

# **Dilemmas When Designing Methods for Sensitive Personalization Design**

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## Abstract

The objective of personalization technology is to create a product that matches the exact requirements of individual consumers. Most approaches for developing and testing such systems relies on sophisticated and advanced technology, and time. This leads to the impression that there exist few examples of personalization devices being developed and tested through the use of non-functional prototypes. However, there are some clear benefits to this type of prototyping. It simulates a potential real and future product, provides feedback from client and end-users, validates the concept, makes for early discovery of design problems, all while being a time- and cost-effective process. In addition, there seems to be a lack of consensus among researchers and bigger companies on how to best design personalization strategies in regard to users. This in spite of personalization becoming more and more prominent in everyday life. There needs to be an emphasis on making sure that users trust personalization systems in order to continue to use them. Non-functional prototyping can make for an efficient way of understanding how individuals interact with personalization systems with respect to the extension of trust, and how those extensions can be addressed by design.

This master thesis presents an exploratory method for developing and testing sensitive personalization design by integrating previously distinct methods to create a trustworthy, time- and resource-efficient design process. The study is a collaboration between the University of Bergen and TV 2 and is based on one of TV 2s own news applications. The task was to explore how to best introduce personalization to the application in question. As part of the effort, the group realized that there could be a general method. The method utilizes a classic design scientific approach to develop and test three non-functional prototypes, each representing a specific personalization system. To simulate the effect of personalization on testers, each prototype has been constructed to match the design of a persona – a fictitious, hypothetical individual belonging to the target group. Participants have had to familiarize themselves with a given persona's interests and preferences, and then role play through the classic design science user test. The method has contributed to the design of three plausible but hypothetical varieties of sensitive personalization systems to choose from, all having been tested and evaluated with real-time users. All main findings from this collaboration are presented in a separate impact report.

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# Chapter 1. Introduction

## 1.1 Motivation

A significant change has occurred in the news industry since the inception of the Web. The rapid growth of online news has replaced the traditional newspapers and broadcasts as the major source of information. News outlets are now publishing and updating news content instantaneously, offering readers immediate access to it. This development has slowly opened the doors for new technologies to enter the newsroom (Lavie, 2009). Personalization, the action of designing or producing something to meet someone's individual requirements, is one of such technologies. Bigger news distributors, such as BBC and The Guardian, The Washington Post and The New York Times, are all exploring the potentials of introducing personalization technology to their news to more efficiently distribute products, intensify reader-relationships and increase revenues (Monzer et al., 2020).

The common denominator for testing and developing personalization technologies in the media industry seems to be larger companies with access to more resources (Monzer et al., 2020). This leads to the assumption that smaller businesses, like local newspapers, might often lack the required funds and assets for such development and testing, thus relying on bigger companies to make the necessary discoveries for advancing personalization technologies in the media industry. In addition, there seems to be a lack of user-centered approaches for understanding end-users in existing developments of personalization (Kwon & Kim, 2012). Such trends lead to the impression that there exists no comprehensive framework or general method for designing and testing personalization systems with a sensitivity for end-users. That is to say, a sensitive design process that is both time and cost-effective while also user-centered and trust-based. It can be argued that the absence of a general and user-centric method for developing and testing personalization systems is contributing to larger media companies monopolizing advances in personalization technology. Furthermore, that it may be hindering or slowing down potential advances of personalization technology in the media industry all together. Moreover, that the lack of user-centric approaches leads to users becoming more distrustful towards personalization in general. Trust can be considered a central issue for the effective usage of such systems (Pavlidis, 2011). In an attempt to address such and similar concerns, this thesis presents a method for designing and testing personalization systems with a sensitivity for end-users.

## 1.2 Objectives

This thesis is motivated by the of the lack of a common user-centered method for developing and testing personalized systems in the field of media and other sectors. There should exist a general approach for exploring personalization that is available to all who wish to take advantage of the technology. Further, that puts end-users trust and needs at the center of development. Such an approach might contribute to advancing the field of personalization in both small and larger businesses across different sectors. It can further lead to the creation of more trustworthy personalization designs. As a contribution to the potential for future research on personalized systems, this thesis undertakes a suggestive approach for how such a user-centered method might be realized. To this end, the following research question is addressed:

- RQ1: How can a user-centric ideal method for sensitive personalization design best be specified?

To help answer RQ1 one presents the following chapters:

- The history of media-oriented personalization
- An inquiry into what personalization design is
- How to make your personalization user-centered
- Specification of an ideal method for personalization design
- A discussion of sensitivity in three prototypes of personalization design

In addition to the above-mentioned chapters, the collaboration has resulted in an impact-report. It contains a link to the finished prototype as well as the most important findings gained during the project development. The rapport should be read in addition to the thesis to gain a better understanding of context and concept.

### *Collaboration with TV 2*

The study has been conducted in collaboration with TV 2 and fellow student Ida Charlotte Solvig. TV 2 is a Norwegian advertising-financed TV channel owned by the TV 2 Group. The channel is a commercial public broadcaster that offers news, current affairs programs, sports and entertainment. TV 2 presented a range of alternative topics for students to explore. Early

conversations within the group and with a supervisor from TV 2 lead to personalization being pinpointed as the topic most interesting to explore further. It was thereby decided that the project should revolve around the use of personalization in the TV 2 news.

### *TV 2's application*

During the first initial conversations TV 2 expressed a wish for the project to be based on their new and already established video news application. The group chose to adhere to this wish, thereby using TV 2's video news application as a basis for the development of the project. TV 2's application showcases video news in the format of "stories", much like Instagram. These are shown on the frontpage in form of circles with a headline and picture to represent each individual story. A summary of most recent news stories is showcased at the top of the main page with red headlines, while all other news stories are showcased in different categories further down with smaller headlines. When clicking on one of the recent news stories, a timeline is shown at the top along with a video elaborating on the story in question. The timeline represents the chronological order in which all recent stories are showcased, whereas users can simply tap the screen to move on to the next story.

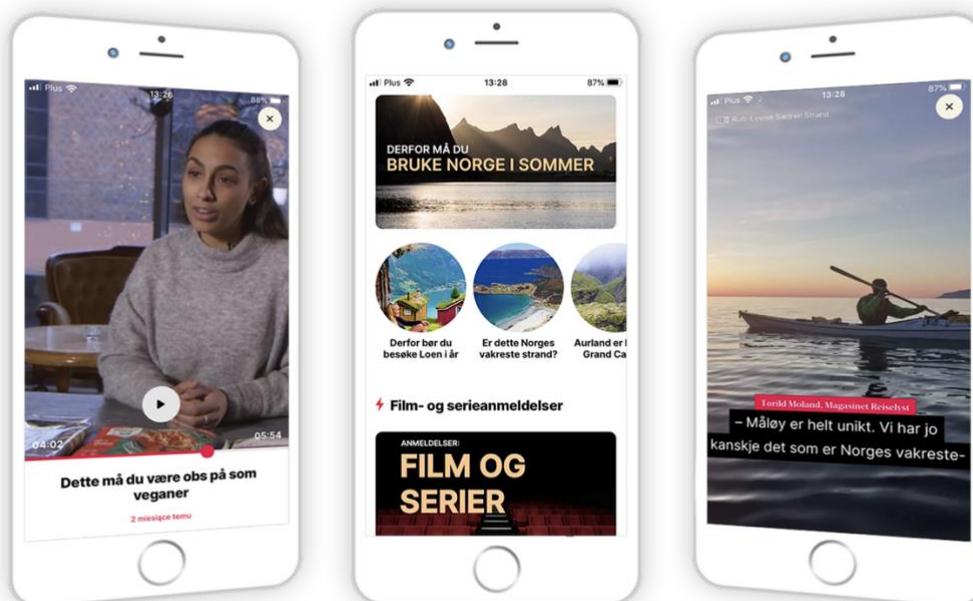


Figure 1.1: TV 2 news mobile application (bsgroup.eu, n.d.)

It is important to state that even though the project development is based on TV 2's video news application, the method is envisioned as being universal. Having a basis for the project has provided stability for the design process. It has further provided a framework for structuring the development process. However, the development process has been led by the determination to create something that is universal and significant for a varied outlet of users and producers.

