-108, 2016.
- [23] Kika, "Home page," [Online]. Available: <https://www.kika.nl/>. [Accessed 20 April 2021].
- [24] Children with Cancer UK, "Home page," [Online]. Available: <https://www.childrenwithcancer.org.uk/>. [Accessed 20 April 2021].
- [25] Michael Mosier Defeat DIPG Foundation, "Home page," [Online]. Available: <https://defeatdipg.org/>. [Accessed 20 April 2021].

- [26] DIPG.org, “Home page,” [Online]. Available: <https://dipg.org/>. [Accessed 20 April 2021].
- [27] Duchenne Parent Project, “Home page,” [Online]. Available: <https://duchenne.nl/>. [Accessed 20 April 2021].
- [28] A. Mader and W. Eggink, “A Design Process for Creative Technology,” in *16th International Conference on Engineering and Product Design, E&PDE 2014*, Enschede, 2014.
- [29] A. L. Mendelow, “Environmental Scanning—The Impact of the Stakeholder Concept,” in *ICIS 1981 Proceedings*, Cambridge, 1981.
- [30] D. Clegg and R. Barker, *CASE Method Fast-Track: A RAD Approach*, Boston: Addison-Wesley Longman Publishing Co., Inc., 1994.
- [31] Freepik Company, “Flaticon,” [Online]. [Accessed June 2021].
- [32] Branding with Type, “Branding with Type,” [Online]. Available: <https://brandingwithtype.com/>. [Accessed 2021].
- [33] Branding with Type, “Bw Helder,” Branding with Type, [Online]. Available: <https://brandingwithtype.com/typefaces/bw-helder>. [Accessed 13 May 2021].
- [34] M. Hillebrand, “How to effectively communicate brain stem cancer to a child patient,” Enschede, 2021.
- [35] P. van Tiggelen, “The Ethics of Using the Story of a Child Dying of Cancer to Raise Money,” 2021.
- [36] Adobe, “Adobe XD,” 2021. [Online]. Available: <https://www.adobe.com/products/xd.html>. [Accessed 06 July 2021].
- [37] Serif, “Affinity,” 2021. [Online]. Available: <https://affinity.serif.com/en-gb/>. [Accessed 7 July 2021].
- [38] Tobias Sybesma Foundation, “Jaarrekening,” 2019. [Online]. Available: <https://tobiassybesma.nl/jaarrekening/>. [Accessed 6 July 2021].
- [39] M. Violette Renard Recinos and M. George I. Jallo, “Brain Tumor,” *The Cure Starts Now*, 2012. [Online]. Available: <https://thecurestartsnow.org/brain-tumors/brain-tumor/>. [Accessed 06 06 2021].

Appendix A: Storyboards

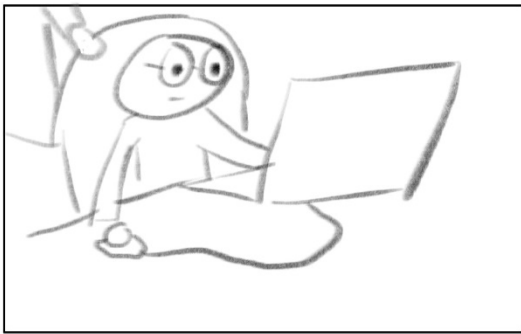
Toni



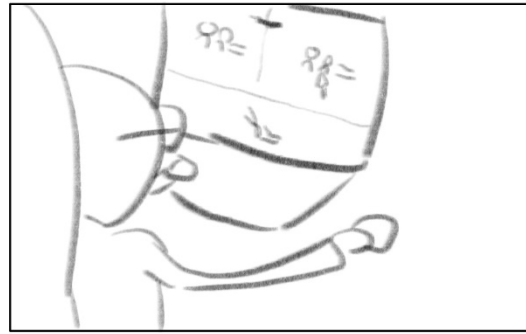
Toni, aged 8, has been diagnosed with DIPG. Even though the doctor explained it to him, he does not fully understand what this means.



