

# Have You Thought About This?

Trust and Responsibility in News Personalization



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# Abstract

Personalization is increasingly becoming a familiar concept, regardless of industry. This thesis explores how personalized news platforms can be designed, while fulfilling the news media's responsibility to society and maintaining the users' trust. The study is based on the historical development of the news media, and how it has been affected by technology. Further, it is based on research on personalization, its benefits and risks, and users' attitude towards personalization in the news media. To understand users' behavior and needs, a combination of quantitative and qualitative methods like questionnaires and interviews have been used. Based on these insights, three prototypes of a news platform using different personalization tactics were developed. The prototypes were evaluated through user tests with nine participants in total. The third prototype was the final product and was based on the insights and testing of the other prototypes. Inspired by the work of developing the prototypes, along with heuristic evaluations of the three prototypes and basic theory on personalization and the news media, this thesis presents five recommendations which can be used when designing personalized news platforms. The results from the research indicates that users are positive to personalized news platforms and that it will provide a better user experience, but for the experience to be optimal, there are some recommendations that will be worth following.

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# 1.0 Introduction

Today, we are constantly being exposed to news and new information. Technological developments have made it possible to have constant and easy access to a digital screen connected to the Internet, our smartphones. Further, it has made virtually infinite amounts of information easily available. Technology and the huge amounts of information available has pushed for a shift in the news media. Earlier, the news media was used to deliver and receive hard facts about societal happenings. Now, our news feeds contain news ranging from celebrities and gossip to tragic happenings and politics, both nationally and globally. And it is being updated with new information and articles, continuously. The news industry is a competitive market and this means that delivering content from a big range of categories and areas is necessary to appeal and attract a greater audience (Sjøvaag, 2020). However, being presented with this heavy load of information can make it harder for the users to navigate and filter out what information and content is interesting and necessary to them. It can result in information overload which can negatively affect the experience the user has when reading the news. Due to technological developments, it is now possible to predict, by the use of algorithms and AI, what interests and needs each user has. These predictions can be used to enhance the user experience and reduce information overload by only presenting the information and content relevant for the specific user. This will result in a personalized news feed. Personalization by AI is, however, most commonly achieved by collection of sensitive information and tracking behavior. As a consequence, there may be concerns regarding users' privacy, in addition to other risks. This may affect the users' trust in the news distributor. In this thesis I will explore what personalization is, what concerns users have regarding personalized news platforms and based on this, create a list of recommendations for developing a personalized news platform that aims to fulfill the news media's responsibility to society and maintain the users' trust.

## 1.1 About the project

In the spring of 2020, TV 2 presented different areas they were looking to explore. One of them was personalization of news. This appealed to me immediately. News is part of people's everyday life, and personalization has become a very familiar concept. The news is how we are able to understand the world we live in, and take part in society. Since we depend on the

news media to be informed about national and global happenings, it is crucial to understand what the users expect, and how they will receive a personalized news platform.

My fellow student, Ingvild Vara Hagen, was also interested in this case, which resulted in us becoming project partners, collaborating with TV 2. The process started with us sitting down with Kenneth Greve, the leader of digital news in TV 2, discussing what we wanted to achieve through this project. TV 2 had recently launched a new news application, TV 2 Nyhetene. This application differs from other news applications as it is based on delivering video news instead of written articles. The application became the basis from which we worked on for developing and designing a personalized news application.

We agreed on the work resulting in an impact report meant to provide insights on personalization in the news, along with a prototype of a personalized news application. The impact report also includes a description of the prototype and the use of persona. The prototype was mainly used as a tool for testing and communicating our concepts and ideas.

Throughout this project we have tried to find out if other news distributors utilize personalization on their platforms, but without much luck. This implies that there is no open communication in the field of personalization in the news media, and therefore no available guidelines, dos and don'ts, or recommendations for how to implement it, and the possible risks. There are guidelines and theories on the use of personalization in general, but personalization in the news media generates other and new challenges as there are other responsibilities to deal with. This has been the motivation for my academic thesis. Giving the news industry insights on what the users want and need, along with their concerns regarding personalization in the news, and possible solutions for how to accommodate to these concerns.

This thesis will present the research I did along with Ingvild and my own methods used to answer my research question. Through developing three prototypes utilizing different personalization tactics we have been able to communicate and test our ideas and concepts. The joint project and our impact report has been a big part of my research process, as it is how I have been able to uncover what challenges and concerns exist, and how they can be solved. Throughout this project I have worked on developing a list of recommendations for developing a personalized news platform for the news industry.

## 1.2 Research question

This thesis aims at uncovering how the Norwegian news media can design a personalized news platform that fulfills their responsibility and does not interfere with the users trust. The research question is:

**RQ 1** How can you design a personalized news platform that fulfills the news media's responsibility to society and maintains the users' trust?

The thesis starts by presenting background information in chapter 2. This chapter will present theory on news and the news industry, personalization, and users expectations towards news personalization. Chapter 3 describes the methods used to develop and test the prototypes created in the group project, along with the individual methods utilized for evaluating the same prototypes. Chapter 4 presents the results and findings from both the user tests conducted in the group project and the heuristic evaluations, which form the basis for my list of recommendations. Chapter 5 introduces my recommendations for developing a personalized news platform, and thereby my answer to the research question. Finally, chapter 6 presents a summary of the work along with my contributions and suggestions for further work.

## 2.0 Background

In this chapter I will be presenting and discuss what news is and what makes information newsworthy, along with news media's responsibility to society. I will go through Norwegian news history, and look into how the news media has evolved and adapted to the development of new technology. As the topic of the thesis is personalization in news media, I will be presenting what personalization is, what different tactics exist, along with the benefits and risks of utilizing personalization, in general. Lastly, I will be presenting users' attitudes towards the use of personalization in news media. This information and theory, along with the project development and methods used, will be relevant for deciding on and establishing recommendations for the development of personalized news platforms.

### 2.1 Norwegian news media and history

In order to be able to answer the research question, it is necessary to understand how the news media has evolved and adapted to technological developments. Through looking at the requirements for news and what is considered to be newsworthy, it makes it possible to understand how the news media work in order to meet the expectations of their consumers. In addition, the Norwegian people's news habits and preferred news distributors are essential as it gives an understanding of their news interest and trust in news media.

#### 2.1.1 News

The news industry presents us with a myriad of articles and information on a wide range of genres and topics all day, every day. This continuous news production makes me wonder what the definition of news is, and what requirements there are for the information to be considered newsworthy. According to Schwebs *et al.*, news is previously unknown information about a known or unknown incident that is conveyed to an audience (2020). This seems to be a quick and easy definition, but maybe too easy as it does not set any other limitations other than the information has to be new and unknown. This definition makes it hard for editors and journalists to distinguish between newsworthy and irrelevant information. But there is a Norwegian abbreviation, *VISAK*, which is a set of criteria that help editors and journalists in the work of deciding what information is going to be presented as a news article (Lyngve *et al.*, 2018). *V* - *Vesentlighet* (significance), *I* - *Identifikasjon*

(*identification*), *S - Sensasjon (sensation)*, *A - Aktualitet (relevance)*, *K - Konflikt (conflict)*. Lyngve *et al.*, highlights the importance of the *V* - significance, and links this to the media's democratic responsibility to society (2018). Media's democratic responsibility to society will be explained in the next section. This set of criteria makes it easier to understand the process of working through information and selecting what to publish as news articles. But even with these criterias, there is still a huge amount of news articles being published everyday. To understand this, it is necessary to look beyond the media's democratic responsibility to society, and realize that also the news industry is a competitive market. The news media have to cover many different topics and areas to make sure that every user gets what they want and need. Publishing news content on celebrity gossip in addition to hard facts on politics is a way of appealing to a greater audience with different needs. Through this realization, it makes sense that we are constantly being exposed to new information.

But this constant information flow has not always been the case.

#### 2.1.1.1 News media's responsibility to society

To be able to gain knowledge about the world we live in, we depend on the news media. In addition to being used for news and information consumption, news media is today also used for entertainment and recreational purposes. However, the news media has a responsibility to society. They are to monitor power and democracy (Sjøvaag, 2020). Overlooking what is happening behind doors closed for the general public and being able to report on this, is how the public gets information otherwise unreachable. This responsibility is considered the foundation on which the media is built, and their most important duty. Informing the people of errors and omissions will in turn enable people to make informed choices and act as informed citizens (Sjøvaag, 2020). In order to be able to educate and inform the people, it presupposes that the citizens themselves take responsibility for being updated and receptive to information. The news media is overflowing with information as a result of being a competitive market. The fact that news media is now also being used for entertainment means that they have many areas to cover, in addition to "hard facts" about politics, society and finance. The amount of information available makes it harder for people to navigate and find the important articles. This is not a reason for excluding less serious and important information. Serving the social mission is expensive and this is the reason that the media is overflowing with articles meant to appeal to the reader's recreational needs (Sjøvaag, 2020). Helle Sjøvaag considers the mix of the serious and the entertaining content a particularly characteristic of Norwegian newspapers (2020).

### 2.1.2 Norwegian news history - From newspapers to online news

Newspapers were the first method for the general public to gain knowledge about what was happening in wider society, in printed form. Before this, people have been more or less dependent on verbal statements and rumours from their own local community. This way of giving and receiving information leaves many possible sources of error. Words travel fast, but information can be lost, or even added, in transportation. Finally, in 1763, the Norwegian population could get information through written media with the release of the first Norwegian newspaper, *Norske Intelligenz-Seddeler* (Schwebs *et al.*, 2020). In comparison, the world's first newspaper, *Relation*, was released in Strasbourg as early as 1609 (Schwebs *et al.*, 2020). This is evidence showing that Norway was behind in their development of the media. But when the press was established in Norway, there was a huge increase in the number of mailed newspapers (Schwebs *et al.*, 2020). Finally, the Norwegian population was able to get the information necessary to participate in society through the media.

Technological developments like the emergence of the Internet and mobile mediums, have affected how people choose to receive their information. The Internet and mobile devices have pushed the news industry to change their character and adapt how and where they present their news. In 1995, the first online newspapers were released (Schwebs *et al.*, 2020). With the release of the first smartphone, people were now able to read and access online news on the go. This is a big difference from being dependent on newspapers, to now having the privilege of deciding in which format, when and where we want to access news.

### 2.1.3 Norwegians' news habits

In this section I will be presenting the Norwegian populations' news habits. The information and statistics are reproduced from Medietilsynet's published report, *Mediemangfoldsregnskapet 2020*. The report shows the overall status for the Norwegian media diversity and is based on SSB's media barometer.

The Norwegian population has wide access to the infrastructure necessary to utilize different media, meaning that we are able to access diverse and relevant information from different platforms. The population makes good use of this diversity of media, both to access news and for entertainment purposes. We are now using the Internet more than ever before. The constantly developing digitisation in the news industry is a response to these growing

numbers. The news industry has had, and will presumably continue to have, to adapt in order to be where the people are, which they did by developing online newspapers and news applications. The number of people subscribed to newspapers has halved the last decade. However, this does not mean that we do not read or care about the news anymore. There is still a big interest for news in the Norwegian society as only 1% states that they do not care about or seek out news (Medietilsynet, 2021).

The use of traditional, linear media platforms is decreasing, while the use of mobile platforms, Internet based media and streaming is increasing (Medietilsynet, 2021). This is not surprising as the Internet and mobile devices allow for more mobile and easily accessible content placed right in our pocket, at all times. Further, all content from traditional media can be accessed online, making it not exclusive. 80% of the Norwegian population use at least one platform for news consumption daily (Medietilsynet, 2021). The platforms referred to here are newspapers, either in paper or digital, news services online, and linear radio or television. Medietilsynet found that television, along with free online newspapers, are the Norwegian people's prime source of news (Medietilsynet, 2021). People over the age of 60 years prefer television, while the younger generations prefer online newspapers. There can be several reasons for this. The younger generations may have, to a greater degree, been exposed to technology at an age where it is easier to adapt and make use of technological developments. In addition, younger people are more on the go and may have a busier everyday life resulting in a need for mobile, short and quick news updates that online newspapers offer. Online newspapers have a solid position when it comes to getting quick updates on the news, as 54% prefer those for this activity (Medietilsynet, 2021). The increase in online newspaper readers, compensates for the earlier mentioned decline in newspaper subscriptions, but not financially.

#### 2.1.3.1 Editorial news

Medietilsynet found that the most used news sources in Norway are NRK, VG, TV 2, Dagbladet and Aftenposten, which is not that surprising as they are considered to be the national news media with the most general profiles (Medietilsynet, 2021). Further, the report shows that editor-controlled journalistic media stand strong as news sources in Norway (Medietilsynet, 2021). Editor-controlled media means that the editor is in control of what content is to be published (Schwebs *et al.*, 2020). Numbers also show that only 1/4 use foreign news sources, which may be an indication saying that the majority of Norwegian

news readers are getting their news on foreign affairs from Norwegian news distributors. Altogether, this means that the population have great confidence and trust in the Norwegian traditional news media, and rely on them to give them the best and most relevant information, instead of relying on news from for example social media. In 2019, 26% stated that social media was their most important news source. This number has been reduced to 18% in 2020, which is a significant decline (Medietilsynet, 2021). Medietilsynet sees this as an indicator showing that the editor-controlled journalistic media's role as news sources in Norway, is strengthening even further, and that the digital media consumption is amplified (2021).