### 1.3 Thesis outline

This thesis contains seven chapters to help answer RQ1. Following the introduction, chapter 2 presents a look at media-oriented personalization. This includes the historic development of personalization, modern personalization in the news, challenges in light of personalization, and an explanation of what is meant by the term “sensitive” personalization design. Chapter 3 examines what personalization design is. This includes a description of the scientific method, the design science methodology, and methods for personalization design. Chapter 4 describes how to make your own personalization design, which is based on the project's development process. It includes a look at the scientific framework, development methodology, research methods, process structure and execution, and limitations on the methods in use. In chapter 5 an ideal method for sensitive personalization design is presented. Chapter 6 presents a discussion of the potential for sensitivity in three personalized prototypes produced by the method. The final chapter – chapter 7 – summarizes the thesis from the perspective of the research question outlined above. Following the main chapters is a collection of appendices, which contain supplementary documents related to the user research. In addition, a separate impact-report containing the most important findings of the project as well as information on how to access the final prototype has been constructed.

## Chapter 2. Theory - Media-oriented personalization

The following chapter describes how personalization technology has developed up until now, how it exists today, and how it has slowly started to enter the news industry. Further, how it is affecting the relationship between news readers and news producers. This includes a look at challenges related to the introduction of personalization in the news with main focus on end-user perspectives. Lastly, it provides a thorough explanation of the intention behind the use of the word “sensitive” personalization design.

### 2.1 Introducing personalization

In its purest form, personalization can be described as a marketing strategy that involves contextualizing the browsing experience, messages and offers on a website or in a mobile application, based on visitor characteristics. The promise of personalization has always been that it can deliver on the idea of a customer-oriented marketing. It is meant to eliminate tedious tasks for the customer and allow marketers to better identify the user’s needs and goals from past behavior. A primary enabler of today’s modern personalization is technology. Such technologies can range from artificial intelligence to unique promotional offers to tailored product recommendations etc. As such, personalization technology encompasses a variety of software tools that collect, store, and manage customer data in order to orchestrate individualized experiences. However, it is important to understand that personalization predates the Internet and is broader than the mentioned technologies of today’s society (Montgomery & Smith, 2009). The desire for some form of individual adaptation has existed for a long time.

#### *Historic development*

Handling and giving attention to content surplus is not a new phenomenon. In the early 1950s, psychologists started to discuss the potential consequences of information excess for individuals, and economists were building models to explain how people sort and utilize such information. A diachronic view of media developments shows that each new medium is accompanied by the perception of abundance. With the rise of the affordable popular press in the late 1900s came “an abundance” of a variety of content, giving rise to the notion of mass media and mass audience. The arrival of the radio made news provisions faster and cultural expressions more readily accessible. In Europe, the radio abundance was quickly curbed by

governments that, from the 1920s, installed public service monopolies because the radio now was to be considered a public good. The primary notion was universality: there was to be a controlled provision of content spreading relevant news, knowledge and entertainment to all audience across the nation through diverse programs that provided each listener with a wide range of perspectives. Such principles were extended to television when it was introduced in the 1950s. Most recently, digitization and the world wide web ignited a new wave of perceived abundance, as they provide an array of news, information and entertainment, networked connections, different ways of consumption, and opportunities to become a consumer and producer of content (Van den Bulck & Moe, 2017).

At every stage, the audience and their media have looked for ways to manage abundance through some form of personalization: that is, to adapt content, delivery and arrangement to individual users' preferences. Recent technological and economic developments affect media personalization more fundamentally. The Internet has cultivated much of the interest in personalization, advancing its practice more than any other technology (Van den Bulck & Moe, 2017). Although the notion of personalization has existed in various forms for a long time, it has never existed in the digital form it does today.

### *Contemporary personalization*

There are several different terms used to talk about modern personalization. The most common ones are mass personalization, customization, mass customization, customerization, profiling, segmentation, targeting, filtering, tailoring, and one-to-one marketing. These can be described as different branches within the personalization tree, all taking use of the concept in some way or form. Modern personalization possesses different meanings, from location diagnosis, fitting the visual layout of the message to data terminal equipment, to tailoring the content of the message, and tailoring the product, to mention a few examples (Vesanen, 2007). One of the most common examples is personalized recommendation systems which, simply put, are used for predicting the "rating" or "preference" a user would give to an item (Ricci, Rokach & Shapira, 2011). There exists a number of approaches and systems for this type of personalization, and they are all frequently used in a variety of areas, examples being playlist generators for video and music services, product recommenders for online stores, or content recommenders for social media platforms, streaming services and open web content recommenders. The personalization is achieved by creating custom alternatives for delivering the right experience to the right user at the right time (Upta et al, 2013).

During the development of the project, three main concepts within the personalization tree have been selected as main focus points. These are customization, hereby referred to as user-controlled personalization, automated personalization and hybrid personalization. User-controlled personalization uses a learner-driven approach to enable users to adapt the content layout and navigation support to their preferences by themselves. Automated personalization, on the other hand, uses a system-driven approach to make an automatic adaptation for users (Ku, Hou & Chen, 2016). Simply put, user-controlled personalization is initiated by the user while automated personalization is done for the user. Hybrid personalization refers to the combination of multiple personalization mechanisms. It is a relatively new research area combining multiple recommendation techniques, for example collaborative, content-based, demographic or knowledge-based recommendations. By combining various techniques one can leverage the problem of not having sufficient data on the user or on the content (Herder & Kärger, 2008). Ultimately, the above-mentioned techniques together with other personalization approaches are accumulating a high interest from various fields of science and business.

## 2.2 Personalization in the news

The concept of personalized news is more than 20 years old. Digital technologies of the modern world enable newsreaders to reveal their interests, preferences, values, location and other news consumption-specific individual features. Based on such information, news organizations can deliver tailor-made news packages to their readers. One can view news personalization as an “interface to news”, or a window to the world, which selects, highlights and filters individual news items, and compiles and aggregates them into news packages in a different and unique way for each individual newsreader (Bodó, 2019). Thurman and Schiffers defines it as a “form of user-to-system interactivity that uses a set of technological features to adapt the content, delivery and arrangement of a communication to individual users’ explicitly registered and/or implicitly determined preferences” (Thurman & Schiffers, 2012, p.776). Bodó (2019) splits the development of personalized news services into different generations. According to him, news personalization first started to gain traction in the early 2000s. Seeing as technologies were less sophisticated that time around, first-generation personalized news services asked users to explicitly reveal their news consumption-related preferences. Thurman and Schiffers (2012) refers to a number of these early news products that were based on explicit personalization: customizable newsletters and RSS feeds, different

front pages based on geographical location, widgets, and customizable “my news” sections. Many of these first-generation personalized news services remained marginal and unsuccessful, mainly due to users being reluctant to invest time or energy in explicit personalization (Bodó, 2019).

The second generation of news personalization has incorporated implicit personalization techniques. This approach builds digital profiles based on indirect user signals, such as clicks, third-party user information and transaction history. It uses these as an input for algorithmic agents that provide personalized recommendations. Such agents were first developed and successfully deployed in the commercial domain, such as by Amazon for e-commerce and by Google in the search and digital advertising sectors. Services like these helped to prove that it is possible to algorithmically match users to content that they appreciate, provoking interest in their application also in the business of news (Bodó, 2019). Such changes in the flow and delivery of news are slowly starting to affect the dynamic between news organizations and their readers.

#### *Changes in media-user relationship*

The cult of the individual, a phrase which originates in Cold War Russia, has ironically become applicable to the modern-day world (Boxever, 2018). Peoples online experience is changing, as websites increasingly tailor themselves to its users. The race to know as much as possible about users has become the central battle of the era for Internet giants like Google, Facebook, Apple, and Microsoft (Pariser, 2011). Time magazine named “you” as its Person of the year in 2006, in recognition of the way user-generated content created by individuals and made available to a wider audience was changing the commercial world. In today’s society, individuals who buy books online, individuals who travel, individuals who order food online – all expect their supplier to know something about who they are and what they want. Putting a first name into the subject line of a generic mail campaign does not cut it anymore (Boxever, 2018).

The internet’s pervasiveness and easy accessibility offer an immediacy of information that no other news medium can match. This has irrevocably accelerated the pace of news, as journalists compete to stay ahead of each other as well as their audiences’ demands. Similarly, the way people consume news have changed. People are no longer restricted to morning papers or evening news broadcasts. They listen to podcasts on their way to work; check for

news updates on their cell phones; watch, pause, and rewind live video newsfeeds on the Internet; and read and comment on blogs while they are at work or taking the train. More significantly, the Internet is changing the concept of one-way news, be it in print or broadcast. News is becoming more and more personalized and interactive, placing its audience in charge. Viewers have more news sources to choose from than ever before. Furthermore, they share news stories through social networks, helping to dictate a story's distribution. They shape the discourse and coverage of news, and more and more, they are helping to capture, write, and share the news themselves over the Internet (Sagan & Leighton, 2010). Seeing as the online audience have grown to expect and desire personalized news experiences, the news medium has slowly started to evolve from a one-size-fits-all model to a personalized model. Such changes have brought with it new and unknown dynamics for the news media to address.