Because Toni wants to know more about his situation, his mother, Mary, looks for a suitable website for him online. She finds **StopDIPG.com**



Under supervision of his mother, Toni pays a visit to the website.



He sees three areas: Adults, children and supporters. It is obvious he is a child so he clicks there and continues.



What he finds here, is dependent on the research of Hillebrand [34].

Tamara



Tamara, aged 12, was recently told her brother is really, really ill. He has something called DIPG. Her parents are very sad about this, but Tamara doesn't really know what this is.



She decides to look online for more information. There she finds the website "StopDIPG.com". She goes and takes a look at it.



There she sees the three areas: Adults, children and supporters. Even though she doesn't feel like a child, she's also really not an adult, and really not a supporter, so she clicks children anyway.



What she finds here, is dependent on the research of Hillebrand [34].

Mary



Mary, aged 40, recently heard that her son is diagnosed with DIPG. This caused her a lot of distress and worry about her son, and it is worse that she doesn't understand what's going on. Her doctor cannot explain it in simple enough words.



Therefore, she takes a look online. There she find StopDIPG.com and it looks promising

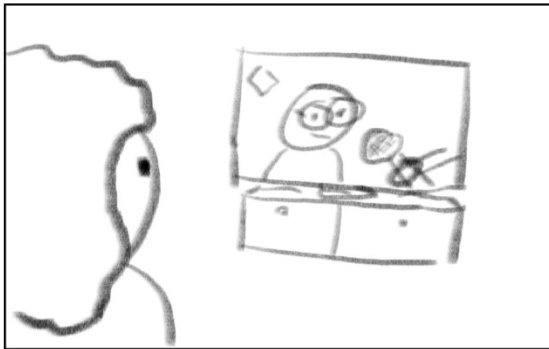


On it, she sees three areas. Adults, children and supporters. She clicks on Adults.



There she finds information about DIPG and how to support her child and how to deal with upcoming months.

Keighley



Keighley, aged 52, recently learned about brain stem cancer. A kid on the news had it, and she heard that there is currently no cure. She wants to learn more about it, and maybe help.



Keighley starts looking online and comes across "StopDIPG.com". She visits it and, on the homepage, she almost clicks on "Adults" when she notices the Supporter option. That sounds more like her.



She clicks there and she sees three drawings of children. She hovers over one of them and the drawing fades into an image, and two years appear and a name. It dawns on her that Harold has died, and only got to be ten years old.



A link has appeared that states "learn more about how you can help". She clicks it and she is now on what she is more used to for a website. She starts looking into it and she learns more about what DIPG is.



She learns that StopDIPG is part of the Tobias Sybesma Foundation. She finds out more what the foundation does.



In the end, Keighley feels really bad for the children struggling with this disease and decides to donate some money.

Finn



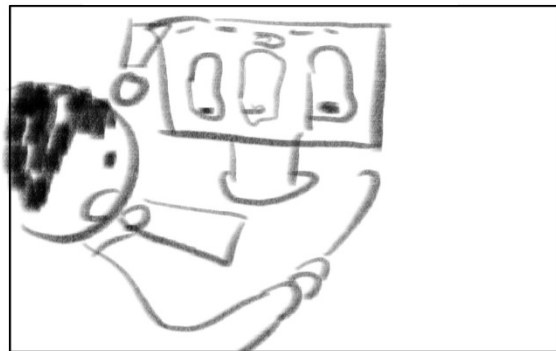
Finn is doing research at a university at the biomedical faculty. During his time there, he comes across DIPG.



He knows little of this specific disease, but that it hits little children breaks his heart and he wants to know more about it. Looking online, he comes across StopDIPG.com and visits the website.



He clicks on supporter and sees the three drawings. He hovers over each of them, viewing the pictures that fade in when he does.