Technology is constantly developing and there are no signs showing that this will stop. The news industry is incentivized to keep up with and take advantage of technical developments in order to be able to keep their positions in a competitive market, but still make sure they maintain their readers' trust.

#### 2.1.4 Change in pace and quantity

Digitization involves big changes in how information of different kinds is stored and spread (Schwebs *et al.*, 2020). Now with so many different platforms, information can be spread all over the world in just a matter of seconds or less. This is a challenge for the news media, but it can also become a challenge for their audience. The news media has even more information that should be distributed to their reader, and the reader can get a sense of information overload. A media world that is overflowing with information, makes it harder for the readers to navigate and filter (Schwebs *et al.*, 2020). As media users, it is harder to keep track of all the information available, and achieve a comfortable feeling of being sufficiently updated on topics and issues of importance. The Norwegian established news media is now also competing with other platforms like Facebook, Twitter and international news media. There are now several platforms who contribute to set the agenda and want to influence the news flow online (Schwebs *et al.*, 2020). This fast spreading flow of information and continuous news updates has made it necessary to explore new methods and tactics for distributing the right information at the right time. Earlier, journalists were given more comfortable deadlines, having the time to explore and edit their work several times before delivering their work to the editor. Now, the news media compete for being the first to distribute the newly received information. This means that the work has to be done faster, preferably in an instant. This change in pace, quantity and competition, can go at the expense of the editor's control.

The change in pace, quantity and competition will not change anytime soon, if anything, it will only increase. Therefore, it is necessary to keep up with the changes and stay relevant. This means continuing to publish information on a big range of topics, continuously, to ensure that the needs of every reader is met. Technological development is the reason for this extreme pace, quantity and information overload that we are seeing and experiencing now. But it can also be the key to reducing the risk of information overload and enhancing the experience for the news readers, if utilized correctly and responsibly.

## 2.2 What is personalization?

“Personalization is the act of tailoring an experience or communication based on information a company has learned about a person” (Wirth & Sweet, 2017, p. 8). This means that companies and services now are able to adapt their communication and services to fit with the needs of the specific user, all due to the ability of collecting personal information and tracking behavior. Personalization can appear in many different ways and forms. Netflix and other streaming services use personalization to recommend movies and series that match with the user’s preferences and watch history, online stores use personalization to recommend products, and Google uses personalization to, among other things, filter out irrelevant Google search results. Personalization becomes very visible when, after searching for and looking at a specific product in an online store, this product follows you around as an advertisement to whichever site you visit. Personalization is a big contrast to earlier experiences where the strategy was to reach as many people as possible with the same product and service, the one-to-many strategy. The same strategy was used for broadcasting, where everyone received the same information at the same time. This shift from one-to-many to one-to-one was introduced in the 1990s (Wirth & Sweet, 2017). The prediction was that with the development of technology and new media, companies would be able to collect information on their users and communicate with them at the individual level (Wirth & Sweet, 2017). Today’s extensive exposure to the use of personalization, just shows that the prediction was right. Personalization has become so common that people have come to expect it, regardless of the industry (Wirth & Sweet, 2017). Following this, let us call it an encouragement, all companies and industries should find their way of offering a personalized experience, in order to meet the users’ expectations.

There is not just one right answer to how personalization should be utilized and offered. It depends on the company and the industry, what their goal is, and what their users are trying to accomplish through the use of the specific service. Further in this chapter, I will present and explain different personalization tactics, their advantages and disadvantages.

### 2.2.1 Personalization tactics

Through the research of this study it has become evident that there are different tactics for tailoring content and services to the characteristics of users. The two most commonly used tactics appear to be personalization and customization.

There is a problem concerning a confusing use of the terminology. The word ‘personalization’ is used both as an umbrella term for the act of tailoring an experience to an individual, and as an own tactic for tailoring the experience. This distinction is not always made clear in the literature. Not knowing, or having to analyse, whether the author is talking about personalization as the overall definition or as the tactic, can be challenging. I will here explain and define the terminology used, and explain the differences between the two tactics personalization and customization, to hopefully reduce the risk of further confusement. I am using Amy Schade’s, from the Nielsen Norman Group, definitions of the terms ‘personalization’ and ‘customisation’ in User Experience.

#### 2.2.1.1 Personalization as a concept and a tactic

As previously mentioned, the term ‘personalization’ is used both for describing the overall concept of tailoring the experience to an individual, and as an own tactic for doing this personalization. First, let us look at the definition of the word. Personalization means, according to Cambridge Dictionary, “the process of making something suitable for the needs of a particular person” (Personalization, n.d.). This definition explains the overall concept and can be considered to be a collective term rather than a tactic. The term is now widely known due to people’s frequent use of internet services and platforms that utilize this strategy. Netflix recommends movies based on information they have on you - they are personalizing your experience. When people think of the word ‘personalization’ they often think of artificial intelligence (AI) and machine learning. This brings us over to the other definition, personalization as a personalization tactic.

Personalization as a tactic, is when the system being used adapts (personalizes) the system to the characteristics of the user (Schade, 2016). “Developers set up the system to identify users and deliver to them the content, experience, or functionality that matches their role” (Schade, 2016). What this means is that the system is responsible for tailoring and personalizing the service without the involvement or effort from the user. This tactic utilizes available data and information on the individual using the service. Our project, for example, explores personalization by use of AI.

The advantage of using this tactic is that it facilitates an improved user experience without any effort from the users (Schade, 2016). An disadvantage is the uncertainty regarding the computer’s ability to guess and predict what each user needs and wants (Schade, 2016). Further, privacy is always an issue when using information about real people. The user can recognize the system as being too invasive (Schade, 2016). This may result in them refraining from using the system due to discomfort and distrust.

#### 2.2.1.2 Customization

Customization, according to Cambridge Dictionary means “the action of making or changing something according to the buyer’s or user’s needs (Customization, n.d.). Customization as a personalization tactic, is done by the user, as opposed to personalization which is done by the system (Schade, 2016). A system that offers customization may give the user the opportunity to make changes to the experience to meet their specific needs (Schade, 2016). There are several options and ways to offer customization. It can for example be by giving the opportunity to change the layout, select topics of interest or system functionality (Schade, 2016). For our project, we focused on and explored customization by selection of content and topics of interest.

The advantage of customization is that it lets the user be in control and lets them get exactly what they want (Schade, 2016). The disadvantage, on the other hand, is that users often do not know what they need and do not care to spend the time required to do the changes (Schade, 2016). This may result in a standard version of the system that may seem boring or unappealing to the users.

## 2.3 Benefits and risks of personalization

With the extensive use of personalization, and no signs of it stopping, it is natural to think that it carries some great benefits. And it does. It, for example, increases the user engagement, and reduces the information overload that we all have come to experience with the constant flow of information the Internet and social media allows. However, there are also some risks to be aware of, and that should be handled with care. Personalization is most commonly achieved through the collection and analysis of people's personal information and tracking their behavior. This results in concerns regarding people's privacy. Another risk is how personalization leads people to only be presented with content and information that reflects their interests and viewpoints, resulting in creation of the filter bubble and echo chambers. This section gives an overview of the benefits and risks mentioned here.

### 2.3.1 Benefits

Personalization is about adapting the experience to the user based on his or hers needs and preferences, giving the user exactly what he or she wants. Naturally, this carries some benefits.

#### 2.3.1.1 Increase user engagement: Satisfaction and loyalty

Personalization looks to better the user's experience by tailoring the service to fit with their needs. For the user, this shows that the company wants the user to have the best experience possible, and that they are putting resources in to accommodate whatever needs the user may have. The user feels recognized and special. Ball *et al.* argues that when personalization is done right, it is obvious that this results in an improved user satisfaction, and that this is a primary antecedent of loyalty (2006). Satisfied users are likely to be loyal users, and vice versa. When users are satisfied with their experience, there is a big chance of them returning and continuing to make use of the service. The longer and more often the user makes use of the service, the more data the company can collect, which in turn will provide an even better personalized experience. This will, over time, produce a more satisfactory relationship between user and company/service (Ball *et al.*, 2006).

#### 2.3.1.2 Reducing information overload

The Internet is overflowing with information, but all that information is not relevant for every user. If a user is looking for something in particular, it can be very tedious and also

unnecessary to filter through all this information, as it can result in information overload. Personalization, by use of recommender systems, aims to solve this problem by providing accurate and personalized recommendations of items to users according to their preferences (Fayyaz *et al.*, 2020). This improves the experience for the user and reduces the risk of them being lost in a flood of information. It can also help the companies by being able to find the right product to sell and provide to the user, finding the right clientele. The use of recommendation systems are now being utilized in many various platforms, like “e-commerce, healthcare, transportation, agriculture and media” (Fayyaz *et al.*, 2020, p. 1). When considering news media, personalization by recommendation systems can be used to filter out certain categories or suggest certain articles, based on the users’ preferences and interests. Fayyaz *et al.* concludes with recommender systems being a very useful tool to overcome the information overload (2020).

### 2.3.2 Risks

Collection and analysis of people’s personal information and data to give them an enhanced experience does not come without risks and challenges.

#### 2.3.2.1 Privacy concerns

To be able to deliver the users a personalized experience, information is necessary. The company needs to know who the users are and what they want and need in order to match their service to the specific user. This information is received in the form of personal data, behavior and interaction with technology. Garcia-Rivadulla argues that though the user may think they are being delivered a convenient experience for free, they are actually paying with their personal data (2016). The information ranges from clicks, time spent on a page, and purchases to the user's name, contact information, social network and location. Each piece of information may not be of value by itself, but when combined with other data from different sources, companies can be able to predict and influence user behavior (Garcia-Rivadulla, 2016). This means that companies sit on huge amounts of data on their users, including sensitive information. In addition, companies may be able to gather more data and insights about the user than what is realized (Garcia-Rivadulla, 2016). What information is collected, where it is stored and if the information is used only to what it is intended for, is probably impossible for users to know. People enjoy and have a right to privacy, however, we as users continue to give them our information for our own convenience. Being recommended just the right movie on Netflix, the perfect pair of sneakers, and search result avoiding the risk of

information overload. Garcia-Rivadulla arrives at the conclusion: “We can only hope that people continue to take this issue seriously and demand from their service providers and governments the ethical and appropriate behavior they should show and the corresponding laws to provide the strong regulatory framework needed.” (2016, p. 232).

#### 2.3.2.2 Filter bubble

The word ‘filter bubble’ was introduced by Eli Pariser in 2011. The benefit of personalization is that the users get exactly what they want, and reflects the users’ preferences. But this also introduces the risk of being locked into your own bubble. Pariser is aware that users have always had the option to consume and choose the content and services that appealed to their interests and with that ignore everything else (2011). Everyday, both online and in the physical world, people take choices that best fit with their needs and preferences. Standing in a book shop, people can choose from thousands of books, but at the same time, they know what they like to read and are likely to be headed in the direction of the genres they prefer. But still, people are exposed to and have the choice of picking all available books, regardless of their initial interests. Now, due to the use of personalization, people are not exposed to all available content and products. They only receive content and products that algorithms have predicted that they want due to their behavior and personal information. This is the risk of the filter bubble. Pariser presents three dynamics that have never been dealt with earlier; In the filter bubble, you are alone, it is invisible and people do not choose to enter it (2011). Being alone in a filter bubble means that no one is exposed to exactly the same content and products that you are. Two people with similar interests can search for the same word in Google, but still be delivered different results. This lack of visibility and awareness of the filter bubble can prevent people from knowing that there is more information out there, but that is hidden from them. Personalization is not a choice, and neither is the filter bubble. There is no button for opting out of personalization or the filter bubble, people just have to accept it. Personalization is supposed to be a good thing, helping users find the right information, content and products by filtering out all that is irrelevant. But only being presented with information that reflects your own interests can prevent people from getting new information and other points of view. This is especially important when considering news and politics. People should get a balanced picture, not only information reinforcing thoughts they already had about a topic. Is this possible in the age of personalization? The filter bubble can be a rather cozy place where people are surrounded only by their favorite people, things and ideas, and are never bored or annoyed, which can be seen as an appealing concept (Pariser, 2011).

However, Pariser highlights that this comes at a cost, and that is that by making everything more personal, it can result in losing the traits that made the Internet so appealing in the beginning (2011).

### 2.3.2.3 Echo chamber

An echo chamber is a concept where users are only exposed to redundant information and singular viewpoints (Auxier & Vitak, 2019). With regards to personalization, this means that the users will only be presented with information that reflects their current viewpoints and beliefs. Algorithms can collect information and predict what viewpoints users have, and with that information, only provide information that correlates to the predictions. For a personalized news platform this means that if the user only interacts with content from the right-leaning political side, the user will, in an echo chamber, only receive content from the right-leaning political side. And this is the goal of personalization, only presenting content relevant to the users. However, a consequence of this is the creation of echo chambers. In an echo chamber, users will not be challenged on their viewpoints or current beliefs. Further, they will not have sufficient information on the topic as a whole. This means that they will miss out on seeing things from other sides, resulting in them not having the information necessary to even have the chance of changing their minds and reflect on current beliefs, or getting a balanced information picture. The creation of echo chambers is a problem because it can lead to extremes, increased polarization and an uninformed population. Especially for information and beliefs related to politics and society as these are crucial parts of democracy. Auxier & Vitak argues that echo chambers are not ideal for giving balanced knowledge consumption (2019).