### 2.3 Challenges in light of personalization

Established news media face a number of challenges in relation to their internet sites, whereas personalization is deemed to be both a cause and a response. Large parts of the challenges arise from the consumption patterns of the "new" online audience. In addition to this, the economics of advertising, which provides the primary means of support for online news publications. Seeing as the online audience has huge amounts of sources to choose from and is relatively promiscuous in their selection, staying on individual websites for only a short amount of time, it has been difficult for news websites to build loyalty from their users. Furthermore, advertisers can now track users as they move around the web and identify and target their desired upmarket audience without necessarily having to advertise on premium news websites (Thurman & Schiffers, 2012). The rise of personalized content on different popular mediums such as Netflix, Google or Facebook has simultaneously with this development created a need and demand from online audience for individually tailored content. Personalized content is no longer to be viewed as a luxury or something unwanted, but rather an absolute need for maintaining audience attention (Pariser, 2011). As a result of these changes in both audience expectations and consumption patterns as well as online advertising, premium publishers have started to lose sales. Personalization has emerged as an increasingly popular strategy for news publishers in hopes of better resonating with their users. Further to allow them to capture data about users and thus reduce dependence on

external suppliers of such information (Thurman & Schiffers, 2012). However, there are some obstacles associated with executing such a strategy.

### *Filter bubbles*

More and more media organizations have come to realize that if they want to benefit financially from features of the new media, i.e., personalization technologies, they have to address all aspects of it. Personalization holds the potential for bringing positive, new prospects to news companies and their users. As an example, it can allow for news companies to better serve their readers by lessening information load or by serving them more interesting content. However, as positive as such changes may be, news personalization is also a root of concern regarding its potential effects on readers and reader-producer relationships. These are important to be made aware of when designing for sensitive news personalization. This first and foremost to try and avoid them, but also to help gain a user-centric understanding of why it is important to involve users in the process of designing.

A concern that is frequently brought up in the discussion of news personalization is the “filter bubble”. The term is best described as a unique universe of information for each person that may potentially lead to the consumption of narrow selections of news sources and perspectives (Pariser, 2011). A related term is echo chamber, which Lewandowsky et al allude to as a closed system or “chamber” where “most available information conforms to pre-existing attitudes and biases” (Lewandowsky et al, 2017, p. 21). The general argument for these two terms is that algorithms which aim is to customize and personalize the user’s online experience place the user in a bubble or chamber where he or she is only presented with information that matches with previous consumption behavior (Spohr, 2017). To put it in the context of news, readers only being presented with personalized news of their liking, and thereby being excluded from a variation of different news, could result in the creation of a so-called filter bubble or echo chamber. That is to say, self-created content that are manifested from behavior patterns may contribute to partial information blindness in the news (Haim, Graefe & Brosius, 2017).

### *A fear of missing out*

Another challenge is the possible scenario of missing out on news of interests. One of the main issues lies with people not being able to see how the personalization is being done and how the technology is filtering information. Seeing as personalization technology in many

cases is invisible to the end user, one cannot be sure as to how it is classifying information and if it is getting one's interests right. By taking away the human factor and leaving the responsibility to choose, edit and suppress visible content fully or partly to an algorithm, one runs the risk of not knowing why certain things are shown and not others. Additionally, seeing as the machine that defines such experiences is created by corporations, one can never rule out biased and profit-driven results (Garcia-Rivadulla, 2016). The concern can further be related to the previously discussed filter bubble, whereas personalized algorithms may lead to users missing out on challenging viewpoints or important information that they would want to be exposed to.

### *Privacy*

Privacy, or personal data protection, can, in accordance with Van der Hof and Prins (2008), generally be conceived as one of the most prominent challenges in regard to personalization and profiling processes. Different personalization techniques provide companies and organizations with a powerful instrument to know in detail what an individual wants, who he is, whether his behavior shows certain patterns etc. The potential for further use and in some cases abuse of detailed and rich user information raises the first problem. Studies have shown that online audiences are very particular about what type of information they are willing to provide in return for personalized content. Further, they have strong opinions regarding personalization services that share personal information across different platforms and companies. The majority deems the sharing of personal information as an invasion of their privacy. In addition, most consumers do not have a thorough understanding of how such technologies work and thus lacks the opportunity to control the dissemination of their personal or behavioral information. Some personalization services may also deploy hidden instruments to track and trace users, thereby having their consumers unaware of their data and preferences being collected and compiled into personal profiles (Van der Hof & Prins, 2008). Collectively, such trends may lead consumers to becoming skeptical or distrustful towards personalized offers in general.

## 2.4 Explaining sensitivity

For any given journalistic outlet to work, audiences have to invest confidence and trust in it, and media institutions have to earn and retain said trust continually. Trust by its very nature can be described as a key condition for functioning democracy. It plays a vital role in almost

every human interaction, being an: “important basis for social order and a foundation for social cohesion; and it is a prerequisite for a functioning society” (Pavličková, Nyre & Jurisic, 2013). It becomes particularly important in the context of personalization because it can influence the willingness of an individual to accept the risk associated with the use of it. Further due to the vast information asymmetries and customer uncertainty that are inherent to the Internet in general (Aguirre et al., 2015). With that said, there has been a fundamental transformation over the past twenty years or so. Mediated content is now being distributed and accessed through numerous media technologies. Such developments go in the direction of greater reliance on personal trust-relationships, while what might be called confidence-relationships are becoming less prominent” (Pavličková, Nyre & Jurisic, 2013).

The word “sensitive” personalization design refers, in the context of this thesis, to the construction of a responsible, considerate and trustworthy design that has end-users demands and needs at the center of development. With that said, the term can be viewed as synonymous with words like “trust” or “trustworthiness” in a design. One of the most widely accepted definitions of trust can be summarized as “an acceptance of vulnerability to the action of others with expectations of a particular outcome” (Pavličková, Nyre & Jurisic, 2013). Further, one can view the concept of trust as both a willingness to risk and as something perceptive. That is to say, the one who trusts as well as the one who is trusted both accept vulnerability to a certain degree, rendering the dependence, at least in part, mutual. Having confidence in someone or something, on the other hand, can be understood as an established and predictable relationship that is based on previous experiences. It can be placed in symbolic tokens, such as money, and expert systems, like technical and professional knowledge. Distinct from trust, confidence should be understood as being a more “taken-for-granted”, but also impersonal and institutionalized relationship. One view sees confidence as not involving the consideration of alternatives. This leads to the tautology that there is an increasing need to trust in confidence, that is, to trust that others continue to be confident. It “becomes a type of system trust in the ability of the system to maintain conditions or performances which are, within certain limits, identical” (Pavličková, Nyre & Jurisic, 2013, McKay, 2018).

### *Six levels*

To further explain the dynamics of trust and confidence, Pavličková, Nyre and Jurisic (2013) makes the distinction between six levels of increasing risk and a corresponding need for trust.

Such a distinction is made to show that confidence and trust are to be differently understood, this in relation to each of the levels. The idea is that the full complexity of trust only can be explained when media are also understood in their full complexity. Therefore, media is distinguished in said six levels, each representing a conceptualization of media-audience relationships. These are technologies, institutions, genres, content, professional journalists and amateur producers (where the content is produced by audiences themselves). The three first conceptualizations of media-audience relationships are confidence, whilst the latter three are trust. They are to be understood as dimensions within which trust should be considered and understood. On the basis of that, it is argued that “confidence is an unconscious relationship within which the prevailing sentiment is to be certain, and not feel any need to question the other party” (Pavličková, Nyre & Jurisic, 2013). That is to say, when confidence is in content, the information is considered as trustworthy prior.

### *Confidence*

Pavličková, Nyre and Jurisic (2013) refers to technology as something fundamental, as something that only runs the risk of failing if the power is out. All media is in some way built on previous experience, that is to say, one expects technology to be the same as before, and still working. It co-creates what is familiar about the media. Therefore, one does not talk about trust, but confidence in technology. As an example, one has confidence in that a program is broadcast whether one watches it or not. If there exists no confidence in a medium’s technology, it would not be considered usable in the first place. With technology one can refer to confidence as being a type of trust which is not established on the basis of particular personal experiences, but rather one which brings with it various associated expectations, assumptions and beliefs. Another example is the medium as an institution, with all its traditional, well-tested processes. When audiences encounter a well-established public medium there are certain expectations about how the institution produces media content, which again, is not based on particular personal experiences. Here confidence takes the form of a relationship with information. Users might not know how it ‘really’ works, but when consuming a journalistic text, they make the assumption that there are certain processes within which the content has been produced. The same goes for genres, which promises a certain type of content, a particular form and a way in which information is presented to the reader. In this case confidence comes in the form of expectation. For example, the expectation that whichever article genre one is presented with is a representation of actual news (Pavličková, Nyre & Jurisic, 2013, McKay, 2018).