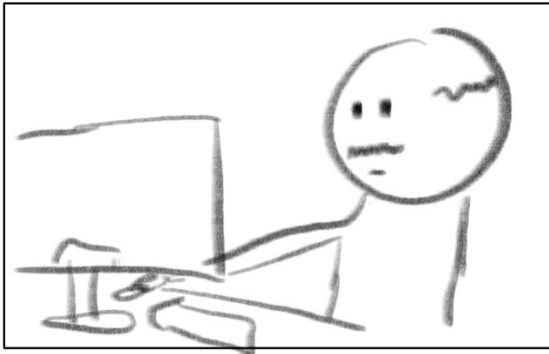


When he gets to the next page, he notices that money isn't the only thing he can donate. He can contact the foundation and work directly on the solution.



Even though he isn't directly familiar with DIPG, he does know plenty of other related areas. He reaches out to the foundation, willing to donate his time.

Eduard



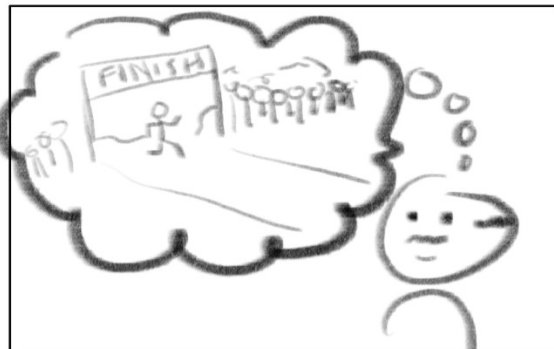
Eduard heard that a boy in his street was diagnosed with DIPG. Not knowing what this is, he looked it up online, and found the website “StopDIPG.com”



There, he clicks on supporter, and sees the children with the years. He draws the conclusion that the years are birth and death years of these children. He feels for these children, especially because he knows a boy just like them living close by.



Eduard sees that he can help, and not only by donating money. While he himself doesn't study or research anything remotely related, he does know someone. A high school friend with whom he still has contact. Eduard shares the website with him.



Then he starts to think what else he can do. There's an annual run close by, organized by someone Eduard knows.



Every year, the proceeds of this run go to a charity. Eduard thinks he just found next years charity. He uses the website as the source of information to convince more people of this idea.