## 2.4 Users' expectations and attitude towards news personalization

People are increasingly being exposed to personalization. At this point, people are so used to it that they have come to expect it. However, receiving personalized movie, music and product recommendations is quite different from personalized news recommendations. The news media are responsible for informing people on what is going on in the world and monitor power and democracy, thereby giving people the ability of making informed decisions. In contrast, pure entertainment services and social media are used for just that, entertainment purposes. They do not have any responsibility other than keeping users happy

and trying to get them coming back. This contrast in responsibility affects how personalization can be utilized by the different services. Where Netflix can use their algorithms to find and recommend movies easily based on the users' interests and preferences, news media have to be aware of their responsibility and be sure that they are giving the information necessary for maintaining this responsibility, regardless of the users' initial interests. This means that people will have different expectations of the different services regarding how personalization is utilized.

Thurman *et al.*, (2018) explore users' attitudes towards news selections and the different news selection mechanisms in 26 countries. They differentiate between three selection mechanisms; selection by algorithms based on the users past consumption behavior, selection by algorithms based on friends' consumption behavior (peer filtering), and selection by editors and journalists (Thurman *et al.*, 2018). The study shows that selection by algorithms based on the users' past consumption behavior was the preferred selection mechanism, but with selection by editors and journalists right behind. An interesting result was that six countries preferred selection by editors and journalists. Norway, however, where results from Medietilsynet, as discussed earlier, show that editor-controlled journalistic media stand strong as news sources, were not one of these six countries. Norway was part of the group slightly preferring selection by algorithms based on users' past consumption behavior. How this harmonizes is hard to say, but Norwegians have a high degree of trust in their news media, and might therefore not be that concerned about the use of algorithms in the selection of news media as long as it comes from a trusted news source.

Further, the study shows that people who use mobile devices as the main way of accessing news and those with higher interests in news have better attitudes toward news personalization and agree that it is a good thing (Thurman *et al.*, 2018). People who access news from mobile devices may be people on the go, and news personalization may give them more effective access to the news of interest. The same goes for those with higher interest in news, making the news consuming activity more efficient and less time consuming. There are still tendencies of concerns regarding missing out on important information due to news personalization (Thurman *et al.*, 2018). Through our own user tests and interviews, participants expressed the same concern. News goes beyond the users' interests, meaning that some do not have politics as a personal interest, but still want to get informed on important happenings in politics, and this is also the responsibility of the news media. Another concern found in both the study and our own user tests is the fear of missing challenging viewpoints

(Thurman *et al.*, 2018). For the news media to be able to maintain their responsibility to society, they have to be able to deliver people different viewpoints. People desire and need to be faced with challenging viewpoints in order to evolve and make the right decisions. If people are only faced with their own viewpoints, they are missing out on several layers of the topic concerned, and will not get the whole picture. In turn, this can lead them to make inadequately informed choices, which can hurt themselves and also society.

This shows that people in general have a positive attitude towards automated news personalization, but there are several issues and concerns that have to be solved in a responsible way in order to meet people's expectations. Possible solutions that take note of these concerns will be presented later in the thesis.

## 3.0 Method

This study of individually adapted news platforms is explored through and based on interviews with people from both the technology and journalism industry, a questionnaire, research on personalization and existing individually adapted news platforms, heuristic evaluations and the development and user testing of prototypes. This chapter gives an overview of the used methodology and methods.

### 3.1 Design Science

This project uses Design science methodology to explore the topic. Design science is the scientific study used to create artefacts meant to help people solve their practical problems (Johannesson & Perjons, 2014). Design science uses terminology such as “artefact,” “practical problem,” and “practice,” which I will explain further to give a fundamental understanding of the used terminology and methodology. An artefact is an object created by people with intentions of solving a problem (Johannesson & Perjons, 2014). The artefact in our project is an individually adapted news application. A practice is a set of meaningful activities that includes participants and are performed by humans (Johannesson & Perjons, 2014). The practice in our case is reading the news to get updated on world happenings and information on areas of interest. Finally, a practical problem is when the participants see the situation as an undesirable state (Johannesson & Perjons, 2014). Our project seeks to reduce the information overload news users experience when reading the news by individually adapting the news platform and by that make the activity more efficient, while still maintaining their trust.

There are five main activities in Design science research; explicate problem, define requirements, design and develop artefact, demonstrate artefact, and evaluate artefact. Explicating the problem entails investigating and analysing a practical problem (Johannesson & Perjons, 2014). The define requirements activity is about finding a solution to the explicated problem in the previous activity (Johannesson & Perjons, 2014). The design and develop artefact activity is where the artefact is created according to the explicated problem and that fulfils the defined requirements. The activity of demonstrating artefact entails using the developed artefact in either an illustrative or real-life case (Johannesson & Perjons, 2014).

The activity of evaluating the artefact checks to see whether the artefact fulfils the defined requirements and explores how well it can solve the practical problem that motivated the research (Johannesson & Perjons, 2014).

Design Science research presents multiple research strategies and research methods. Johannesson & Perjons presents a research strategy as a plan for how to conduct the research study, meaning that it guides the researcher in planning, executing, and monitoring the study, while a research method informs the researcher how he is going to collect and analyse the data (2014). The project has utilized interviews, observation, and questionnaires as data collection methods. How these have been applied and conducted will be further explained.

## 3.2 Methods for data collection and design

This section provides information on the methods used for data collection and design, how the methods were applied, and for what purpose.

### 3.2.1 Interviews

As part of the design science activities of explicate problem and define requirements we conducted interviews with people from the media industry. We were able to recruit a technologist that works with personalization in TV 2 Sumo, and two people with a journalism background.

An interview can be seen as a communication session between researchers and respondents that is effective for collecting information that is complex and sensitive (Johannesson & Perjons, 2014). The interviews were conducted in a semi-structured form, which means that it is based on a set of open questions that allow and make room for discussion (Johannesson & Perjons, 2014). As the topic is complex and somewhat controversial, semi-structured interviews are better because it allows for more discussion and lets the respondents express their thoughts and feelings in a less formal way. There are some advantages and disadvantages of conducting interviews as presented by Johannesson & Perjons. The main advantage is that interviews allow us as researchers to go into depth and gather detailed information, while a disadvantage is that they are considered to be time-consuming, especially considering the processing that is transcription and analysis processes (Johannesson & Perjons, 2014).

The goal of the interviews was to gain insight on what personalization techniques are currently being utilized and for what purpose, and to get the professionals' perspectives on the topic of personalization in the news. We wanted to get an understanding of what was technically possible to accomplish and what was editorially responsible to present to the users. It was important for us to get insights from both sides, i.e., both the consumers and the suppliers, and journalists and editors as well as technologists. This was to form a clear and comprehensive picture of the problem area.

### 3.2.2 Questionnaire

The interviews gave us qualitative information on the subject. We wanted to complement this with quantitative information, thereby getting a more complete picture (Johannesson & Perjons, 2014). To get quantitative information we made and distributed a questionnaire. The questionnaire was used to gain a deeper understanding of the news users and their needs, and was distributed to 265 respondents. A questionnaire is a list of written questions that is distributed to a number of respondents and that provides data that can be interpreted and analysed (Johannesson & Perjons, 2014). They are often used to gather straightforward information that is brief and unambiguous, and they can ask questions that are about simple facts, such as age and gender, or opinions, such as consumer preferences (Johannesson & Perjons, 2014). Questions can be closed or open, where closed means that the researcher has a set of permissible answers and open means that there are no predefined answers and the respondents will have to answer in their own words (Johannesson, 2014). Open and closed questions can be used in combination. The advantage of questionnaires is that they are inexpensive to perform, while a disadvantage is that it can be difficult to get a high response rate because it is easy to ignore a request to answer a questionnaire.

The goal of the questionnaire was to get an insight into the general news reader's attitude towards personalization in the news, how trust potentially can be affected by personalization, and general news habits. The questionnaire utilized both closed and open questions, which gave us answers that were easy for us to analyse with statistical methods, and answers that allowed the users to give more elaborated answers but were harder to analyse (Johannesson & Perjons, 2014). The reason for choosing a questionnaire as one of our research methods was the desire to collect data from a big audience in a short and reasonable amount of time. This data, in addition to the information collected through interviews, helped us as researchers and

designers to narrow down the problem space and by that more readily being able to define the requirements and focus points for the artefact and the project.

### 3.2.3 Heuristic Evaluation

To be able to generate and suggest recommendations, and answer the research problem, heuristic evaluations were conducted. The interfaces that have been evaluated are all of our three prototypes, in isolation. Evaluating these prototypes with regards to the different personalization techniques used and the design, helps to see which elements work and which do not, considering the different personalization techniques. This will in turn be helpful in the work of suggesting and formulating recommendations.

A heuristic evaluation is a usability engineering method that is used to find the usability issues in a user interface design to know what needs to be attended to as part of an iterative design process (Nielsen, 1994b). It involves having a set of evaluators examine the interface and judge it using established usability principles called heuristics (Nielsen, 1994b). The output of a heuristic evaluation is a list of the usability problems recognised by the evaluator in the interface, annotated with references to the heuristics that were violated by the design in each case (Nielsen, 1993).

There are some challenges doing a heuristic evaluation when the platform utilizes personalization. Personalization is a method that works behind the scenes, and is not directly visible to the user. By evaluating our own prototypes, I know the thoughts and process behind the different personalization concepts and tactics used, making it easier to judge it by reference to the heuristics. If I were to evaluate existing personalized news platforms, it would be difficult to know what personalization methods and tactics are used, and also what the personalization is based on. In addition, I have not been able to uncover if Norwegian news media utilize personalization by AI for presenting their news. I have found that Amedia has several news applications for local newspapers using customization, but only evaluating one existing news application and comparing them to our own prototypes would create an unequal basis for comparison. This means that in order to evaluate personalized news platforms I would have to turn to foreign news media. There are several problems related to that, some being cultural differences and language barriers. One example of a personalized

news platform I found was *Toutiao*<sup>1</sup>. This news website is in Chinese and the Chinese culture is very different from Norwegian culture, so this would not be a sufficiently good basis for comparison or developing recommendations for personalized news platforms in Norway. As studies have shown, the Norwegian population has great trust in and primarily chooses to read Norwegian newspapers. Lastly, this project and study is in collaboration with TV 2, and the prototypes are created on the basis of one of their news application. As a conclusion, I found it best to evaluate our own prototypes as this is a result of insight into the Norwegian news industry and Norwegian news readers' news habits, needs and attitudes toward news personalization.

### 3.2.4 Prototype adapted to a fictional persona

In order to communicate our concept and design, we created a non-functional, or a not-fully-functional, prototype in an iterative process. A non-functional prototype has limited user interactions but gives a more detailed look and visual attributes of the design (Ancubate, 2018). Our prototype has some functionality, but it is limited. The user can click on elements in the prototype, but they will have to follow a strict line of tasks for it to work, they cannot click freely. I will elaborate on this further in this section. In Design science a prototype is seen as an early form of an artefact, with the purpose of testing different aspects in order to develop a more successful final artefact later on (Johannesson & Perjons, 2014). The prototypes helped us as designers to better understand the design challenges for developing the final artefact (Johannesson & Perjons, 2014). Creating the prototype, testing and evaluating it, was essential for us to be able to discuss whether our design works or not. It is also essential for my individual research question and the development of recommendations.

Our non-functional prototype is a result of the insight gained from the interviews, questionnaires and the research on existing individually adapted news platforms, as well as user feedback received through the iterative process. It is created using the browser-based vector graphics editor and prototyping tool Figma<sup>2</sup>. Figma allows for live, real-time collaboration, meaning that the team members can work on the design from anywhere and is always up to sync with latest changes. Figma has an additional application, Figma Mirror, on smartphones that allows for mirroring the prototype to make the prototype look like it is a

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<sup>1</sup> Toutiao (n.d.) Available from: <https://www.toutiao.com/?wid=1618229511986> (Accessed: 29. January 2021)

<sup>2</sup> Figma (n.d) *Creative tools meet the internet*. Available from: <https://www.figma.com/about/> (Accessed: 5. February 2021)

real mobile application. This, along with the ability to collaborate in real-time, was the reason for choosing Figma as our design tool.

There are some disadvantages with using Figma for our prototype. There are some limitations in terms of functionality. The designers need to structure all interactions before the users will be able to test it. This means that the participants cannot explore the prototype freely, which became a challenge for us considering the theme of the study. It is not possible to create a prototype in Figma that imitates AI, which is one of the concepts used in the development. It would, in addition, be very time consuming if we let the participant choose freely from the category selection menu as part of the customization, as it could result in an excessively large number of variations of a personalized front page. For us this meant that we needed to simulate both the personalization by AI and the customization manually by creating and defining user tasks on behalf of the users before the user tests could take place. More on this in the next section.

### **Persona-adapted prototype and persona**

When developing a prototype of an individually adapted news platform it is necessary to have it be adapted to that particular individual. An individually adapted news platform should reflect the interests and behaviour of the person through the presented news articles and categories. This means that when testing the solution, the prototype of the application should be adapted to the participant. For us this would entail collecting a large amount of personal data and information on our participants. This should also include information that the participants do not even know about themselves, but that is created and analysed by their behavior on the Internet. Collecting this information would be time consuming and would impose a risk of violating privacy and ethical concerns. In addition, it could result in the participant feeling uncomfortable being faced with an individually adapted news platform under the observation and questioning of a researcher.