## *Trust*

In comparison to the three previous categories trust should be understood as an individual action or a decision. According to Pavlíčková, Nyre and Jurisic (2013), trust in the sense of media content implies that users understand and acknowledge the dominant connections to the text while also negotiating their own position according to local conditions, using situated logic. Users bring their knowledge, understanding of the world, political and moral beliefs into their encounter with text, and adjust their sense of trust either positively or negatively. Regardless of whether users have confidence in the technology, institution, genre, or even if they trust the writer of the text, they still might not trust the particular piece of information to be truthful if it does not fit their belief system, prior knowledge and understanding of society. Regarding trust in journalists, users can create a trust relationship to a particular name or journalistic personality. In such cases, the user is the actor, making a decision about whether to trust a journalist's content or not. Trust is thereby directly linked to suspicion and doubt, and has to be established every single time, in contrast to the routinized confidence in the genre, institution or technology. Where one should make the distinction between the relationship to the institution and that of the journalist is difficult to answer, but nevertheless the relationship with the journalist is so emotional and personal that trust is deemed a better description than confidence. Amateur producers, or products of citizen participation, is all a matter of trust in something that is fragile and can fall apart at any time. The trust relationship is here built on the creator's ability to demonstrate 'truth' through the authentic account of somebody who has been there. The value of the event or information is socially understood as true and real, regardless of the eloquence or precision of the account. If one compares it to the trust relationship with professional journalist, on the other hand, audiences expect a balanced, unbiased account that is understood to be true in the context of the quality requirements of institutional media (Pavlíčková, Nyre & Jurisic, 2013, McKay, 2018).

Using Pavlíčková, Nyre and Jurisic's (2013) theoretical distinction between confidence and trust leads to the conclusion that trust are taken up by the user and signaled through various textual and perceptual features of the medium. Furthermore, that the current notion of trust in media can mean many different and often contradictory things. Therefore, trust should not be understood in relation to one particular medium or content only but rather within the wider available media ensemble as a whole. The prior knowledge, expectation and assumption of each individual user marks out the territory of what is familiar and thereby defines an individual's horizon of trust.

## Chapter 3. Theory - What is personalization design

The following chapter provides an answer to the fundamental question of what a scientific method is. It further presents an introduction to the development of design research and the scientific study of designing. Lastly, it looks at existing personalization design theories.

### 3.1 The scientific method

In its simplest form, the scientific method can be described as nature's truth. In a more general form, one can describe it as an empirical method for acquiring knowledge. It involves careful observation, hypotheses generation and testing, deductive and inductive logic, parsimony, and refinement of hypotheses based on experimental findings. One can refer to these as the general principles of the scientific method, distinguishable from a definite series of steps applicable to all scientific enterprises. The procedures can vary from one field of inquiry to another, but the underlying process is frequently the same (Gauch, 2010).

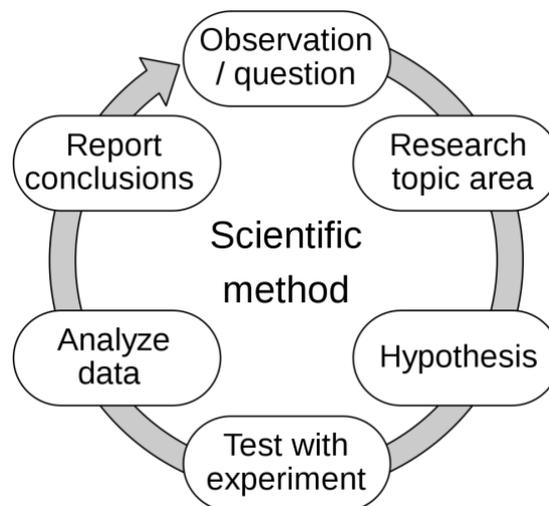


Figure 3.1: Diagram showing the steps of the scientific method (Efrazil, 2021)

### 3.2 Design Science

The scientific method encompasses a range of different fields belonging to the same common category. Most interesting to discuss in light of this thesis is the design science framework, best described as an outcome-based information technology research methodology (Hevner et al., 2004). It focuses on the development and performance of designed artifacts with explicit intention of trying to improve functional performance (Vaishnavi, Kuechler & Petter, 2004).

Venable (2006) refers to it as an inventive or creative problem-solving activity, one in which new technologies are the primary products. Herbert Simon (1969) revitalized the distinction between “natural sciences” and “sciences of the artificial” or “Design sciences” this way: “the former study how is the world and exclude the normative”, the latter are concerned by “how things ought to be in order to attain goals”. Natural science is concerned with the necessary, with how things are, whereas design concerns itself with the contingent, with how things might, or ought, to be (Hatchuel, 2001). Simon considered the sciences of design as sciences in their own right, distinct from natural science (You & Hands, 2019). He proposed the science of design as "a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process"(Simon, 1969, p. 58). Such ideas about the science of design helped encouraging the development of design research and the scientific study of designing.

The development of design methods can be viewed as closely related with prescriptions for a systematic process of designing. There exists a number of different process models for design, but a common denominator for most are a number of phases or stages, beginning with a statement or recognition of a problem or a need for a new design, and culminating in a finalized solution proposal. As an example, the UK’s design council models the creative design process in four phases: discover, define, develop and deliver (Design Council, 2019). A more detailed example is presented by Peffers et al (2006): (1) identification of the problem; (2) specification of objectives for a solution; (3) design and development of artefacts (constructs, models, methods, etc.); (4) demonstration by using the artefact to solve the problem; (5) evaluation of the solution, which includes comparing the objectives and the actual observed results from the use of the artefact; and (6) communication of the problem, the artefact, its utility and effectiveness to other researchers and practicing professionals. One way for such processes to be executed are through the use of design sprints. A design sprint can be described as a design method used to solve complex problems throughout co-creation, rapid prototyping, and qualitative testing with targeted users (Banfield, C Todd Lombardo & Trace Wax, 2016), further described in section 4.5 process structure. With that said, there are different strategies for personalization, different means for carrying out strategies, and different user modeling techniques.

### 3.3 Methods for personalization design

One can refer to “personalization design” as a “design activity to realize personalization of products and services”, and an “extension of traditional design” (Kaneko, Kishita & Umeda, 2018b, p.741). In accordance with Kaneko, Kishita & Umeda (2018a, p. 834), the goal of personalization design is to provide personalized offerings with sufficient personalized values:

- Flexibility (targeting a wide range of personalization receivers),
- Fit (precisely fit each personalization offering as much as possible to each personalization receiver),
- Efficiency (a low cost and quick delivery of personalization).

In traditional design, the specification that the product or service should accomplish is left to the judgement of the designer. In personalization design, however, the specification should be changed according to the individual customer. A common approach for realizing such procedures is designers interacting with customers. Fig. 3.2 shows the conceptual diagram of personalization design. An individual has its own physical and mental characteristics and surrounding situations that include products, services and related people. A service providing personalization does not have control of the person or the surrounding situations. Still, they can retrieve information from them. A provider of personalization uses such information to design and produce products and services suited for each person. The person can judge its function or feature and thereby give feedback to the personalization provider (Kaneko, Kishita & Umeda, 2018b).

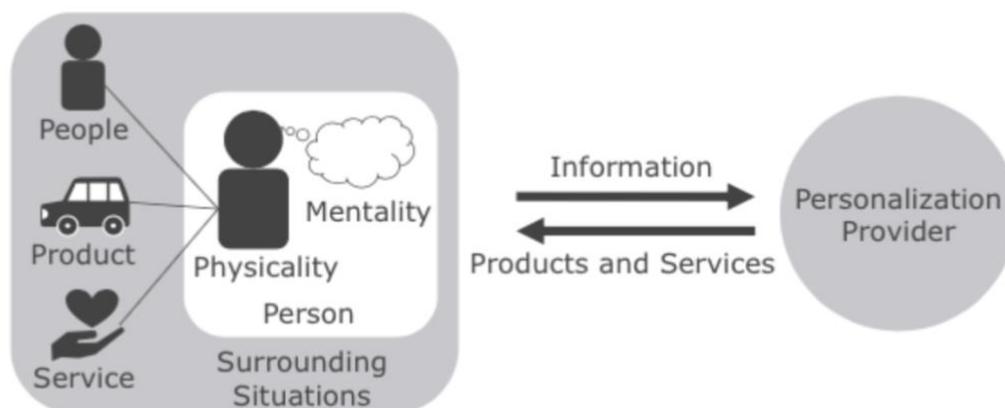


Figure 3.2: Conceptual diagram of personalization design (Kaneko, Kishita & Umeda, 2018b)

### 3.4 Four personalization design philosophies

There exist many popular approaches for the design of personalization. Fan and Poole (2006) have developed a normative framework of personalization ideal “types” that distinguishes four personalization design philosophies. These are architectural, instrumental, relational and commercial personalization.