Appendix B: Wireframe

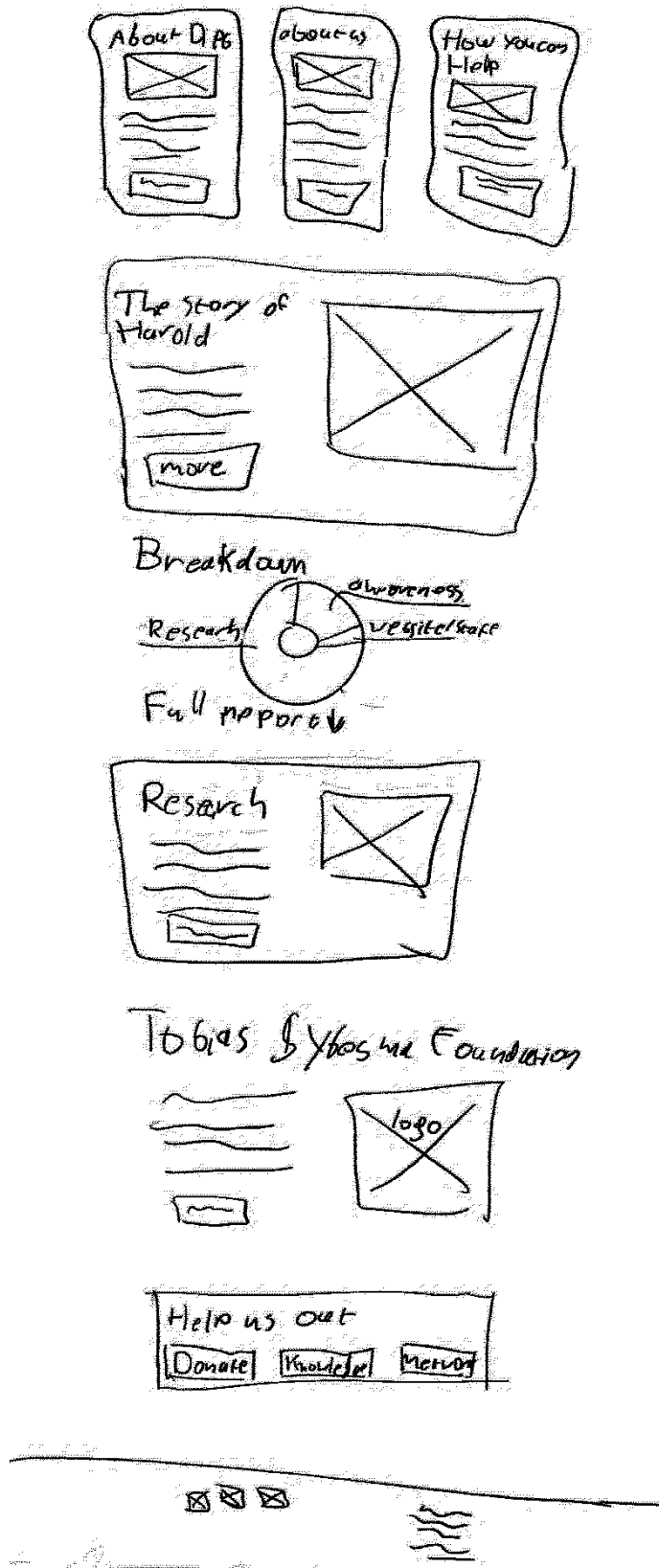
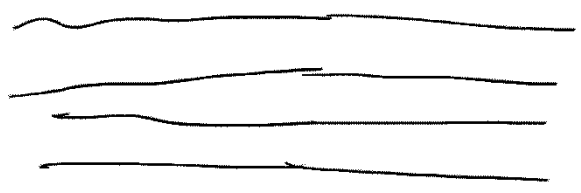
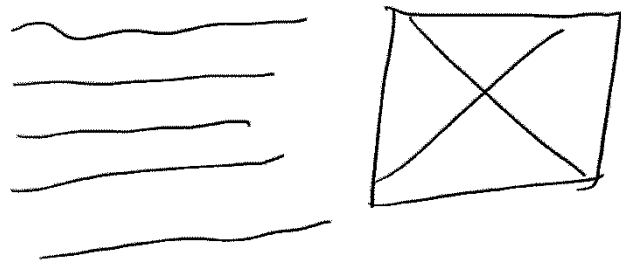


Figure 36: Wireframe of the supporter homepage

About DIPG



Help us out

Donate	Knowledge	Network
--------	-----------	---------

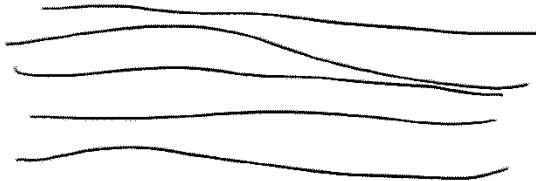
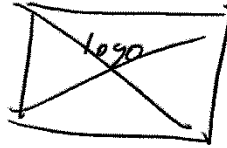
Figure 37: Wireframe of the "About DIPG" page

About us

Who are we?



Tobias Sybomy
Foundation



What we do



How you can help

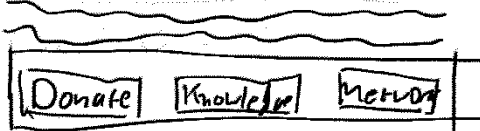
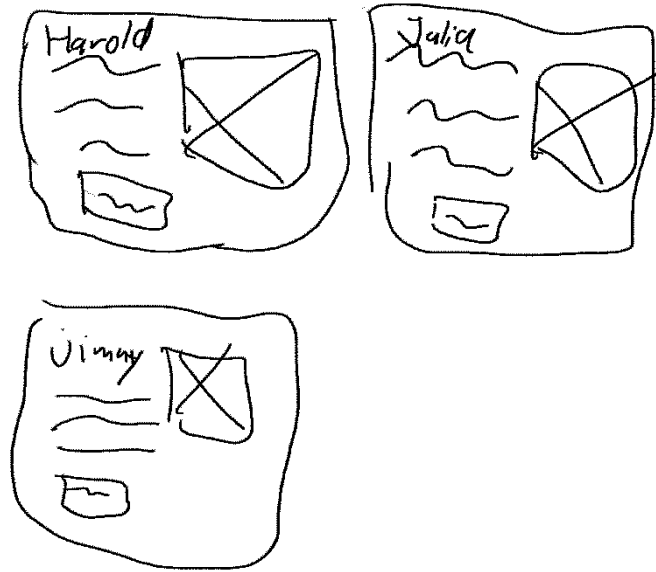