To solve this challenge, we created a fictional persona and adapted the prototype to the persona. A persona is a fictional character that is created based upon research in order to represent different user types that use the service in a similar way (Friis Dam & Yu Sian, 2021). It is used to help designers understand the users' needs, experiences and goals, and it will help asking the right questions and answer those questions in line with the users you are designing for (Friis Dam & Yu Sian, 2021). We used the persona somewhat differently. By having the participants role play a persona we avoided collecting sensitive and personal

information on the participants, secured a more comfortable situation for the participants as it did not include their private life, as well as reduced development time.

Before the user test, each participant got a persona which they were asked to familiarise themselves with. The participants were then asked to adapt their point of view to the given persona as they tested the prototype belonging to that persona. The intention was to have the participant acknowledge the persona's news preferences and interests as their own preferences. To understand what works and what does not in your interface you should observe people use it, which is the essence of usability testing (McCloskey, 2014). The participants should be given some activities to do, these assignments are usually referred to as "tasks" (McCloskey, 2014). Knowing this, the participants were given tasks they had to follow throughout the user test. By giving the participants a persona to familiarise themselves with, along with tasks to perform, aimed to create a scenario where the prototype could be experienced as being personally adapted to the participants, even though the choices were constructed in advance. The goal was to create a realistic experience of the concept and the prototype, despite Figma's limitations, and to acquire relevant and credible test data for further analysis.

Even though we created a prototype adapted to a persona and had the participants role play the persona, that does not mean that we excluded the participants own attitude and thoughts towards the prototype and concept. We needed them to familiarise themselves with the persona when interacting with the prototype, and to make them realise that the prototype was individually adapted. Beyond that they could act as themselves when asked about their attitude and thoughts.

The insights we received from creating a persona adapted prototype reflecting an individually adapted news platform were many. We were able to uncover the participants' attitude towards the use of individually adapted news platforms and personalization in general. We learned how they reacted to the use of the different personalization techniques and by that which is best when individually adapting a news platform. Further, we were able to explore how the participants interacted with the prototype and by that make necessary changes.

## **Challenges**

The project is studied through Design science methodology. Creating a prototype adapted to a persona is not a method that is previously known in this methodology or any other methodologies, as far as we know. With ethics and the well-being of the participants in mind, as well as limited resources in the form of tools and time, we found this to be the best solution to simulate and communicate an individually adapted prototype. There are, however, some challenges to be aware of when introducing and utilizing a new method like this. For us, ecological validity is a challenge that needs to be discussed.

### **Ecological validity**

Ecological validity examines whether findings in the study can be generalised to real-life settings (Andrade, 2018). This means that the test situation can affect the results, and that the result could have been different in a real-life situation. For us, giving the participants personas to roleplay and not having them act like themselves poses a risk that the results would have been different in a real situation. This is a challenge that we have been aware of from the beginning. Most user test situations where you remove the user from the comfort of their home and routines have the risk of results being affected to a greater or lesser degree. To minimise the risk of the results being too affected by the situation, we tried to keep the dialogue as open as possible with the participants. We explained why we found it necessary to include a persona. This being that it is not possible to create a prototype with functioning AI as well as we saw it as a better and more comfortable situation for them as participants. For them, it meant that they did not have to provide us with insights like who they are as private persons, what their interests and news preferences are, political views and analysis of their behavior on the Internet. If we were to personalize the prototype to each of the participants, we could be faced with many difficult ethical dilemmas and end up upsetting the participants, making the results more questionable.

Our experience was that the participants found it to be a comfortable way to experience an individually adapted news application in an observed situation, as it did not include their own person and that they did not have to defend themselves with regards to any content presented. The participants were frequently reminded that the user test was primarily about communicating the concept, the different personalization techniques and the visual design, and less about the actual content in every presented news category. The interview process

after the user test was of the semi-structured kind, thus it allowed for questions and reflections from the participants.

Many of the interests the persona had and that was presented in the individually adapted news application can be considered to be very general and familiar interests, like entertainment and sports. There is no apparent evidence showing that the participants had difficulties with imagining and familiarising with an interest in these kinds of categories. Other categories, on the other hand, like personalizing based on people's emotional life, can be considered a more difficult task to familiarise with. When the participants were exposed to categories of these kinds, they were asked to reflect on the possible outcomes and consequences of implementing such categories, both on behalf of their persona but also on behalf of themselves. When discussing how they as a private person felt about the category, it was meant to be regardless of the content, but rather about the concept and personalization technique used. This to reduce and minimise any risk of discomfort for the participant, and to let them keep their anonymity in the form of eventual political views, mental state or similar. Furthermore, to get a result that is as authentic as possible in the test situation. We hope that in doing it this way, we are left with a result that can be considered to be credible to a certain degree. We expect there to be some sources of error as this is not a natural setting for the participants as well as them having to act as someone other than themselves.

### 3.2.5 User Testing

Demonstrating and evaluating the artefact are the last activities of Design science. By demonstrating the artefact it will help show that the artefact actually can be used to solve the problem space (Johannesson & Perjons, 2014). The activity of evaluating the artefact checks whether the requirements are met (Johannesson & Perjons, 2014). To evaluate whether the concept and the design of the artefact worked, and to find solutions to possible violations, we conducted user tests. Our project is concerned with finding out what personalization techniques there are, and how they can and should be used in news platforms to create the best user experience. We wanted to explore how the participants reacted when presented with different forms of personalization techniques and concepts. The whole process of creating and evaluating the prototype was conducted in an iterative manner. By doing this, we were able to moderate the personalization techniques used, as well as the design as seen necessary.

We recruited 9 participants in total, and distributed them evenly on three rounds of user tests. 3 of the participants were included in all three rounds of user tests, referred to as recurring participants. The reason for this was to be able to create a basis for comparison, and not just get individual perceptions. The recurring participants got to experience all the variations of the prototypes, and because of this they helped to form a good basis for the comparison of the different methods used, and influenced the end result, along with the other participants, to a large extent.

Our target group is news readers which includes a big group of people of varying ages. Because of this, the participants ranged from the age of 21 to 57. Due to Corona restrictions, all the participants were recruited from our own network. We recruited an expert as part of the participants, from our own network. The expert has a background in graphic design and user experience design and was a part of the recurring participants. The purpose of including this expert was to get a professional and detailed assessment of the concept, as well as the visual design and user experience. The user test was conducted in the same way with the expert as with the other participants.

Before each test, the participants were given the persona and asked to familiarise themselves with it. The prototype was tested with the use of Figma's mobile application, "Figma Mirror", on our own mobile phones. The participants were given tasks to complete during the user test. On completion, the next task was given. The purpose of the tasks was to push the participants to explore and use the parts of the interface that were crucial to our study. The goal was to observe whether the design and structure could be experienced as being intuitiv. If the participants were to be stuck at the same task that could be considered as an indication that the user-friendliness was not sufficient, and some improvements are needed. When all tasks were completed, a semi-structured interview was conducted to get insights, reactions and thoughts from the participants. In the interview, we encouraged a general discussion regarding the theme of the study, personalization of news.

## 4.0 Findings

The impact report from the group project includes nine important insights from the project development and user tests, along with a description of the prototype. These insights, together with my own heuristic evaluations form the basis for my recommendations for developing personalized news platforms that fulfills the news media's responsibility and maintain the users' trust.

For the heuristic evaluation I have used Jakob Nielsen's 10 well known usability heuristics for user interface design (Nielsen, 1994a):

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

The heuristics are interpreted broadly in order to be able to include the concept of personalization. What is important to notice is that the heuristic evaluations are conducted after the end of the project, which means that the heuristic evaluation is not part of the design and iterations of the design.

### 4.1 Visibility of the possibility of personalization

The prototypes we have created depend on the user in order to provide a personalized frontpage. This means that it is crucial that the possibility of personalization is visible. In all of the prototypes, the first thing the user sees is a standard showing of a frontpage. In the first version, which is solely based on personalization by AI, the user has to actively turn on and allow cookies in the cookie settings. As the cookie settings does not pop-up automatically,

but rather depends on the user looking for and wanting to change the cookies settings, the possibility of personalization is not visible and will as a result not be utilized. The second version of the prototype is based on customization. There is no sign of the possibility of customizing the experience on the frontpage. First when the user clicks the hamburger menu, the possibility of customization is visible. The third prototype allows for personalization both by AI and customization, in combination. Again, it depends on the user turning on cookies through the settings menu, or going through the hamburger menu to find the option of customizing. Altogether, this shows that the possibility of personalization is not visible in the prototypes, and therefore violates the first heuristic - *visibility of system status* - as the user does not receive sufficient information on the possibilities to determine their next steps. Further, it violates the sixth heuristic - *recognition rather than recall* - as it does not make the possible action visible. In this design, the user has to recall that personalization is possible rather than recognizing it through the design.

As our test participants knew beforehand that they were going to test a personalized news platform and were given concrete tasks to complete, they were very well aware of the possibility of personalization, therefore we do not have any information from the interviews to this question of visibility.

## 4.2 Personalizing

### 4.2.1 Turning on cookies and allowing personalization by AI

The first and the third prototype both utilize personalization by AI, whereas the second prototype relies solely on customization and does not depend on cookie information. Therefore, this section will only be about the first and third prototype.

#### 4.2.1.1 Finding the cookie settings page

The first thing the user has to do in order to turn on functional cookies and allow personalization, is to find the cookies settings page. In the first prototype, the cookie settings are displayed as an own menu icon, and are not included in the general settings. The icon used is a cookie settings icon. But it is not familiar to most users, and therefore violates the second heuristic - *match between system and the real world*. In addition, not having the cookies settings pop-up when entering the application, violates the fourth heuristic -

*consistency and standards*. Usually, when entering a platform that utilizes cookie information, these settings pop-up immediately after entering. The user tests showed that the participants had a hard time finding the cookie settings page, and automatically clicked the icon for general settings, thinking it would lead them to the cookie settings.

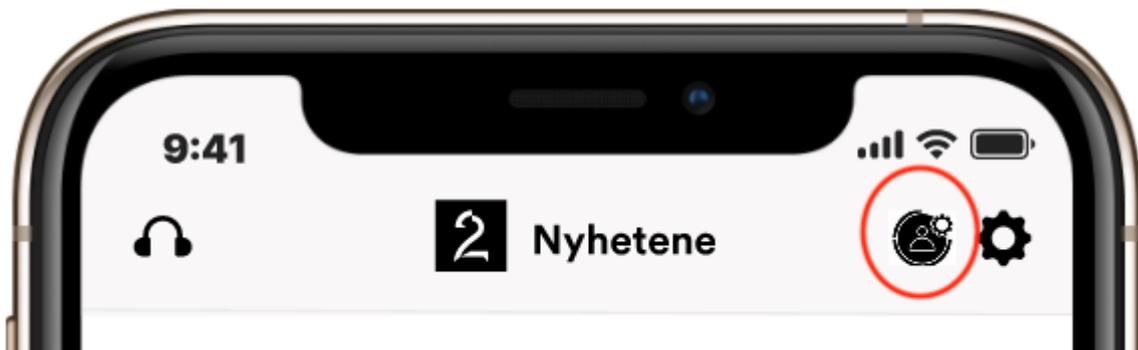


Figure 1. Cookie settings icon in prototype 1.

In the third prototype, the cookie settings were placed in the hamburger menu, with the familiar gear icon. The test participants found the cookie settings easily, and the feedback was that it was easy and intuitive to find it. Still, the design violates the fourth heuristic - *Consistency and standards* - as the cookie settings do not pop-up automatically when entering the application.

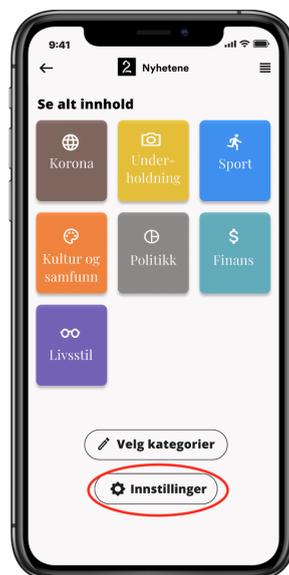


Figure 2. The way to find cookie settings

#### 4.2.1.2 Interacting with cookie settings

The next step is to turn on the functional cookies. The cookie settings page is very similar in the first and the third prototype. The cookie settings are designed with toggle switches, which only have the option of being on or off.

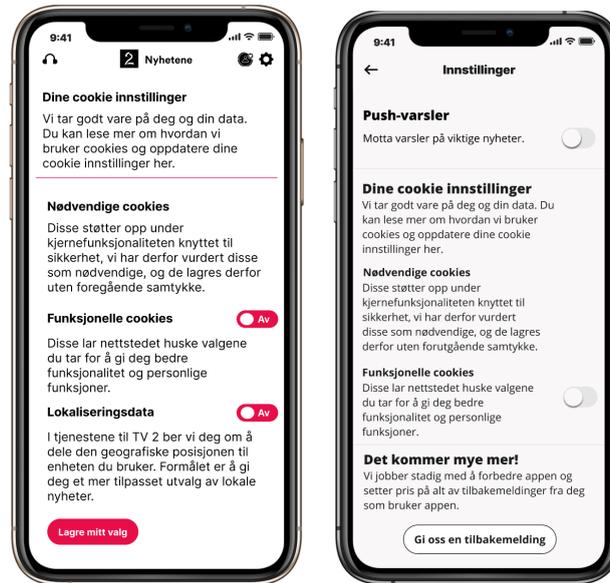


Figure 3. Cookie settings menu in prototype 1 and 3.