#### *Architectural personalization*

Generally associated with the fields of architecture, environmental psychology, and urban planning, architectural personalization can be defined as “the construction of the digital environment to create a pleasant user space and a unique experience for the user” (Fan & Poole, 2006, p. 190). It particularly relates to the interface aspect of a system. Its motive is to fulfill user needs and enable user expression through design of an online environment. The goals for personalization in this view are, according to Fan and Poole (2006), to be seen as twofold: (1) the creation of a functional and delightful Web environment that provides aesthetic value and reflects the user’s personal style and (2) helping users cultivate a sense of personal and social identity within the given space. Personalization systems that are designed according to the architectural design philosophy employ user models that map the cognitive, affective, and social-cultural aspects of users. A good example of architectural personalization is the L’ORÉAL® Web site, which is designed with a different look and feel for different countries. The Japanese site has elements that resembles oriental lotuses, while the Brazilian site has dashes of red, and the French site is enlivened by an Avant-Gard-looking model. Such variety brings intrigue, mood, and added value to a site (Fan & Poole, 2006).

#### *Instrumental personalization*

The instrumental personalization philosophy attempts to facilitate human use of computer system tools. It correlates with the goals of traditional system designers and refers to the utilization of information systems to enhance efficiency and personal productivity. This by providing, enabling, and delivering useful, usable and user-friendly tools in a way that meet users situated needs. Instrumental personalization lays focus on the functionality of the system. The assumption is that users prefer systems that are designed and tailored to their particular requirements. One can refer to its purpose as singular – to support users in accomplishing their goals. Unlike architectural personalization in which function and form balance each other, instrumental personalization lays emphasis on functionality and usability

and treats aesthetics as a secondary consideration to be addressed once instrumental standards are met. Personalization systems that are designed under the instrumental perspective utilize information about the user's context such as time, location, and surrounding environmental parameters to make inferences or predictions. Examples of instrumental personalization is wireless, just-in-time, personalized information services such as stock, weather, and local traffic information. Another example is one-click ordering, e.g., [www.amazon.com](http://www.amazon.com) (Fan & Poole, 2006).

### *Relational personalization*

Relational personalization can be defined as “the mediation of interpersonal relationships and utilization of relational resources to facilitate social interactions” (Fan & Poole, 2006, p. 193). This is done by providing a convenient platform for people to interact with others in a way that is compatible with the individual's desired level of communality and privacy. Its goal is twofold: (1) to enhance the effectiveness of interpersonal interactions and (2) to help generate social capital by providing new opportunities for strengthening social relationships and maintain social networks. Personalization systems that are designed according to the relational perspective focuses on a strategy of mediation. They seek to provide a common, convenient platform for interpersonal communication and community building with an emphasis on design and sociability. Given that a social network has occurred, the designer can use the critical mass to further enlist users and increase the relational potential of the network. This can vary in both size and complexity. It can be as simple as providing an “e-mail to a friend” button or as complicated as an online activity center. Relational personalization can take many forms, ranging from personalized gifts to computer-mediated interpersonal communication. The website for the Public Broadcasting System's teenage reality show *American High* is a great example of utilizing relation personalization for teen education. It is a technological and artistic collaboration that brings students, teachers, parents, educators, and artists together. The page prides itself on making sure every voice gets heard and that every role benefit from it (Fan & Poole, 2006).

### *Commercial personalization*

Commercial personalization is defined as the “differentiation of product, service, and information to increase sales and to enhance customer loyalty” (Fan & Poole, 2006, p. 194). This by segmenting customers in a way that efficiently and knowledgeably address each user or group of users' needs and goals in a given context. The approach is strongly driven by

technology and primarily focuses on the content of the given system. Its goal and motivation are to fulfill users' material needs and thus contribute to their psychic welfare. Further to increase sales directly and through cross sales, increase customer loyalty and build brands. The strategy for archiving such is based around segmentation. That is to say, it is ultimately only effective to the extent that the offerings provide value to the target market segments by differentiating the product, service, and information provided. Rich knowledge regarding target groups is a prerequisite for success in commercial personalization. This requires continuous learning about each individual, understood as a systemic entity in terms of personal preferences and interest, cognitive ability, motives, demographic profiles, user behaviors and specific context. Two types of contextual information are important for such adaptive personalization. Type one pertains to users' intent, preferences, and purchasing history, whereas type two relates to environmental factors such as time and location of the user. Effective personalization takes into account these contextual elements with the intention of better anticipate customer needs and predict the goods and services that will satisfy them. An example of commercial personalization is a recommender system that suggests potentially interesting offers from an online store by focusing on information relevant to the specific user, e.g., eBay's recommendation system (Fan & Poole, 2006).

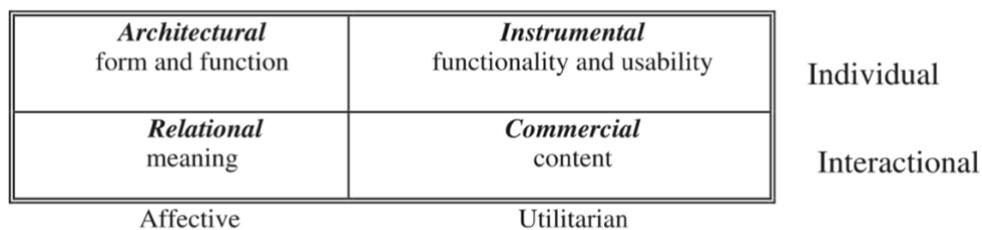


Figure 3.3: Personalization design paradigms (Fan & Poole, 2006)

### 3.5 Implications for design

According to Fan and Poole (2006), each type has different evaluation criterions and user models. The instrumental and commercial perspectives emphasize task achievement and commercial transactions, orienting towards utilitarian issues. Architectural and relational perspectives, on the other hand, place more emphasis on user's feelings, both aesthetic and socioemotional. Architectural and relational personalization concerns itself with individual use of an artifact, be it a building, an information system or a web interface. That is to say, design emphasis is on an individual's interaction with a given artifact. Contrary to this

approach, relations among multiple entities and the management of the relations are of paramount importance in relational and commercial personalization (Fan & Poole, 2006, p. 190).

In accordance with Fan and Pole (2006), commercial and instrumental personalization are predominantly used for information retrieval, transaction processing, and content management, and belongs to the class of productivity applications. Their purpose is utilitarian oriented, meaning the goal is to get something done. Hence, content, functionality, and usability are main priorities in design. In contrast, architectural and relational personalization belong to the class of entertainment applications. The purpose is affect-oriented, meaning the goal lies in the experience itself. Hence, a balance between form and function as well as meaning for using the system is emphasized. Collectively, affective design is process oriented, whereas utilitarian design is results oriented. This distinction is based on the intended use of the software, not the intention of the user. These differences between productivity applications and entertainment applications are important to state due to a series of design decisions being contingent on the nature of the application. A majority of existing personalization systems are designed to enhance productivity, for example in the form of one-click ordering or wireless, just-in-time, personalized information services (stock, weather, traffic information etc.). The utility function is to maximize convenience and efficiency. Design guidelines for these types of task-oriented applications are similar to those for designing tools, such as the principles advanced by Norman for designing everyday things. Norman emphasizes content, functionality, and usability. Key usability issues are ease of use, clarity, consistency, freedom from ambiguity, and error. Entertainment-oriented personalization systems, on the other hand, capitalize on the process and experience of using the system. They are designed to stimulate thinking and invoke feelings. The process itself is critical in creating an engaging, fulfilling user experience (Fan & Poole, 2006). Although the different philosophies represent distinctive paradigms of design strategy, Fan and Poole (2006) sees great potential for combining multiple paradigms in a way that meets different needs of users. A design that combines function and form, embeds meaning in use, and integrates productivity, education, and entertainment could be considered likely to fulfill human needs (Fan & Poole, 2006).

## **Chapter 4. Method - How to make your personalization design user-centered**

The following chapter provides an overview of the research and development methods that lead to the result presented in chapter 5. In addition to this, a thorough description of how the development process has been structured and carried out. This includes an explanation of the choices that were made, and how it has contributed to the overall process of development. The finished prototype as well as the most important findings are described in the previously mentioned separate impact-report.