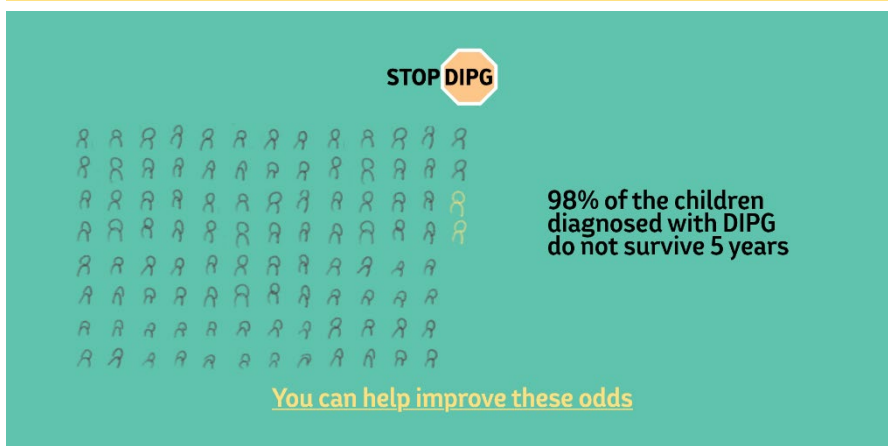
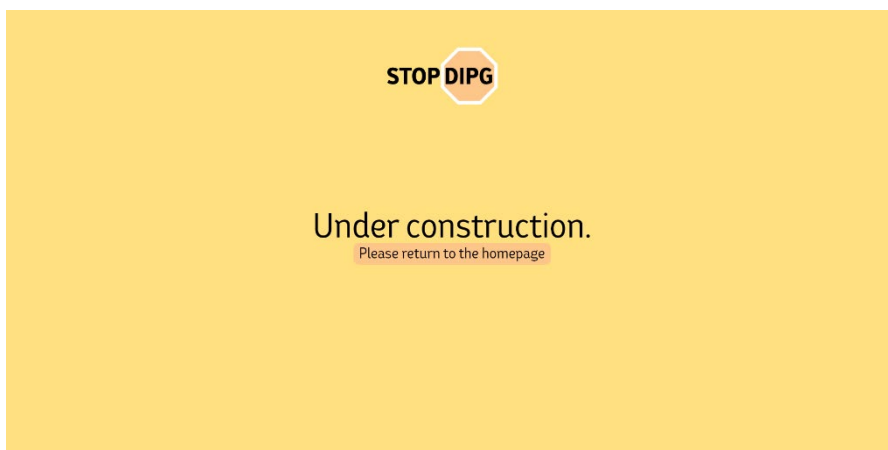
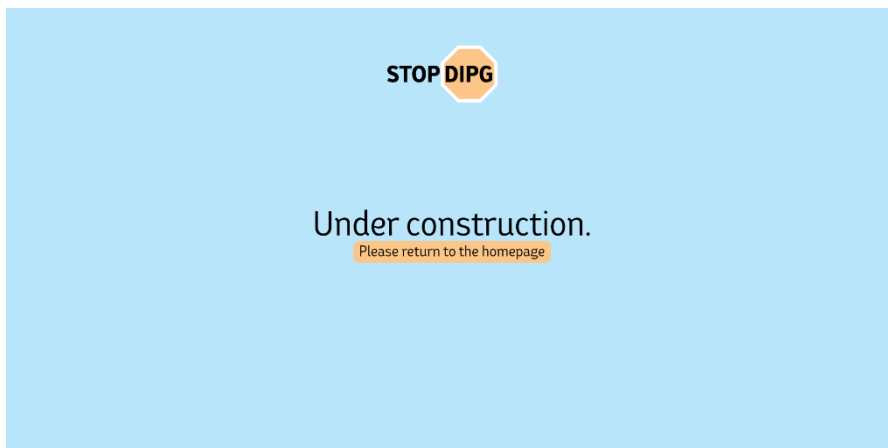
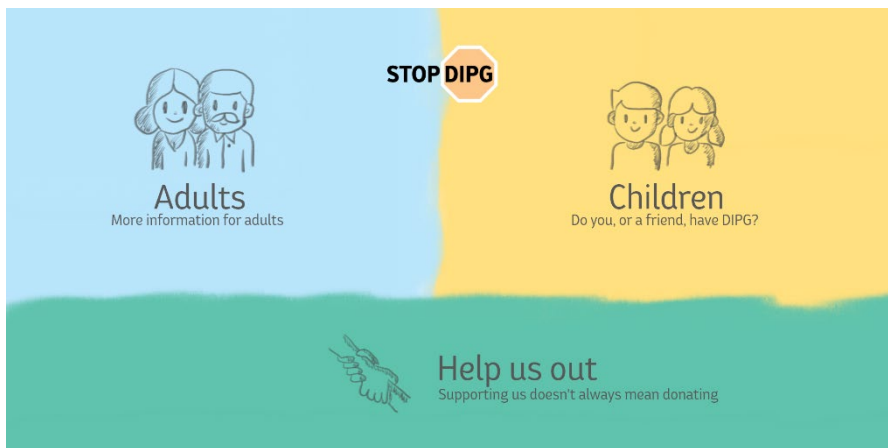
Figure 38: Wireframe of the "About us" page