Both designs satisfy the first heuristic - *visibility of system status* - as it clearly shows which settings are on and off, and what each setting entails. It also satisfies the eighth heuristic - *aesthetic and minimalist design* - as it only contains relevant information, and is focused on what is essential. The information provided states what changes to the settings entail, however, it could be stated even clearer that turning on functional cookies will result in a totally personalized news feed. The first prototype is designed with a save button for confirming changes done to the settings, whereas the third prototype uses autosave and only has a return icon. The save button in the first prototype clearly states that the changes will be saved, whereas the autosave and return icon in the third prototype is not as clear. There are no additional error messages for the fifth heuristic - *error prevention* - instead, the prototypes are designed for preventing problems to occur by being simple and have good visibility of system status. If the user turns a toggle switch on/off by mistake, the action can easily be undone by switching back again. When the save button in the first prototype, or the return icon in the third prototype, is clicked, the user is automatically taken to a personalized version of the frontpage. The user tests showed that the participants, without information, trusted that the cookie settings page in the third prototype saved the changes automatically, and clicked the

return button without hesitating after finishing the task of turning the functional cookies on. When asked about the solution with autosave, all participants confirmed that they are becoming more familiar with autosave, and did not look for a save button as they automatically thought that changes were saved automatically.

#### 4.2.2 Customizing - the category selection menu

The second and the third prototype both make use of personalization by customization. Therefore, this section will only include evaluations of the second and third prototype.

##### 4.2.2.1 Finding the category selection menu

For being able to select preferred categories to be included in the personalized news feed, the user first has to find the category selection menu. The only way to get to the category selection menu is through the main menu. This means that the third prototype violates the seventh heuristic - *flexibility and efficiency of use* - as it now does not provide any shortcuts or any flexibility of use. The participants in the user tests had no problem with finding the category selection when asked to do so, however, the application would benefit from having the possible action of category selection visible on the frontpage, providing flexibility and also visibility of possible functionality.

##### 4.2.2.2 Selection of categories

The category selection menus in the second and third prototype differ from each other in visual design, but the concept is rather similar. In the second prototype, the user is presented with the general categories available, but when they choose a category, subcategories are presented to specify the choice further. The immediate design satisfies the first heuristic - *visibility of system status* - as it shows with use of color, which categories are selected, and gives immediate feedback upon selection. However, it is not clear that when selecting a category, subcategories will appear. This can affect and interrupt the user's interactions, as it is an unexpected happening. But after the user has experienced this once, he carries this knowledge for deciding on his next actions.

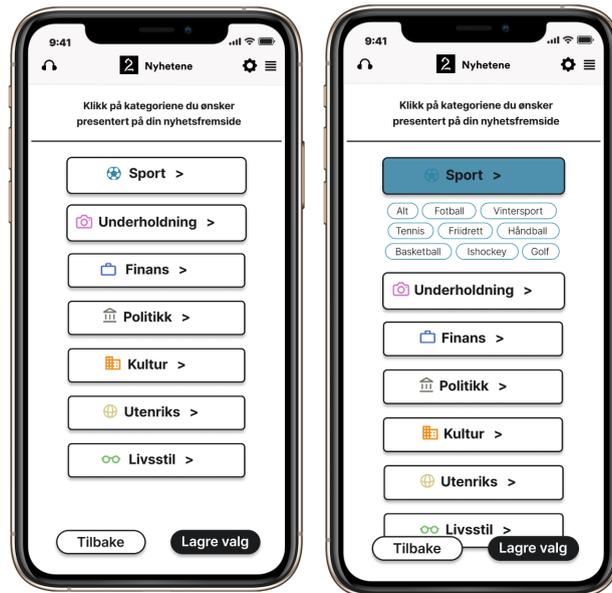


Figure 4. The category selection menu in prototype 2.

As the category names use clear and familiar language, along with associated and familiar icons, the design satisfies the second heuristic - *match between system and the real world*. For the changes to be saved, the user has to click the save button, which is clearly visible. But if the user has made changes and clicks the return button by mistake, there are no error prevention messages asking if the user is sure he wants to leave without saving his changes or that all changes will be lost if he continues. This violates the fifth heuristic - *error prevention* - which is a very important point as it prevents the user from making mistakes and having a bad experience with the application.

The third prototype has no option of choosing a general category, instead all categories are divided into subcategories from start, with the general category only as a title. As this prototype uses a combination of personalization by AI and customization, some of the subcategories are already selected by AI.

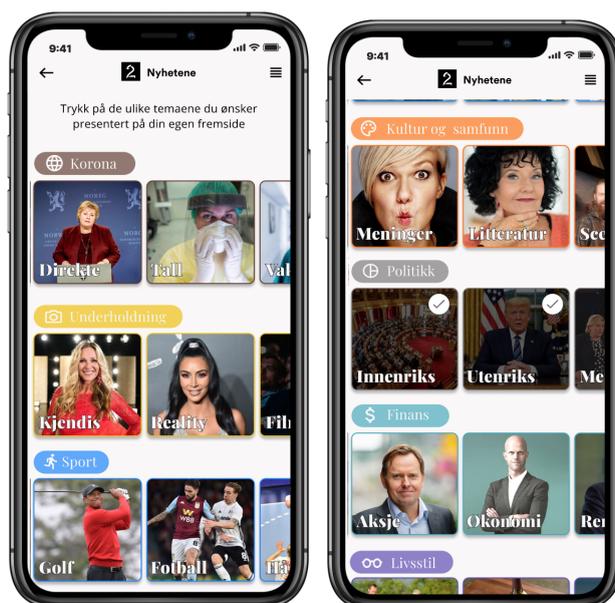


Figure 5. The category selection menu in prototype 3. The right picture shows some categories that have been selected by the user/algorithm.

The design satisfies the first heuristic - *visibility of system status* - as it clearly shows which categories are selected, and provides immediate feedback upon selection. Further, it displays all possible choices from the start. The selected categories are displayed with a darker layer and a checkmark, which is a familiar icon and concept. As a result, the category selection menu satisfies both the second and fourth heuristic - *match between system and the real world*, and *consistency and standards*. The third prototype offers no save button, but uses autosave, same as for the cookie settings in the same prototype. This is designed to satisfy the fifth heuristic - *error prevention* - as the user does not have to worry about changes being lost. In our user tests, all participants recognized the autosave and did not hesitate before clicking the return button.

Altogether, the feedback was that the users enjoyed the possibility of selecting categories themselves, and thought it was good that the categories were divided into subcategories, as the general categories are very wide and will include a whole lot of different content. Selecting subcategories allowed them to specify further what kind of content in the chosen category they found interesting and wanted to include. The design in the second prototype entailed a lot of unnecessary steps for the users when selecting categories and subcategories, as pointed out by our recruited expert. This led to a number of changes in the third prototype as it also included the category selection menu.

## 4.3 Categories and categorization

After the user has allowed use of cookie information and selected categories, the frontpage will go from being a standard frontpage containing the same content for every user, to being a personalized frontpage containing content relevant for the specific user. Since we have experimented with several personalization tactics in the different prototypes, the personalized frontpage will contain different content depending on the personalization tactic used in the specific prototype. This means that the frontpage personalized by AI will be able to, in addition to general categories, include different forms of categories as it is based on information that goes beyond just general categories and subcategories the user has the choice of selecting from.

### 4.3.1 Frontpage

For the first prototype, we explored the possibility of dividing the content into categories. This way of presenting the content was well received. 8 out of our 9 test participants felt that it provided a good overview of the available content. This format was therefore kept for the next prototypes. However, dividing the content into categories on the frontpage violates the fourth heuristic - *consistency and standards* - as it does not follow industry conventions. Other Norwegian news platforms display all available content in a long vertical uncategorized news feed. I have not been able to uncover whether other Norwegian news platforms utilize personalization by AI to recommend and present news articles.

On the standard version of the frontpage, all available categories are displayed. On the personalized frontpage, on the other hand, only content relevant to the specific user is displayed. Providing a personalized frontpage with only content relevant to the specific user satisfies the eighth heuristic - *aesthetic and minimalist design* - as it excludes content that is not considered relevant.

On the first and second prototype, the user does not have a way of finding content that is being hidden due to personalization. This violates the fourth heuristic - *consistency and standards* - as the standard is that all available content and categories can be reached in some way. The third prototype, on the other hand, offers the possibility of finding all available content on overview pages of each category. This means that even though the personalized

frontpage only presents content relevant to the specific user, the user still has the possibility of finding content that is hidden.



Figure 6. The main menu where all content in each category can be reached in addition to clicking category titles on the frontpage.

The content overview pages were requested by some of our test participants as a way to ensure that all content is still available, regardless of use of personalization. Further, providing and ensuring a comprehensive news picture in addition to maintaining the users' trust. These content overview pages can be accessed both through the menu and by clicking the category title on the frontpage. This design satisfies the seventh heuristic - *flexibility and efficiency of use* - as it provides shortcuts and allows the user to choose which method they want to use to achieve their goal. When our test participants were asked to find the content overview page, all participants clicked the category title on the frontpage instead of going through the menu. The participants were very pleased with the adding of the content overview page as this further increased their trust in the distributor and the concept of personalization. It was important for them to know that they had the opportunity to find all content available.

The frontpage is where the content and news articles are accessed. When a user clicks a news case they are presented with the content. If the user clicks into a news case by mistake they can easily exit by clicking the “x”.



Figure 7. News story showing the “x” in the upper right corner.

There are no error messages, as it would be annoying if the user would have to confirm if they want to read the chosen news case. However, seeing that the first and third prototype uses personalization by AI, clicking the wrong news case can lead to changes in the algorithm. As a result the users can end up receiving irrelevant content. There is also no possibility for the user to directly affect the algorithm. This violates the fifth heuristic - *error prevention*. In the third prototype, the user can do changes themselves if they do not agree with the predictions provided by the AI. This can be seen as an error prevention and therefore, as a result, satisfies the fifth heuristic - *error prevention*. Our test participants enjoyed the combination of personalization by AI and customization. The feedback showed that they liked that the personalization by AI could do the groundwork, and they were able to tweak the choices if they were not fully happy with the predictions or fully trusted the AI. In addition, this allowed them to both turn off the personalization and solely rely on their own selection, or truly trust the AI and not having to do any changes.

#### 4.3.2 Breaking news

All of the three prototypes are designed with the goal of giving as comprehensive a news picture as possible. The topic of a comprehensive news picture becomes even more relevant when personalization is introduced into the news industry. As a result, we included a category named “Breaking news”, containing important content from different categories.



Figure 8. Showing how “Breaking news” is designed and placed. Identical design and placing on both standard and personalized frontpage.

The category is identical on the standard frontpage and the personalized frontpage, and is consistently placed on top to highlight its importance. The design satisfies the second and fourth heuristic - *match between system and the real world*, and *consistency and standards*, as this is a natural and logical order, and follows the industry conventions where all the newest and most important information is placed on top.

The user does not have a choice of removing the category in the category selection menu. This is a grip to make sure the user is sufficiently updated on the most important news and for maintaining the news media’s responsibility to society. Breaking news may contain news articles in categories the user has excluded from their selection, but still informs them on the most important happening regardless of the users’ interests. This grip satisfies the fifth heuristic - *error prevention* - as it hinders the user from missing out on this important information. However, it violates the third heuristic - *user control and freedom* - as it does not allow the user to remove this possibly unwanted category, or allows the user to have control of the system. All of the test participants highlighted the importance of including breaking news on both the standard and personalized version, and having it be identical. Further, it gave them a more comfortable feeling of being given a comprehensive news picture.

### 4.3.3 General categories and subcategories

All three prototypes have a personalized frontpage that includes general- and subcategories, but to a different degree. The second prototype, using customization, only provides the option of selecting and displaying general categories and subcategories. In comparison, the first and third prototype uses personalization by AI, which results in the ability of providing categories that go beyond the general categories. The general categories have title names that are familiar and clearly state what the category contains, which satisfies the second heuristic - *match between system and the real world*. The category names are changed from the standard frontpage to the personalized frontpage, as a result of the changes. This change violates the fourth heuristic - *consistency and standards* - as there is no consistency in title names across the application. But further, all general categories have been given a unique color and icon for identification.

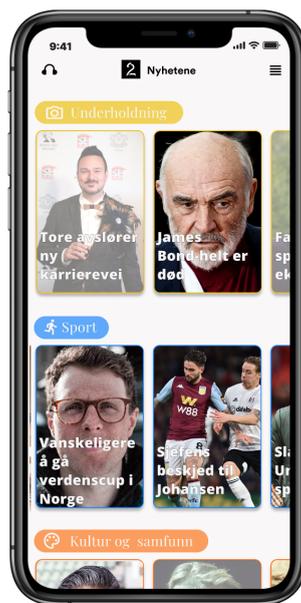


Figure 9. Example of category colors and icons.

This color and icon will still follow the content on the personalized frontpage. To further clarify with an example: the sports category has the color light blue and a soccer icon. If the user only selects handball to be presented on his personalized frontpage, the title name will change from “sports” to “handball”, but the category will remain light blue and have the soccer icon. The concept is the same also for the third prototype, but with more than only general and subcategories. This concept and design satisfies the fourth heuristic - *consistency and standards*. Further, the icons used for the general categories are familiar and follow real

world conventions, satisfying the second heuristic - *match between system and the real world*. The design satisfies the sixth heuristic - *recognition rather than recall* - as the user is able to recognize the combination of the icon and color to identify the overall category the categories presented on the personalized frontpage belong to. Four out of five test participants pointed out that the use of colors and icons for identification, consistency and recognition was both clear and logical.