### **4.1 Scientific framework**

One can refer to Design Science as the framework for the scientific context of the project. The project has utilized the Design Science approach by constructing and researching a hypothesis, designing and developing three different prototypes, invite and have participants test and evaluate said prototypes, and interview them about user experience and perception of concept. A number of different methods has been utilized for achieving this process structure.

### **4.2 Development methodology**

The project has utilized development methods emerging from the user-centered design methodology. A development methodology can be described as a framework that is used to structure, plan and control the process of development. User-centered design, hereby referred to as UCD, is a broad term used to describe design processes in which end-users influence how a design takes shape. It is described as both a broad philosophy and variety of methods. Users can be involved in various ways in UCD, but the important concept is that users are involved one way or another. Some types of UCD consult users about their needs and involves them at specific steps during the design process (Abrams et al., 2004).

Users have been involved at two specific points in the project development. First, in the early research phase. Further, in the evaluation of design and concept. Early user involvement was deemed important to get a wider understanding of the problem space as well as users' needs and desires in terms of personalization in the TV 2 news. Insight collected from the early research phase helped to guide the project's first initial planning stages. User testing, further

described in section 4.6 - process execution, was chosen as a good way of further involving users. Allowing users to participate in the design process through user testing of prototypes, and thereby having them evaluate design and concept, has contributed to a more efficient and insightful design process. It has been especially important in terms of developing a user-friendly interface and for registering necessary user feedback, which is further described in the separate impact report. To provide the best user experience one needs to know how users feel about the product design and concept. Users' opinions about experience they have with a product is helpful information that can be used to adjust the product to fit their needs more accurately.

### 4.3 Research methods

#### *Triangulation*

To understand the general news reader's behavior and needs, as well as ensure valuable insight and progress, a combination of several modern and qualitative methods have been used. Such an approach can be described as a triangulated approach. Triangulation refers to the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of a phenomena (Carter N et al., 2014). It can contribute to enriching research as it offers a variation of different datasets to explain differing aspects of a phenomenon of interest (Noble, H. & Heale, R., 2019). Different methods were used to research user's perspectives, needs and perceptions on a wide scope. As part of the research phase of the project, interview and online survey were utilized. Persona, user testing and prototyping were methods used as part of the developing phase.

#### *Online Survey*

Online surveys are widely used in human-computer interaction (HCI) to gather feedback in terms of people's attitudes, perceptions, intents, habits, experiences, and characteristics, at significant moments both in time and over time (Müller et al., 2014). It is generally described as a quantitative method, i.e., a way of collecting large amounts of data for analysis. Data collected with quantitative research methods are easier to manage in regard to creating statistics analysis of information (Lazar et al., 2017). In relation to this project, the method was used as part of the early research gathering. This to guide the first initial design process. It was aimed at collecting information about people's news habits, interaction and perception of news technology and general online behavior. The goal was to get an indication as to what

type of personalized content one should consider presenting to the general news reader, and what they themselves would want. An online survey was deemed appropriate because of its benefits of a wider geographical reach, shorter fielding period, and lower bias due to respondent anonymity. The survey tool used was SurveyXact as it was available through the University of Bergen. Further because it allows for anonymous collection of data, which was necessary in order to follow privacy guidelines. The survey link was shared on Facebook and in private networks. The target group were general news readers, meaning it had no restrictions on gender, age, background etc. Example of included questions were how often user reads the news, to which degree they notice personalized content online, to which degree they find personalized content to be useful etc.

### *Interviews*

Interview was chosen as a method for gathering qualitative data during the research phase of the project. Qualitative research is best described as a step further from numerical data, having the researcher looking deeper into meanings and interpretations. A direct conversation can provide views and useful data that a survey may miss (Lazar et al., 2017). Semi-structured interviews were conducted with three professionals from the media industry: One with background in technology and personalization and two with background in journalism. Common for the semi-structured interview form are questions that can lead up to discussion and make room for clarifications and added questions while the interview is in progress (Lazar et al., 2017).

The intention was to increase insight into how personalization is used in the industry and get professionals' own perspective on the topic. Further, to gain a better understanding of both the technological opportunities that are present with personalization at this point in time and the editorial responsibility that exists when presenting personalization to end-users. The interview method was also used during user testing, which is further described in section 4.6 process execution.

### *Persona*

Personas can be described as fictitious, specific, concrete representations of target users. A persona often represents an aggregate of target users who share common behavioral characteristics, i.e., a hypothetical archetype of real users. Evidence from practice suggests

that persona use can facilitate useful and usable designs (Miaskiewicz., T & A. Kozar., K, 2011). How this method has been utilized will be further described in the section below.

#### 4.4 Process approach

During the first initial research phase the group asked general news readers and professionals with technical and journalistic backgrounds to give their opinion on automated vs user-controlled personalization, among other things. This to get an indication as to what technique would be the most beneficial to introduce to a news setting. Collected data showed divisions in both the general public and the professionals. That is to say, it was identified a potential imbalance with both techniques. The automated approach was perceived by both users and some of the professionals as having a high risk of affecting users' trust. This due to the lack of control that comes with it. The user-controlled approach was perceived by some of the professionals as having the potential of tiering users due to being perceived as bothersome or unnecessary. This contradicted users' own opinions, as the survey showed several answers indicating a motivation for actively using user-controlled options. However, one has to take into consideration the risk of some answers not being genuine or well thought out.

Comparison of the two approaches divided the professionals into three, of which two went for one each while the third was unsure as to what approach he believed in the most. The professionals' different and to some degree contradictive perspectives as well as varied figures from the survey created an uncertainty within the group as to what type of personalization technique would be the most logical and beneficial to introduce in a newscast.

After some discussion the group decided to interpret the varied feedback as an indication that neither fully user-controlled nor fully automated personalization was the ideal solution. The alternative was concluded to be a "hybrid" solution that combines aspects from both techniques. To test such a hypothesis required deeper insight into how the two approaches worked and were perceived as isolated concepts first. This was achieved using a design sprint framework, further described in section 4.5 – process structure. It was decided to dedicate sprint one to the development of an automated prototype and sprint two to the development of a user-controlled version. Such an approach enabled the group to observe which aspects of the different techniques had a positive effect on users, and which did not. By testing each personalization technique isolated, the idea was to collect comparative data and combine the positive inputs from both previous approaches in a hybrid end-solution. Further to collect

important user perceptions of the two isolated techniques. Such information was deemed the most valuable to achieve for both the group and TV 2. The final result of this approach is presented in the impact report. It was further decided to make users the focus of development. That way, problematic issues related to specific, personalized usability issues, such as privacy or a need for control, could be thoroughly investigated. In addition to this, it could contribute to determining the role of trust and confidence in different personalization concepts. That is to say, the group agreed on the importance of understanding the needs of users for personalization to be implemented effectively.

### *Persona approach*

Each prototype shows the outcome of a "plausible but hypothetical algorithm" and is not a working system. It is thereby referred to as non-functional. This due to Figma, the prototyping tool in use, having restrictions on possible functionality. Further, due to a lack of technical competence among the group. To simulate the effect of personalization on a non-functional prototype, it needs to be personalized to a specific individuals' interests beforehand. A possible solution to this would be to interview all test subjects and create different prototypes directly adapted to each individuals' interests. However, such a process would be very time consuming and not ideal for a time and resource-limited project. Mentioned hindrances led to the joint decision of trying to construct an alternative approach. The chosen solution is inspired by a normal approach in development processes – the design of a fictitious, hypothetical individual belonging to the target group, also known as a persona. When evaluating the prototype, participants have had to familiarize themselves with Kim, the persona, and then role play through the "classic" steps of a design science user test.

The method entails constructing a fictional persona, adapting the prototype to the constructed persona, and then have participants role-play while testing the prototype. Kim contained a short description of news interests and non-interests as well as general viewpoints on different topics such as politics. The prototypes were constructed to present personalization based of Kim's listed interests and traits. Before testing the prototype in question, participants were asked to immerse themselves in the associated persona. Having familiarized themselves with the views and interests of Kim, participants were then asked to role play while testing the prototype. In addition to this, they were presented with user tasks they had to follow during the user test. This way a scenario was created where the prototype could be experienced as personally adapted to the testers, even though choices were constructed in advance. The goal

was to create a realistic experience of the concept and prototype despite mentioned restrictions. Furthermore, to acquire relevant and credible test data for further analysis. Further description of Kim is included in the impact report.

4.5 Process structure

To develop, demonstrate and evaluate the three different personalization concepts that the group came up with, the project has utilized a design sprint framework. The process structure and execution are excluded from the impact report to make room for the most important findings and is therefore further described in this section.