Have you got a story to share?

Figure 39: Wireframe of the "Personal stories" page

Appendix C: Prototype screenshots



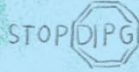
About DIPG



98% of the children diagnosed do pass away within 5 years, making it one of the most devastating childhood diseases

[Learn more](#)

About us



StopDIPG was established to help inform people better about DIPG, and to work towards finding a cure

[More about us](#)

How you can help



Supporting us doesn't always mean donating money. There are other ways you can help us out.

[you can help](#)

Of your donated money, this amount goes to:



Download the full financial report [here](#)

Research

Read more about the research that we finance and support. These researches work towards a better treatment or a cure to DIPG.

[Learn more](#)



Tobias Sybesma Foundation

StopDIPG is an initiative started by the Tobias Sybesma Foundation. This foundation was started in 2018, just days after the boy the foundation was named after, passed away.

[Learn more](#)



Help us out

Learn how you can help with:

[Donate](#)

[Knowledge](#)

[Network](#)

About DIPG

DIPG stand for Diffuse Intrinsic Pontine Glioma. It is a type of tumor in the brains, specifically the brainstem, in an area known as the pons. The image on the right shows the location of this in the brain, which has been made black. The name of the disease is a long one, but explains a lot about the disease.

Diffuse means that the tumor is not a neat ball; it grows out into between other, healthy cells. This makes it particularly hard to treat, as you can't get it out with surgery. Intrinsic simply mean "in". So in this case, in the pons, which is the third word of the name. Pontine is another name for the pons. This part of the brain is responsible for important bodily functions, like breathing, sleeping, bladder control and balance. Finally, a glioma is a term for tumors coming from glial cells. Glial cells are found in the brain and make up the white matter.



What children with DIPG go through

Imagine you're 8 years old again. You wake up with a headache, and breakfast is kind of hard to eat. Not because you don't want it, but because you have trouble swallowing it. Your parents take you to a doctor, and there you are told you might have DIPG.

You have to go into an MRI scan. The doctor tells you that you have a tumor and need to undergo biopsy surgery. That this surgery is necessary to know what kind of tumor it is. After that surgery, the doctor tells your parents that it's DIPG, or brain stem cancer, and that you will die and there's nothing that the doctor can do about that.