#### 4.3.4 Categories based on use of personalization by AI

The first and the third prototype both use personalization by AI. The involvement of personalization by AI allows for presenting categories that go beyond the general categories like sport, finance or politics. We experimented with a collection of different types of information. Here I will present the different personalized categories we tested, and discuss how they were received and how well-working they were considered to be.

##### 4.3.4.1 “Have you thought about this?”

This category is meant to challenge the viewpoints of the users and is based on information on previously read material and predictions of the users’ viewpoint. An example is if the user is considered to be a person who rejects the efficiency or safety of vaccines. This is not meant to be propaganda or an attempt to convince the user to the contrary. Instead, the purpose is to try to give users a nuanced news picture, and challenge their beliefs with facts, as well as prevent polarization, filter bubbles and echo chambers. It is not entirely clear that this category is personalized, even though it has the word “you” in the category title. This can be both good and bad, as personalization can be considered invasive. This can be a more discreet way of presenting personalized content. This concept violates the fourth heuristic - *consistency and standards* - as the use of personalization and challenging viewpoints is not following the Norwegian media industry’s conventions. If the users are presented with this category on their personalized frontpage, they have no way of removing it or signaling discontent, not even through customization, the category selection menu the third prototype provides. As a result, the users can end up feeling offended and loss of control, which violates the third heuristic - *user control and freedom*. In my example where the user is considered to be a vaccine opponent, this category will be gray and have a political icon, to signal that the content belongs to the politics category. This design satisfies the fourth heuristic - *consistency and standards* - as there is consistency with color and icon usage. Further, it satisfies sixth heuristic - *recognition rather than recall* - as the users are able to

recognize the combination of the icon and color to identify the overall category the content belongs to. Few test participants were able to understand the purpose behind the category. However, when they were told what the meaning behind the concept was, they were all positive and saw it necessary to include a category like that when bringing personalization into the news media. They have all expressed a fear of echo chambers and filter bubbles, but said that this category reduces worry.

#### 4.3.4.2 “Brighten your day”

This category is very experimental. The idea is that AI is able to analyze the user’s mood. If the results of the analysis is that the user is sad, the application will try to cheer the user up by presenting a category containing humorous news articles and positive news. The category title is “Brighten your day”. The title name does not use the word “you” in any way, to keep it more discrete. The user can, if recognized, find the category and technology behind to be too invading. But it might be hard for the users to understand that the application and technology is able to analyse their mood through the information available. This concept and design violates the first heuristic - *visibility of system status* - as the user is not fully informed about the system status. Further, there is no information stating that this category is a result of personalization, thus the application does not communicate openly. It also violates the fourth heuristic - *consistency and standards* - both as it is not following industry conventions, and that this type of personalization is rather experimental. However, it satisfies the same heuristic because of consistency in the application. The content in the category will belong to a general category, and therefore be presented with the same color and icon as the category it belongs to. This will also satisfy the sixth heuristic - *recognition rather than recall* - as the icon and color in combination will help the user recognize which category the content belongs to. Same as for the category “Have you thought about this?”, this concept and design violates the third heuristic - *user control and freedom* - as the user does not have any way of removing or signaling dissatisfaction with the category or content.

Only two of the test participants understood the motive behind the concept. When informed what the motive was, they had immediate concerns and meant it was too invasive. However, they were still positive to the concept if it can help, but highlighted the importance of being discrete and not making the user paranoid. Further, some users proposed including the category regardless of mood, and not base it on personalization. Presenting the category as a breath of fresh air in the news feed.

## 4.4 Comparison of personalization tactics

A big part of this research has been the question of which personalization tactic to use when personalizing the news. As a basis question, the participants were asked about their initial thoughts about personalization in the news media. Some participants were immediately positive to the concept and justified this with the concept of personalization becoming more and more familiar, increasing efficiency and overall user experience. But still, participants had concerns related to privacy, the fear of missing out, and polarization.

The results from the user test of the first prototype, based solely on personalization by AI, showed that some of the participants were concerned about the AI making the right decisions for them and wanted some way of being included in the process. But there were also some participants trusting the AI to make the right choices. In addition to privacy concerns, the participants highlighted the importance of challenging viewpoints and not only being presented with news that matches their thoughts and viewpoints.

The second prototype is solely based on customization, resulting in the users themselves being in charge of selecting what they want presented in their news feed. The recurring participants stated that they enjoyed having the option of being included in the selection process, but that they would rather have it as an option to adjust the algorithm. Thus, customization and personalization by AI can be used in combination. This was justified by the fact that they trust AI, and in comparison thought it was more convenient, but it would still be good to have the option of being included in case the algorithm should miss a bit or omit something. In addition, there was a fear that if the users themselves were in full control, this could result in the users making their own echo chamber and not being critical enough. Thus, not being able to make the right choices for themselves. Another thing mentioned was the risk of users not bothering going through the process as it can be seen as time consuming.

The results from the user tests of the third and final prototype implies that the combination of personalization by AI and customization is the best solution. All recurring participants preferred the combination solution over the version personalized by AI. Two out of three of the recurring participants preferred the combination solution over the version solely based on customization. All test participants in the user test of the third prototype were positive to the possibility of adjusting the selections made by the AI. When asked about possible concerns

related to the combination of personalization by AI and customization, the participants had no other worries than those mentioned earlier: Privacy, fear of missing out, and polarization. However, it was pointed out that having the opportunity to participate in influencing the personalization leads to increased trust and a sense of control.

## 4.5 Trust

The users' trust to the news distributor is important, and when implementing personalization into the news media, it is important that this does not interfere with the established trust. The user tests showed that utilizing personalization by AI in the news application did not interfere with the users' trust to TV 2, which was initially stated to be high. Some of the participants said that having the option of turning off functional cookies and personalization, increases the trust in the distributor. But there was one participant who was torn, with reasons being fear of polarization and echo chambers. The results from the user test and user interviews of the second prototype, utilizing customization, were nearly the same. The trust was for most of the participants unchanged. One of the participants stated that the trust was weakened whereas another participant stated that the trust was increased. The results from the last round of user tests show that the third prototype, utilizing a combination of personalization by AI and customization, was the most liked and trusted version. All of the participants state that their trust increases as they have the option of adjusting the results of the AI. Two out of the three recurring participants experienced the highest amount of trust in the version utilizing a combination.

These results imply that a trusted news distributor may have an advantage when it comes to adopting new technology as they already have established a relationship with their users.

## 5.0 Recommendations

This section will include my recommendations, along with arguments for the recommendations, for when designing and developing personalized news platforms. The recommendations are based on literature presented in the background chapter, research and findings from our own development process, in addition to the heuristic evaluations I have conducted.

### 5.1 Always include editor-controlled important news

The immediate response I have met when I have talked about my master project and thesis, researching personalization in the news industry, have been concerns regarding the fear of missing out on important information. I too can relate to that concern. Personalization is about adapting the experience to the characteristics of the user (Wirth & Sweet, 2017). For news that means adapting the news feed to the users' interests and needs. The news industry today is a competitive market and will therefore have to cover a wide range of topics to be sure they are reaching a broad audience. Some are interested in news about foreign affairs, politics, and finance, where others are more interested in sports and entertainment. Bringing personalization into the news media will make it easier for users to find the news information they are interested in. However, if the entire news feed is only to contain news reflecting the interests of the users, this will result in the users possibly missing out on large amounts of information. This is a problem, but it is meant to be a way of enhancing the news experience. It will become a problem if the users do not trust their news distributors to sufficiently update them on important happenings and if the population no longer have the information needed to make informed choices. The news media, as we have learned, have a responsibility to society. They are to monitor power and democracy (Sjøvaag, 2020). So what happens if users of the personalized news platform are not recognized as being interested in politics and society. The information will not reach them and as a consequence the news media will not be able to maintain their responsibility.

It is important for the news distributors that people like, trust, and use their platforms. Thurman *et al.*, (2018) found that people in general have a positive attitude towards news personalization, but they are concerned about missing out on important information. These

are the same results as we got through our work of developing and testing our personalized news application.

Our solution was to include a category that was identical for every user, regardless of personalization and news interests. The category was named “Breaking news” and contained a more concentrated amount of important and breaking news from all kinds of categories. Further, it means that if something big happens, like the Norwegian national team winning the World Cup in soccer, this information would be placed in this category making sure that everyone got updated on the news regardless of their interest in football and sports. This solution was well received as our test participants stated that this category resulted in them being more confident that they were given a comprehensive news picture. This will also keep the lunch talk intact, as people will have the same basis for discussion on important information.

Presenting a category that is identical for every user and that contains important news from all kinds of categories can help the news media maintain their responsibility to society even when utilizing personalization. Here, they are able to reach all their users with information they consider important for society and give the information necessary for the population to make informed choices. This category should be editor-controlled for ensuring the fulfillment of the news media’s duty. In addition, the editor-controlled journalistic media stand strong as a news source in Norway, and having this category be editor-controlled can be a way of maintaining their position. The fact that the Norwegian population tends to turn to the editor-controlled journalistic media shows that there is an established relationship, and this should not just be thrown away for the sake of personalization. Rather, it should be a way of ensuring the users that the editors are still present.

Another positive side I want to highlight is that including a category like this can reduce the risk of being locked into an echo chamber or filter bubble. The fear of filter bubbles and echo chambers have been expressed by our test participants, and it is also some of the risks connected to the use of personalization. Presenting breaking news that is identical for every user entails the users being exposed to information that goes beyond their interest and viewpoints, and therefore challenging the risk of filter bubbles and echo chambers. It is important that the users get insight into other areas, regardless of interest. This can also make the user find new areas of interest in the news, and help them be aware of all types of content

that is available - which they should be able to find on the platform. This will be further explained later in the chapter.

A possible downside of this solution is the fact that it goes against the concept of personalization. It is not based on personalization at all. Instead, every user is presented with exactly the same content in that specific category. Seeing that news personalization is a rather new concept in Norwegian news media, I do not think it is very crucial that every part of the platform is personalized. What is more important is that the news media are able to maintain their responsibility to society, and that the users' trust is maintained when introducing a new concept into their platforms. People have expressed a fear of missing out on important information, and ensuring that the users are presented with this information will help in maintaining their trust.

Based on this, my recommendation is that personalized news platforms should always include a category containing important news regardless of the users' interests and preferences.

## 5.2 Let the users take part in the personalization

I will not claim to know what personalization tactic is best for news personalization. This will depend on what the news distributor is trying to accomplish, their goals, and also their established trust among the users. However, through research and the process of developing and testing our prototypes, results imply that inviting the users to take some part in the personalization, will benefit the news distributor and their relationship to the users. There should be a combination of personalization by AI and customization.

As people have concerns regarding the use of personalization in the news media, it is crucial that their concerns are heard and that their wellbeing is taken care of. Maintaining the established relationship and trust should be a priority. Allowing the users to take part in the personalization will provide a form of reassurance, whether they make use of it or not. They will at least know that they are able to. Our test participants pointed out that having the opportunity to participate in influencing the personalization leads to increased trust as they get a sense of control. In addition, users have concerns regarding their privacy and do not like

the feeling of their privacy being invaded. Allowing the users to take part in the personalization can result in them feeling more comfortable regarding their privacy as they know that they have some control. Another concern expressed is the fear of missing out. By letting the users take part of the process, they can take some control to make sure that they are getting sufficiently updated on the categories and topics they want.

Including the users in the personalization can be done in several ways. Our final prototype makes use of customization by letting the user choose which categories and subcategories they want to include in their news feed, with limitations. They are not able to remove “Breaking news” and other categories created by the use of personalization by AI. How the categories created by the use of personalization by AI is used and its importance is further explained later in the chapter. Customization can also be by letting the users signal discontent on the content in the news feed. Giving the users full control on what content and categories to be presented is not recommended as this can result in them creating their own filter bubble and echo chamber. As we know, personalization can lead to the creation of filter bubbles and echo chambers, there should therefore be actions taken to try to avoid this as much as possible. This can be achieved by using the combination of personalization by AI and customization. The AI can provide the users with content that challenges the viewpoints of the users, and predict what the user needs and not only base this on their interests, whereas the customization can be an opportunity for the users to tweak and by that help train the algorithm.

For ensuring that the news media maintain their responsibility to society, there should be limitations on what can be controlled by the users. What I mean by this is that the news platform should be able to provide the content necessary for them to fulfill their duty, and that cannot be removed by the users. Which again will reduce the risk of creation of filter bubbles and echo chambers.

It is important that the ability of the users to be part of the personalization is visible. If not, all possible benefits of including this opportunity will be lost. There are some already existing news applications that let the users create an additional news feed that is fully controlled by the user, but separate from the standard news feed on the frontpage. This means that there may be users who are familiar with the concept of customization in the news. However, for those who are unfamiliar with the concept, there should be information provided on what

changes are possible, and what the changes will result in. This to maintain the users trust and keep them informed.

When allowing the users to do changes to the system, there should be a focus on error prevention. If the users are prone to make mistakes with no easy way of undoing the mistake, it can lead to the users being frustrated and in the worst case, refrain from using the platform. Further, it is important to include confirmation options when the users do changes as they will be able to have a second chance to think twice before committing. This confirmation message would benefit from explaining what the chosen changes will result in, thereby keeping the users fully updated and informed. Ultimately, the interface should be designed in a way that prevents errors and mistakes from happening in the first place.

My recommendation is to let the users take part in the personalization as a way of maintaining their established trust and give them a feeling of control when met with a new type of news platform.