*Design sprint*

A design sprint can be described as a “flexible product design framework that serves to maximize the chances of making something people want” (Banfield, C Todd Lombardo & Trace Wax, 2016, p.5). It is often conducted by a small team where the results set the direction for a product or service. Conducting a design sprint can help reduce the risk of downstream mistakes and generates vision-led goals the team can use to measure success. As a rule of thumb, it generally consists of five phases:

0.	Prepare (Get ready)
1.	<b>Understand (review background and user insights)</b>
2.	<b>Diverge (brainstorm what’s possible)</b>
3.	<b>Converge (rank solutions, pick one)</b>
4.	<b>Prototype (create a minimum viable concept)</b>
5.	<b>Test (observe what’s effective for users)</b>
6.	Iterate...to another design sprint, or a Lean and Agile build process such as Scrum or Continuous Delivery/Extreme Programming

Figure 4.1: Sprint phases (Banfield, C Todd Lombardo & Trace Wax, 2016, p.5)

Design sprints are known to be versatile and adaptable to different teams and needs. Therefore, the name of these phases often varies depending on the specific sprint and company in question. However, the overall ethos remains the same: a timeboxed design cycle

that is completed through team collaboration and real user input (Banfield, C Todd Lombardo & Trace Wax, 2016).

### *Google design sprint*

Google design sprint was chosen as the specific sprint framework for the project development. It is described as a “five-day process for answering critical business questions through design, prototyping, and testing ideas with customers” (GV, 2010). It was created by Jake Knapp at Google in 2010 and takes inspiration from Google’s product development culture among other things. Day one is used for research and mapping of the problem space, day two and three for brainstorming, day four for prototyping and day five for user testing. After a sprint cycle is completed, one or several iterations are conducted. An iteration is a simplified version of the first design sprint week where the team iterates based on the feedback from the previous sprint to improve upon the established design and concept. (Knapp, Zeratsky & Braden Kowitz, 2016). Due to both members of the group having previous experience with the framework it was deemed an appropriate approach for the project development. It was further chosen due to the effective and versatile nature of design sprints in general.

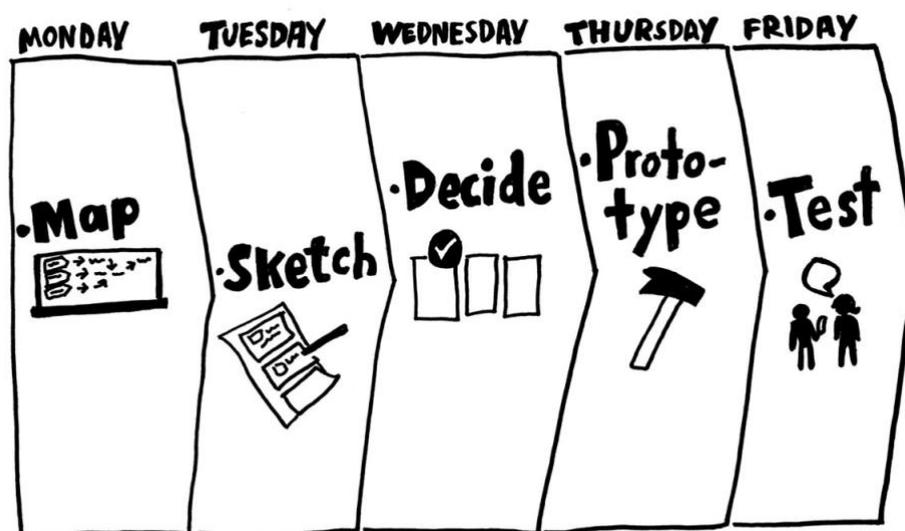


Figure 4.2: Google Design Sprint Days (Rieth, 2018)

### 4.6 Process execution

In accordance with Google design sprint, the project is divided into five phases. These include learning about the user group (1), defining the problem area (2), generating design ideas (3),

constructing a prototype (4), and evaluating the prototype and design (5). Phase one has been conducted through the examination of general literature and science as well as the use of different research methods such as questionnaire and interview. In addition to this, insights based on the analysis of collected data from user tests. The research phase has been separated from each of the sprints, meaning the group instead chose to dedicate individual days to research and analyze data before and in between each sprint. This to help build a good foundation for further creative processes. In addition, to provide an overview and make each sprint more predictable and easier to plan out. The remaining four phases were conducted using the previously mentioned Google design sprint framework. A total of three sprints has been conducted during the project development period.

### *Framework modifications*

There have been some modifications done to the chosen Google Design sprint framework that are necessary to address. The research phases have been conducted separately, meaning each sprint has consisted of four phases instead of the regular five. These are diverging, converging and deciding, prototyping and user testing. As opposed to the Google design sprint, the term “phase” is used instead of “days” when referring to the different stages of each sprint. This due to some of the stages taking more than Knapp et al’s (2016) estimated one day to fully complete. The most significant modification, however, is in regard to the iterative stages. Instead of following the Google Design sprint’s normal guidelines for iteration the group has instead taken an alternative approach.

Sprint one and two has developed and tested an isolated personalization technique each. Instead of using the conceptual feedback from sprint one to continue to improve upon an established concept, sprint two introduces a new personalization technique. Sprint two is in that respect not to be viewed as an iterative cycle related to sprint one. Instead, one would normally view the two as separate projects. However, the design is iterative. Sprint two utilizes user feedback from the previous sprint to improve upon the already established design. The third and final sprint goes on to further iterate on design based off design feedback from sprint two. This way the design iterates and develops from the first to the last sprint. The last sprint’s concept, however, is both iterative and unique, making it difficult to define. It combines the two previous concepts into an end-solution, a hybrid system, implementing the parts of each isolated technique that gave positive user feedback. While combining the two concepts, it also takes into consideration potential improvements to the

added parts based off previous feedback. The third sprint can thereby be regarded as partly iterative in both design and concept, but also unique in its representation of two combined concepts into a new concept, an “improved” combination of two personalization techniques.

To get a better understanding of how this approach has been executed, one can look at the following chart:

<b>Sprint cycle</b>	<b>Concept</b>	<b>Design</b>
Automated (1)	Not iterative	Not iterative
User-controlled (2)	Not iterative	Iterative from previous
Hybrid (3)	Iterative from both previous	Iterative from previous

While the general design of the interface (color, sectioning, placement etc.) has been iterative, there are certain design elements that are unique to each prototype, such as specific selection menus. The user-controlled prototype required more interaction from the users and was therefore in need of more design elements than the automated prototype. It was on the basis of this decided to start with the automated prototype in the first sprint. This decision made it easier to build and improve upon the design, whereas in the user-controlled prototype one could add new elements without having to spend a lot of time removing elements that were unique to the automated prototype. The automated prototype was not in need of many interactive design elements, making it the best candidate for the initial basis of the design.

*Phase 1 - diverge*

The first phase of each sprint is dedicated to mapping the problem area and establishing a concept. For sprint two and three, this includes brainstorming around possible adjustments to previous design choices as well as an analysis of information obtained from user tests. Each sprint started this phase by summarizing all information that had been acquired beforehand through research. This was done by writing down all information in keywords on post-it notes and grouping them on a whiteboard. The information was then analyzed and synthesized. This to define the core problems that had been identified and try to merge them into an overall topic question for the current sprint.

### *Phase 2 - converge and decide*

The second phase is used to identify solutions to the established topic question and finding alternative ways of looking at the problem. This is done through different design thinking activities to boost the creativity. One of the methods that was utilized in this phase was “How Might We”, or HMW. The How Might We method is a design thinking activity that has participants rephrase known challenges as a question beginning with “How Might We”. It is best described as an exercise that focuses on turning problems into opportunities. Formulating opportunities as questions creates room for innovation and idea creation. At the end of the exercise, participants vote on which questions they would want to continue working on (Crawford, 2018). Another method that was used in combination with HMW is brainstorming. It is described as a method for creative problem solving where participants are meant to impulsively express and present ideas and thoughts they come up with (Parker & Begnaud, 2004). For each sprint, the group brainstormed around how to best answer the selected HMWs.

Another method that was combined with brainstorming is storyboarding, which is a form of visualization to depict the current problem and how to best solve it. The best ideas that emerged from the brainstorming process was visualized in form of simple sketches. In addition to this, the group wanted to outline a potential solution to the problem, a "solution sketch". This was done using the crazy 8's method. It is a quick sketching exercise that challenge participants to sketch eight different ideas in eight minutes. The goal is to push beyond the first idea, frequently the least innovative, and generate a wide variety of solutions to the challenge in question. After eight minutes, participants view each other's sketches and discuss the different ideas and agree on which ones give the most interesting answers to the topic question (Becker, 2019). At the end of phase two the group reviewed all solutions that had been uncovered and combined them into a final end-solution. The solution was then visualized in a simple wireframing tool called Balsamiq as a guide for further prototyping.