This is what some actual 8 year-olds have to live through. DIPG is incurable. All that can be done is radiotherapy and hopefully chemotherapy. This doesn't kill the tumor, it merely stops it from growing for a while. And these therapies also makes a child feel sick, nauseous and makes them gain weight. Eventually the tumor will continue growing and the child will die from that.

But children themselves don't worry too much about that. Children live in the here and now. They don't think about what will happen in a year. They think about what will happen tomorrow. However, the children are very much aware that they will die. They mostly just don't want to suffer. They just want to live now they still can.

98% of all children diagnosed with die within 5 years after diagnosis. DIPG can hit children between 2 and 15 years old, but it mostly hits children between the ages 5 and 7. It makes up between 10 and 15% of all brain tumors in children.

The children's odds are terrible, but with research, they can be improved.

Help us out

Learn how you can help with:

Donate

Knowledge

Network



- Home
- About DIPG
- About us

- Research
- Help out
- Contact



About us

StopDIPG.com is an initiative of the Tobias Sybesma Foundation. At StopDIPG.com you will find information about brain stem cancer. But you can also contribute in our search to a successful cure. You can donate money, but your knowledge or your network could also make the difference.

Tobias Sybesma Foundation

The Tobias Sybesma Foundation wants to stimulate and finance research projects to get to a successful treatment of DIPG, also known as brain stem cancer. Tobias' dream was that nobody after him would die of the disease. The foundation works daily to achieve his dream.



About me

I am the father of Tobias, Reitse Sybesma. Tobias died on the 31st of July, 2018. Shortly after that, I started the Tobias Sybesma Foundation. It is my mission to create movement in the search to a successful treatment of brain stem cancer.

Help us out

Learn how you can help with:

Donate

Knowledge

Network



- Home
- About DIPG
- About us

- Research
- Help out
- Contact



Research

Due to the COVID-19 pandemic, we have less research going on than anticipated. However, we're planning to have more research going on in 2022.

Helping children get through DIPG

Children can use a helping hand navigating through this difficult time. This is why, at the University of Twente, research is being done on how to explain children what they will go through, and how to best support them during this.

What if a child in your family gets DIPG?

DIPG affects more than just the child. There are the parents, the siblings, the grandparents... At the University of Twente, research is being conducted to figure out how to explain the situation to someone with no medical background, but for who it is vital to understand what a child is going through.



- Home
- About DIPG
- About us

- Research
- Help out
- Contact



How you can help us out

Donate

Donating money is always helpful. With money, we can finance research, increase awareness, and use a little of that to keep ourselves afloat.

[Donate now](#)

Help directly with research

While money is valuable, your knowledge is even more so. On top of that, we might be able to connect you with someone who knows just that bit of information that has been missing. Are you a researcher? Help us directly.

[Contact us](#)

Do you know someone?

Do you know someone who has knowledge in the medical world? Be it as researcher, or pharmaceutical, or something else entirely? Share this page with them, and maybe they can help us out!

[Share this site](#)

Donate

Donations in the form of money are always welcome. We can use the money to finance research, to increase awareness and use a little of that to keep ourselves afloat. You can find more information about this in our financial statement, which can be downloaded [here](#).

Help directly with research

With money, we can finance research. However, with knowledge, we can do so much more. We want to connect knowledgeable people with other knowledgeable people. These are people who often don't talk, because they come from slightly different areas, and by connecting them, there is suddenly an incredible amount of knowledge. The pieces of the puzzle that is a cure for DIPG may already be out there. We just got to find them and put them together. Are you someone who is knowledgeable? Please contact us so we can talk, and see how you can help us, and who we need to connect you to.

Do you know someone?

You might not be someone with knowledge about medicine, cancer or children, but you might know someone. Spread the word of what we're doing, and share this website if you know someone who is knowledgeable. Share it with anyone who might be able to help. We can not do it alone, but we can do it together.

Help us out

[Donate now](#)

[Contact us](#)

[Share this site](#)

[About DIPG](#) [About us](#) [Research](#) [Help out](#)

STOP DIPG

Contact

If you are a researcher and you want to help out, or for anything else, send us a message using the form below


Name:


Field of knowledge:

Email address:

Message (optional):

[Submit](#)

 • [Home](#) • [Research](#)
• [About DIPG](#) • [Help out](#)
• [About us](#) • [Contact](#)



Hmm. We're having trouble finding that site.