### 5.3 Include a way of finding all available content

Personalizing the news feed entails, at least in this project, giving the users a news feed that is adapted to the individual. This means presenting a selection of news content that reflects the needs and interests of the users. As a consequence, there will be content that is being hidden from the user. This content should be easily accessible and available on the platform.

Personalization can help reduce the risk of information overload as only relevant content is visible, but at the same time it carries the risk of creating filter bubbles and echo chambers. Having an easy and visible way of finding all available content can be a method to prevent this from happening. It can help the users be more aware of filter bubbles, as they can compare their frontpage to all other content available. Further, it allows the users to explore new and other areas, which can create new interests and help train the algorithm. There may be days where users have more time than usual and want to spend this time reading up on all sorts of content. News media is used for being updated on hard facts, but also for entertainment purposes. When used for entertainment there may be a bigger desire for the users to discover more and different content than they would do otherwise. So while the

personalized frontpage makes it easier to find the content most relevant to the users, the content overview pages leave the possibility of exploring more content and information, when desired.

People have expressed the need of being given a comprehensive news picture. A personalized frontpage can, when done right, deliver on that need. However, if the users do not feel that the need is sufficiently satisfied, they have the option of exploring more themselves, taking matters into their own hands. Having this option will, in addition, help in maintaining the users' trust in the distributor and concept of personalization, as they know that everything is available if needed. Altogether this means that personalization does not have to be about removing content, it can rather be about selecting and prioritizing some content that is considered to be more relevant to the specific user.

News media's responsibility to society is, as mentioned several times before, their most important duty. Personalization can challenge this responsibility, actions should therefore be taken to ensure that the obligation is fulfilled. By having all content easily accessible on the platform, they are able to deliver on the responsibility as they have a way of distributing the content necessary. It is also the users' own responsibility to be sufficiently updated and actively reading the important information. No one can force them into doing anything. When the content is easily accessible and available, there is a greater chance that it will be discovered and read.

My recommendation is that all content, regardless of users' interests, is very easily accessible and available on the platform.

## 5.4 Challenge the users' viewpoints, but be discreet

A risk of personalizing the news and news feeds is the users being locked into their own echo chambers. Users will be presented with a news feed that is meant to reflect their interests. As a consequence, their news feed will only present them with information they care about and possibly feed them with their own thoughts. This can have massive consequences. Only presenting users with information that just confirms what they already think, can lead to an uninformed population and polarization. Users need to be challenged on their beliefs in order

for them to make informed choices, which is the news media's responsibility. And this should not be forgotten when bringing personalization into the news industry.

For the users being able to make informed choices, it is necessary to give them a balanced and comprehensive news picture. Personalization can be used to predict the users beliefs. This knowledge could and should be used as an advantage. When the users' beliefs are known, the information can be utilized to challenge them on their beliefs. This is not for propaganda or convincing them on the contrary to what they already believe, but rather give them a balanced picture to hopefully make them reflect, in addition to giving them a new point of view. However, a level of discretion is advised. What I mean by this is that there should be some discretion as to how this type of content is presented. If the content and the presentation of it is recognized as being too directly aimed at the specifics of the users, this can cause a feeling of discomfort. Providing content that challenges their viewpoints is based on their private information, and the viewpoints necessary to challenge is often related to societal problems and politics. As a result, the users can end up feeling like they have been exposed and that their privacy is being invaded. People value their privacy, measures should therefore be taken to provide the content necessary, but in a way that does not cause discomfort or mistrust. It has to be strategic and carefully thought out.

The use of personalization is more complicated when used for news than for other entertainment services. When used for entertainment, it is all about finding out what kind of content the users enjoy, and creating a great user experience that will make the users come back. The news media, on the other hand, has a responsibility to society, and to the users. This responsibility can, by this method, be utilized in different ways. For the users that are recognized as being interested in politics and other issues related to society, it can be used, as described above, as a method for challenging their viewpoints and giving them a balanced news picture. But, it can also be used for challenging users that are not recognized as being interested in that type of content. The users that are more interested in for example entertainment and sports news can be challenged by enticing them into reading the content necessary for the news media to maintain their responsibility, like politics. But again, it has to be discrete, and also done in an appealing way so that they actually care to take the time to read hard facts and news.

Both Thurman *et al.*, (2018) and our own project found that people are concerned that personalization will result in them missing out on challenging viewpoints. This implies that the users are aware of the need of being challenged and may therefore be susceptible to, and appreciate this type of content. But again, it should be presented discretely to not cause discomfort to the users. Our prototypes contained a category called “Have you thought about this?” and was used for this purpose, challenging the users viewpoints based on predictions by an algorithm. Few test participants understood the meaning behind the category, but when it was explained, all test participants highlighted the importance of including this type of content. The title of the category was meant to be discrete, and results show that it was as no participants found it to be invading. For the news media, political viewpoints and issues related to society will probably form the basis for this type of challenging viewpoint content, as this is part of their responsibility to society, and this carries big risks for privacy and feeling of exposure. To avoid the users getting the feeling of their privacy being invaded, I would suggest that the content not be presented including the name of the users, as this is too visibly directed towards the users. Instead, we used the word “you”, in the title presentation, which can both be used to refer to a specific person or any person in general. This can be perceived as appealing as it addresses the user, but still does not come off as too personal and exposing. The results from the user tests confirmed this. Further, the category contained content from different areas and topics, not being too concentrated and revealing on users’ initial viewpoints. This to avoid suspicion and distrust. Encouraging the users to read the content delivered. As people have expressed the need of being challenged on their beliefs, including this type of content can result in increased trust both in the concept of personalization and in the news distributor.

My recommendation is to present content that challenges the users viewpoints, but in a discreet way to not cause discomfort and distrust.

## 5.5 Reassure the users and keep them informed

Personalization in the Norwegian news media is a rather new concept, and people have expressed some concerns as to what consequences this may bring. One of the biggest concerns is regarding their privacy. As we know, for personalization to be possible, information on individuals has to be collected and stored. It is therefore necessary to reassure

the users through sufficient information on how data is collected, stored, and for what usage. This information should be found on the cookie settings page and be written using familiar terminology and natural language. In addition, the platform should inform that personalization is being utilized, what options the users have, changes that can be made, and what the changes will result in. Preferably, the personalized frontpage should state clearly that the presented news feed is personalized. The news distributor will benefit from having an open dialogue with the users as it will result in increased trust knowing that the news distributor is honest and shows great care for the users wellbeing. However, there is room for discretion on how to present certain information, which I have elaborated on in the previous section.

Bringing a new concept into an established platform can cause misunderstandings and confusement. Having sufficient information and guiding the users through their interactions with the platform is good for error prevention and for making the users more confident in their usage of the platform. What actions are available should be visible and informed about. There is no use in implementing actions that users are not aware of or able to find. When the users have the option of being part of the personalization process, one should clearly show how they can contribute, what they can do, and what it will result in. Our prototype contained a category selection menu where the user could choose which subcategories they wanted presented on their news feed. This page clearly states what changes they are able to do, and also what the changes will result in. This will enhance the user experience and their trust in the news distributor. Giving the users the ability to be part of the personalization and having this option visible in the menu was a thing that test participants stated was a big factor for trusting the concept. As the category selection menu clearly informs what changes they could do, and what it would result in, it avoids further confusement. It would have been even better if there was a sign on the frontpage showing that this option was a possibility. When participants were asked what reassured them when using the application, it was a combination of several things. They got a feeling of a comprehensive news picture by being given an own category containing the most important news, they saw that they could be part of the personalization process, and they were discreetly challenged on their viewpoints without them feeling like their privacy was invaded.

It is ultimately the users choice and responsibility to read the news, therefore the design and information should be concentrated on their needs. Further, to ensure that their trust is

maintained. Open communication and visibility will be important and appreciated by the users. One of the benefits of the use of personalization is increased user engagement and loyalty (Ball *et al.*, 2006), but this only applies if done right and the users are satisfied with the experience. It is therefore important to ensure that the users are convinced that their privacy is taken care of and valued, in addition to knowing what options they have.

My recommendation is to reassure the users through sufficient information on their privacy and options.

## 6.0 Conclusion

As a conclusion to this thesis, I will summarize the research in this study. Further I will describe the study's contribution, followed by suggestions for future work.

The research in this study explores *how personalized news platforms can be designed, while fulfilling the news media's responsibility to society and maintaining the users' trust.*

The study is based on the historical development of the news media, and how it has been affected by technology. Further, it is based on research on personalization, its benefits and risks, and users' attitude towards personalization in the news media. To understand users' behavior and needs, a combination of quantitative and qualitative methods like questionnaires and interviews have been used. Based on these insights, three prototypes of a news platform using different personalization tactics were developed. The third prototype was the final product and was based on the insights and testing of the other prototypes. Inspired by the work of developing the prototypes, along with heuristic evaluations of the three prototypes and theory on personalization and the news media, this thesis resulted in five recommendations which can be used for the Norwegian news media when designing personalized news platforms.

### 6.1 Contributions

In this thesis, I point to several useful ways to implement and design personalized news platforms, and how to possibly overcome users' concerns regarding personalization in the news. The five recommendations indicate that personalized news platforms must include editor-controlled important news, it should let the users be able to take part in the personalization, and there should be a way for users to find all available content somewhere on the platform. Further, it must challenge the users current beliefs and viewpoints, in a discreet way to not upset them. Lastly, it should be designed in a way that reassures the users that their privacy is taken good care of, and keep them informed on what options they have available.

The recommendations are primarily meant for the Norwegian news media, as it is based on insights from Norwegian people's needs and news habits, and the Norwegian news media's responsibility to society, which may differ from foreign news media.

I hope that this thesis can contribute to the work of developing personalized news platforms that will better the user experience and help reduce information overload.

## 6.2 Future work

Further, I hope this work can inspire others who want to study this field to explore other aspects of personalization in the news. Here, I will suggest some points that I think further research should focus on as an extension of my work.

In an extension of this study I would explore further how to better develop a personalized news platform that fulfills the responsibility of the news media and maintains the users' trust. This I would do by including more participants from a bigger target group with more diversity in age, demography, and technical understanding. In addition, I would have included participants with disabilities to make sure that the platform is accessible for all people, regardless of their situations.

It would be interesting to see how the prototype would be if it was functional, and if the participants would react differently when met with a prototype that is personalized to them and their interests.

Personalization and the one-to-one strategy has become a familiar concept, regardless of industry. It will be interesting to see how the Norwegian news media will make use of this technology, and if it has potential of improving the users news experience.

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# Appendix A

Assessment from NSD

# NSD NORSK SENTER FOR FORSKNINGSDATA

## NSD sin vurdering

### Prosjekttittel

Personalisering av nyheter

### Referansenummer

152565

### Registrert

24.08.2020 av Ingvild Vara Hagen - Ingvild.Hagen@student.uib.no

### Behandlingsansvarlig institusjon

Universitetet i Bergen / Det samfunnsvitenskapelige fakultet / Institutt for informasjons- og medievitenskap

### Prosjektansvarlig (vitenskapelig ansatt/veileder eller stipendiat)

Truls André Pedersen, Truls.Pedersen@uib.no, tlf: 55589124

### Type prosjekt

Studentprosjekt, masterstudium

### Kontaktinformasjon, student

Ida Solvig, bik004@uib.no, tlf: 40242034

### Prosjektperiode

24.08.2020 - 01.06.2021

### Status

18.09.2020 - Vurdert

### Vurdering (1)

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#### 18.09.2020 - Vurdert

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet

med vedlegg den 18.09.2020, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

#### **DEL PROSJEKTET MED PROSJEKTANSVARLIG**

Det er obligatorisk for studenter å dele meldeskjemaet med prosjektansvarlig (veileder). Det gjøres ved å trykke på "Del prosjekt" i meldeskjemaet.

#### **MELD VESENTLIGE ENDRINGER**

Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde:

[https://nsd.no/personvernombud/meld\\_prosjekt/meld\\_endringer.html](https://nsd.no/personvernombud/meld_prosjekt/meld_endringer.html)

Du må vente på svar fra NSD før endringen gjennomføres.

#### **TYPE OPPLYSNINGER OG VARIGHET**

Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 01.06.2021.

#### **LOVLIG GRUNNLAG**

Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

#### **PERSONVERNPRINSIPPER**

NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

- lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
- formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke behandles til nye, uforenlige formål
- dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet
- lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

#### **DE REGISTRERTES RETTIGHETER**

Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), dataportabilitet (art. 20).

NSD vurderer at informasjonen om behandlingen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

#### FØLG DIN INSTITUSJONS RETNINGSLINJER

NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

OneDrive, SurveyXact og Zoom er databehandler i prosjektet. NSD legger til grunn at behandlingen oppfyller kravene til bruk av databehandler, jf. art 28 og 29.

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og/eller rådføre dere med behandlingsansvarlig institusjon.

#### OPPFØLGING AV PROSJEKTET

NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

Tlf. Personverntjenester: 55 58 21 17 (tast 1)

# Appendix B

Consent form for conducting user tests and interviews.

# Vil du delta i brukertest av prototypen vår med fokus på personalisert innhold i nyhetene?

Dette er et spørsmål til deg om å delta i en brukertest hvor formålet er å *dokumentere reaksjoner og holdninger rettet mot prototypen vår med fokus på personalisert innhold i nyhetene*. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

## Formål

Formålet med brukertesten er dokumentere reaksjoner og holdninger rettet mot vår egen prototype. I tillegg til brukertesten vil det foregå et lengere intervju hvor deltaker diskuterer inntrykk av prototype samt går mer i dybden på holdninger rettet mot tematikken. I samsvar med TV2s ambisjoner for prosjektet er prototypen tenkt å vise frem personaliserte nyheter gjennom deres nyhetsapplikasjon. TV2 har nylig redesignet og forbedret applikasjonen, så prototypeprosessen vil være basert på å lage en utvidelse som passer med det allerede etablerte designet av TV2s applikasjon og viser hvordan personalisering kan gjøres gjennom den. Det er ikke ment å bli implementert i TV2s applikasjon, men tjene som et eksempel på hvordan personalisering kan oppnås. For å oppnå dette kreves grundige testing av prototypen underveis, hvorpå dataen samlet inn vil inngå i innsiktsrapporten og leveres sammen med prototypen. I tillegg til dette vil dataen bidra til viktig innsikt i hvordan prototypen kan forbedres for å møte brukerne på best mulig måte.

TV2 har eierskap til ferdigstilt rapport og prototype. Dette innebærer at vi som studenter gir fra oss retten til prototypen og ideene vi presenterer med den. Alle personopplysninger vil bli anonymiserte før de overrekkes til TV2, det vil si at TV2 ikke får tilgang på noen personlige opplysninger om deltaker.

## Hvem er ansvarlig for forskningsprosjektet?

*Masterstudentene Ingvild Hagen og Ida Solvig i samarbeid med TV2 AS, Universitetet i Bergen* er ansvarlig for prosjektet.

## Hvorfor får du spørsmål om å delta?

Vi vil rekruttere et utvalg deltakere til studiet. Deltakere vil bli kontaktet via spørreundersøkelse sendt ut i forkant. De som har anledning og ønske om å delta kan legge igjen kontaktinfo i spørreundersøkelsen hvorpå vi kontakter et utvalg deltakere til brukertest og intervju. Hvem som rekrutteres videre avhenger av resultatene fra spørreundersøkelsen, hvorpå vi ønsker å kontakte et variert utvalg deltakere med ulike synspunkter.

## **Hva innebærer det for deg å delta?**

Studiet fokuserer på å observere hvordan deltakerne bruker prototypen samt et intervju for å diskutere reaksjoner og generell tematikk. Hvis du velger å delta i undersøkelsen, vil din teknologibruk bli dokumentert ved hjelp av en eller flere av følgende metoder:

- Personlige intervjuer med lydopptak på inntil 1 time.
- Fotodokumentasjon
- Filmopptak

Brukertesten vil foregå på en avtalt lokasjon, hvorpå alle smittevernregler vil bli inngått. Vi ønsker bilder for å dokumentere prosessen. Dette vil ikke være vinkler som viser deltakers ansikt. Bildene ønsker vi å ha mulighet til å inkludere i rapporten om deltaker gir samtykke til dette. Lydopptak benyttes for at vi som intervjuere skal kunne delta i samtalen uten restriksjoner, hvorpå lydopptaket vil bli transkribert og deretter slettet i ettertid. Filmopptaket vil fokusere på hvordan deltaker interagerer med applikasjonen. Det vil si at kun deltakers hånd sammen med applikasjonen vil bli filmet. Med andre ord ikke ansikt eller andre gjenkjennbare trekk. Opptaket vil bli analysert og dokumentert før det slettes. Deltaker bestemmer selv hvorvidt det er greit å bli fotografert, og må gi muntlig tillatelse til å gjengi disse i rapport. Dette gjelder også eventuelle skjermbilder fra videoopptak.

### **Det er frivillig å delta**

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

### **Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger**

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. Studentene og veileder ved UiB har tilgang til og behandler dine personopplysninger. Studentene vil også kunne referere til dette studiet i sin endelige masteroppgave, som blir publisert i Universitetet i Bergens database <http://bora.uib.no/>. Du vil ikke kunne gjenkjennes i noen av disse publikasjonene. Studentene overdrar til TV2 en evigvarende, vederlagsfri og eksklusiv rett til å videreutvikle, selge eller på andre måter kommersialisere prototypen eller prosjektet og tilhørende immaterielle rettigheter. Dette innebærer at vi som studenter gir fra oss retten til prototypen og ideene vi presenterer med den. TV2 vil kun ha tilgang til den ferdige innsiktsrapporten, som er anonymisert og ikke inneholder personopplysninger. Hovedregelen er at studentoppgaver skal være offentlige. TV2 kan likevel kreve at hele eller deler av oppgaven skal være undergitt utsatt offentliggjøring i maksimalt 3 år, dvs. ikke tilgjengelig for andre enn student og TV2 i denne perioden, dersom TV2 med rimelighet anser dette nødvendig for å beskytte sine kommersielle interesser knyttet til denne avtalen.

TV2 kan også kreve at forretningshemmeligheter, herunder opplysninger om patenterbare oppfinnelser, ikke offentliggjøres.

Navnet og kontaktopplysningene dine vil bli erstattet med en kode som lagres på egen navneliste adskilt fra øvrige data, og vil lagres på UiBs passord beskyttede servere.

### **Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?**

Etter at kurset er fullført 01.06.2021, vil det innsamlede datamaterialet vil anonymisert ved at koden som henviser til ditt navn blir slettet. Personidentifiserbare opplysninger fjernes, omskrives eller grovkategoriseres. Lyd- eller bildeopptak samt videoopptak slettes. Unntak for bilder fra brukertest gjelder dersom deltaker gir tillatelse til å gjengi disse i rapport. Dette vil ikke være bilder som kan identifisere deltaker.

### **Dine rettigheter**

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg, og å få utlevert en kopi av opplysningene,
- å få rettet personopplysninger om deg,
- å få slettet personopplysninger om deg, og
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger.

### **Hva gir oss rett til å behandle personopplysninger om deg?**

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra *Universitet i Bergen* har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

### **Hvor kan jeg finne ut mer?**

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Masterstudentene Ingvild Vara Hagen eller Ida Solvig, Universitetet i Bergen på epost [ingvild.hagen@student.uib.no](mailto:ingvild.hagen@student.uib.no) og [ida.solvig@student.uib.no](mailto:ida.solvig@student.uib.no) eller telefon 41 51 24 67 og 40 24 20 34.
- Veileder Truls Pedersen, Universitetet i Bergen på epost [Truls.Pedersen@uib.no](mailto:Truls.Pedersen@uib.no) eller telefon 55 58 91 24.
- UiBs personvernombud på epost [personvernombud@uib.no](mailto:personvernombud@uib.no).
- NSD – Norsk senter for forskningsdata AS, på epost ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) eller telefon: 55 58 21 17.

Med vennlig hilsen

Prosjektansvarlig

### **Samtykkeerklæring**

Jeg har mottatt og forstått informasjon om studiet om personalisering av nyheter knyttet til kurset MIX350, og har fått anledning til å stille spørsmål. Jeg samtykker til:

• å delta i personlig intervju

• å delta i brukertest av prototype

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet 01.06.2021.

-----  
(Signert av prosjektdeltaker, dato)

# Appendix C

Interview guide - first prototype

# Intervjuguide - Brukertest av prototype #1

## Generelt:

- Hvor komfortabel er du med å bruke app til dette formålet, å lese nyheter?
  - benytter du deg av nyhetsapper?
    - Hvis bruker ofte benytter seg av nyhetsapp, hvorfor?
    - Hvis bruker ikke benytter seg av nyhetsapp, hvorfor ikke?
- Hva synes du om å bli presentert for video-nyheter i form av stories?
- Hvordan er tilliten din til TV 2 og deres nyheter?

## Cookies:

- Hva pleier du å gjøre når du blir presentert med valg av cookies?
  - hvorfor?
- Hvordan synes du det var å finne fram til cookies?
- Var du klar over at du kan gå inn å endre på dine cookies og tillatelser på slike tjenester?

## Framsida og kategorier:

- Hva var ditt totalinntrykk av den upersonaliserte framsiden?
- Hva var ditt totalinntrykk av den personaliserte framsiden?
  - hva synes du om designet i appen?
    - Hva synes du om å få nyhetene presentert i ulike kategorier?
- Følte du at kategoriene passet til deg?
  - hva savner du?
- Fikk du følelsen av å bli gitt et dekkende nyhetsbilde?
  - hvis nei, hva mangler?
  - føler du en mangel på kontroll? (stoler du på at AI kan gjøre rett valg for deg?)
    - Hvor avgjørende er det for deg?
- Var det noe du savnet?
- Hva tenker du om de ulike kategoriene?
  - har du noe tanker om hva som har ført til at du har fått akkurat disse kategoriene?
- Hva tenker du er formålet med kategorien "Har du tenkt på dette?"
- Etter å ha vært med på denne brukertesten, hva er dine tanker om personalisering av nyheter?
- Forandrer denne personaliserte versjonen av nyhetene til TV 2 tilliten du hadde til dem?

# Appendix D

Interview guide - second prototype

## Intervjuguide - Brukertest av prototype #2

### Generelt:

- Hvor komfortabel er du med å bruke app til dette formålet, å lese nyheter?
  - benytter du deg av nyhetsapper?
    - Hvis bruker ofte benytter seg av nyhetsapp, hvorfor?
    - Hvis bruker ikke benytter seg av nyhetsapp, hvorfor ikke?
- Hva synes du om å bli presentert for video-nyheter i form av stories?
- Hvordan er tilliten din til TV 2 og deres nyheter?

### Kategorisering:

- Hva synes du om å få nyhetene presentert i ulike kategorier?
- Hvordan synes du det var å finne fram til og velge de ulike kategoriene?
  - Var det intuitivt?
- Hva synes du om å bli presentert med valget om underkategorier?
- Var det noe du synes var vanskelig eller lite intuitivt?

### Framsida og brukerstyrt:

- Hva var ditt totalinntrykk av den "vanlige" framsiden?
- Hva var ditt totalinntrykk av framsiden du fikk tilpasse selv?
  - hva synes du om designet i appen?
  - For persona 1: var det vanskelig å skjønne hvilke stories som var "sett"?
- Følte du at det var nok kategorier å velge i?
  - Var det noen kategorier du savnet?
- Fikk du følelsen av å bli gitt et dekkende nyhetsbilde?
  - hvis nei, hva mangler?
- Etter å ha vært med på denne brukertesten, hva er dine tanker om brukerstyrt personalisering av nyheter?

### Tillit:

- Hva synes du om konseptet med at du selv kan tilpasse din framsida etter eget ønske?
  - Forandrer dette konseptet noe på din tillit til TV2?
  - Får du noen umiddelbare bekymringer knyttet til dette konseptet?
- Er denne løsningen noe du aktivt hadde skrudd på og brukt på egenhånd?
  - Hvorfor/hvorfor ikke?
  - Ser du en grunn til at noen ikke ville giddet å bruke tid på det?

# Appendix E

Interview guide - third prototype

## Intervjuguide - Brukertest av prototype #3

### Oversikt

- Hvordan opplevde du oversiktligheten?
- Var det noe du opplevde som lite oversiktlig/vanskelig?
  - Hva da?
  - Hvorfor?
- Veien til oversikt over alle sakene innenfor en nyhetskategori (se på hva de gjør, om de sliter spørre hva de var på jakt etter?)
- Føler du at du blir gitt et dekkende nyhetsbilde?

### Design

- Hva syns du om kategoriene og deres tilhørende farger/symbol? ( consistency )
- kategorivalgmenyen
  - Lagre/pil
    - i. Hvis de kjapt trykker på pil: Var det intuitivt og stolte du på at valgene dine var lagret i det du trykket?
    - ii. Hvis de stusser og leter etter en lagre-knapp: Hvorfor stusset du, var det noe du følte manglet?
  - Var den oversiktlig?/Hvor intuitivt føltes det?
  - Var det lett å se hvilke som var huket av?
  - Hvorfor tror du noen allerede var huket av?

### For de som har vært med flere ganger

- Synes du firkant story var mer oversiktlig enn sirkler?
- Helhetsinntrykk fra forrige til nå (føles det bedre, likt, dårligere?)
- Deres tanker om hybrid etter å ha prøvd begge eller alle tre

### AI

- Hvordan stiller du deg til å ha en kunstig intelligens som velger ut kategorier for deg, basert på din egen aktivitet på TV2? (kun for nye)
  - Hvordan påvirker det din tillit til f eks TV2?
- Hvordan føles det å ha en kunstig intelligens-personalisert nyhetsplattform når du vet du har mulighet selv til å gå inn å endre på den dersom du er uenig med den kunstige intelligensen?
  - På hvilken måte?/hvorfor?
  - Hvordan påvirker det din tillit til f eks TV2?
  - Tror du det vil være behov for å måtte endre på kategoriene selv?

- Hvordan stiller du deg til at en kunstig intelligens kan hente informasjon om hva du ønsker å lese fra din aktivitet på nettet vs kun aktivitet inne på TV2 sine egne nettsider?
- Får du noen bekymringer knyttet til hybridene?
  - Hvilke?
  - Hvordan er dine bekymringer nå vs de andre du har testet? (kun for gamle)
- Hva er dine tanker om “har du tenkt på dette” kategorien?(kun for nye)
  - Hva tror du menes med denne kategorien?
- Hva er dine tanker om “kom i godt humør” kategorien?(kun for nye)
  - Hva tror du menes med denne kategorien?

### **Oppsummering**

- Etter å ha vært med på denne brukertesten, hva er dine tanker om personalisering av nyheter?