We can't connect to the server of that website.

If that link is not broken, here are three other things you can try:

- Try again later.
- Check your network connection.
- Realize you're in a prototype instead of a fully functional website, with some functionality missing.

[Back to Home](#)

Appendix D: Survey and survey results

Survey about the online communication platform for the Tobias Sybesma Foundation

What is this research project about?

This research is aimed to design an online communication platform for the Tobias Sybesma Foundation. The foundation aims to progress research to a cure to brain stem cancer, also called DIPG, which mostly hits children. The platform, which will be a website, is called StopDIPG, and will serve as a more international site for the foundation. This platform is there for the children suffering from DIPG, for the parents of these children and for possible supporters. These people can all find more information there. Supporters also have a way to help out via the site.

What will you be asked to do?

You will be asked to pretend you've heard about DIPG and want to know. You will be provided a link to the prototype, which is an almost fully interactive website. The major difference between this prototype and an actual website are that this prototype does not have online functionality. Forms, external links and downloads do not work. However, much of it attempts to simulate a real website, to make the experience as close to a real website as possible.

You will be asked to explore this prototype website. After you've done so, a couple of questions will be asked. This should all take you no more than 15 to 20 minutes. You might feel emotional after viewing this prototype. You can withdraw participation at any moment.

The website contains information about DIPG and includes the symptoms of DIPG. It might be possible you recognize these symptoms in someone near you. Note that you cannot rely on the description in this research to diagnose; if something like this situation occurs, act like you normally would when you think someone may suffer from an illness (which may involve consultation with a doctor, or other measures).

This research has been approved by the EEMCS ethics committee. Please note that you can withdraw from the study at any time before August 11, 2021. You can do this by informing the researcher(s) (contact information below) that you do not wish to participate any longer, or that your answer cannot be taken into account. Your personal information will not be included in this study, only the answers to the questions will be used and published in anonymized form. Your approximate age and gender and identifying information in open questions will be anonymized. You will be sent a copy of your response to this form. After this research project has concluded, all data not anonymized will also be deleted.

If you have any questions, please contact Piet van Tiggelen (p.p.j.vantiggelen@student.utwente.nl), dr. K. Zalewska or ir.ing. R.G.A. Bults (Richard). You can also contact the ethics committee that approved this research: ethicscommittee-cis@utwente.nl

Please tick the appropriate boxes.

* Required

I have read and understood the study information dated 16/06/2021, or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction. *

Yes

No

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason. *

Yes

No

I understand that taking part in the study involves that answers filled in here are recorded and used to improve the platform in anonymised form *

Yes

No

I understand that the information I provide will be used to design the online communication platform concerned in this research, and the thesis accompanying this platform. *

Yes

No

I am 18 years or older. *

Yes

No

Next

How easy to use did you find the rest of the website? *

	Completely disagree	Disagree	Partly disagree, partly agree	Agree	Completely agree
The landing page was easy to navigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The supporter home page was easy to navigate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The website as a whole was easy to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information was easy to find	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information provided was reliable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like StopDIPG is trustworthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like the Tobias Sybesma Foundation is trustworthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think the Tobias Sybesma Foundation is making a difference	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel better informed about DIPG	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would use this site again if I wanted more information about DIPG	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Last questions

Almost done!

What is your age? *

- 18-25
- 26-30
- 30-35
- 40-50
- 50-65
- 65-80
- 80+

What is your gender? *

- Female
- Male
- Non-binary
- Prefer not to say
- Other: _____

How do you feel about what the Tobias Sybesma Foundation is doing? *

Your answer _____

Based on your impression of this website, do you think you would be willing to support the Tobias Sybesma Foundation by means of knowledge, network or money? (hypothetically, you're under no obligation to so if you fill in yes) *

- Yes, with money
- Yes, with knowledge
- Yes, with network
- No
- Other: _____