### *Phase 3 - prototyping*

Prototypes can be described as “representations of a design made before final artifacts exist” and are created to inform both design process and design decisions. They can range from sketches and different kind of models at various levels to explore and communicate propositions about a design and its context. It is further described as a key activity within the

design of interactive systems (Buchenau & Suri, 2000). In accordance with Houde and Hill (1997), prototypes are essentially a representation of the “role” an artifact will play, its “look and feel” and how it will be implemented. Based on such knowledge, the prototype method was deemed appropriate for communicating the project concept with associated functions. Further, for testing the different personalization techniques together with participants and thereby collect user insight in regard to both concept and design. Paper sketches as well as wireframes made during the previous phase served as a guide for the start-up of the prototyping phase. The first day was used to construct a framework for the design, while the remaining days were used for section and detail work, such as the construction of specific category sections, color and symbol selections, or the implementation of news content. In sprints two and three, where the design was continued from previous sprints, the first day was used to improve upon the already established design framework while also making the necessary conceptual changes. The final end-design can be viewed in the impact-report.

#### *Phase 4 - Usability testing*

The project has utilized the user test technique in combination with the previously mentioned persona approach for demonstrating and testing the prototypes. User testing, also known as usability testing, refers to the most common technique used for evaluating a concept, feature, or product with real users. It is often referred to as user research, seeing as it in many cases revolves more around researching the interface rather than the users. While the technique may often be aimed at improving a specific interface, the term can also include elements of design and development that might not be considered research by representatives of different research communities. When conducting a user test, one has to recruit representative users and conduct a test with representative tasks (Lazar et al., 2017). For this project, the goal of user testing was to test and improve the interface while simultaneously learn about users, their interactions and their perception of three different personalization techniques. This by having participants interact with the prototypes through user tasks and later answer questions related to their experience. Such feedback was important for further development of design. It also contributed to useful insight into users’ perception of different personalization techniques, which is further described in the separate impact report.

Three hypothetical varieties of sensitive personalization systems were tested during the course of three individual sprints. For each user test, five general news readers were recruited, whereas three of them were recurring for each user test. They were recruited based of age,

gender and news interests. This to get a variation of views and feedback. One hypothesis was that older participants would have different views in regard to the technology and concept compared to younger and more “digital” participants. To test this and other similar hypotheses regarding possible differences based of variations within the target group, each pool of participants had a wide representation. This was also applicable for the three recurring participants. The intention of having recurring participants was to achieve comparative data regarding the different personalization techniques based of the participants experience with, and comparison of, each individual technique. Participants were asked to sign a consent form before they tested the prototype in question. After having performed all user tasks, participants were asked to participate in a semi-structured interview to discuss immediate thoughts on user experience and concept. During the interview they were first asked questions regarding ease of use and intuitiveness when navigating the interface. For example, to which degree they experienced a design element to be understandable. They were further asked to express how the personalized content made them feel in regard to trust, informedness, surveillance etc. For example, to which degree they felt well informed when faced with the personalized newsfeed.

#### 4.7 Limitations on the method in use

The persona approach has appeared to be rather untraditional in the design science research community, making it necessary to address possible limitations. However, it has been difficult to identify possible limitations beyond one’s own perspectives. In order to find comparative perspectives regarding possible limitations on the methods in use, one therefore looks at methods with similar frameworks.

##### *Hypothetical scenario*

A comparable method to the persona and role-play approach would be the hypothetical scenario methodology. When using this method, respondents are often asked to imagine a hypothetical situation. For example: “imagine that the election is tomorrow, which party would you vote for?” One of the main objectives for developing hypothetical scenarios is to evoke the cognitive and affective processes that would likely occur in real-life decision-making, and, in so doing, maximize predictive accuracy (Persky et al, 2007). What separates this methodology from the use of persona and role-play to create realistic test scenarios is that participants answer as themselves. It can still be assumed that the hypothetical scenario

methodology shares some of the same challenges in regard to the validity of data seeing as its procedures are similar. A major limitation of the hypothetical scenario methodology is how the outcomes necessitated by the methods are anticipated behaviors and future intentions rather than actual behavior. Such limitations are applicable to the results of this project for the same reasons. It can further be related to the ecological validity of the methods in use, that is, to what extent the method in use is similar to what it is supposed to say something about. Since the prototypes are not tested by real personalities, but simulations through role-playing, there is a risk that a “real” situation would have given a different result.

### *Self-reporting*

The chosen approach can be further related to the method of self-reporting, which tap into cognitive appraisal and subjective feelings. The method involves asking a participant about their feelings, attitudes, beliefs and so on. It is often used as a way of gaining participants’ responses in observational studies and experiments (Fielding, 2011). A possible concern with this method is participants not answering honestly. Inaccuracies from respondents withholding, misidentifying, or misrepresenting emotions stem from a variety of causes, and is often proven to be done unconsciously. A possible hypothesis is that the persona may adversely affect testers own emotional state, influencing their actual feelings in relation to the prototype (MOTORO et al, 2021).

### *Measuring simulated trust*

Another possible limitation related to the approach is the measurement of simulated trust, whereas measuring “normal” trust in and of itself is already a difficult task. The testers must report on personal emotions while experiencing the prototype from the perspective of someone else. In such cases it is important to ask questions that help respondents to imagine their situation and role clearly. One can argue that the role of explicitly when presenting testers with questions related to their experience of trust may increase validity of the outcome of results.

## **Chapter 5. Result – Specification of an ideal method for sensitive personalization design**

The following chapter presents a method for the design of sensitive personalization in news settings. This includes a step-by-step guide explaining how to use the method, as well as a look at the potential benefits behind it.

### **5.1 Step-by-step guide**

Below is a 5-step guide for utilizing the method. Before starting the first step, choose a design framework, whichever is best fitted for the company. The project has utilized the Google design sprint framework, but that is not a requirement. That is to say, the method is adaptable to most design frameworks. This because the general steps of a design process usually consist of the same or similar procedures as the already described Google design sprint framework. One can look at the double diamond design framework as an example. A double diamond design process is described as “a clear, comprehensive and visual description of the design process” (Design Council, 2019). It is divided into four phases: discover, define, develop, deliver. These phases are resemblant of Google design sprint’s five-day process. That is to say, both frameworks are conveying a step-by-step design process which involves the development and testing of some sort of product. They differ in execution but are based on the same basic principles of design. According to Norman (2013) one could consider this common for most design frameworks.

The method entails testing three specific personalization techniques: automated, user-controlled and hybrid, starting with the automated approach. Follow the chosen frameworks’ guidelines for establishing an appropriate design. This is usually accomplished during the first two or three stages of a design process framework. The method comes into effect at the experimental stage. If one was to follow the double diamond design framework, this would be during phase three – develop. For Google design sprint it is at the prototyping stage. When a general interface design has been established and it is time to start prototyping, use the following method:

### *Step 1 - Construct one or several personas*

Construct a fictitious, specific, concrete representation of an individual belonging to the target group. Give it specific news preferences and dislikes that are easy to represent in a design. For example, an interest in sports or a dislike for celebrity news. If there is a wish to explore and test specific subjects, such as polarization, privacy or the fear of missing out, give the persona traits that relates to these subjects. It is important that all characteristics are made as clear and relatable as possible, this to make it easier for testers to immerse themselves in the persona and the personalization. Alternatively, one can construct several personas to represent and test a wider range of perspectives.

### *Step 2 - Construct automated prototype:*

Using the established design ideas, construct a non-functional prototype representing the concept of automated personalization. Make a visible distinction in the design layout for when personalization is turned on, and when it is turned off. That is to say, make two versions of the design that demonstrates how the frontpage looks with automatic personalization turned on and off. Give users the option of switching it on and off, for example in the form of a button. This to demonstrate the intended functionality and design as clearly as possible. Adapt the content of the personalized interface to match the personas traits and interests, for example through interest categories. Further remove none-preferred articles and genres that where apparent in the none-personalized version, this to demonstrate how the algorithm would make selections. If, for example, you wish to explore the topic of concerns related to missing out on important news, an option would be to construct a category representing the latest news that is unchanged in both the personalized and non-personalized interface. By making the placement clear, for example at the top of the page, one can collect valuable user reactions regarding the subject at hand. Similar design choices should be made in an effort to explore similar user-centered subjects.

Use a prototype collaboration tool that allows for simple user interaction, for example Figma or Sketch.

### *Step 3- Perform user test with user tasks:*

Meet with each participant individually. Start the meeting by explaining concept, process and formalities, before introducing the persona. Give each participant a good amount of time to familiarize themselves with the content. Make sure that each participant has a good overview

of the personas interests and traits before starting a walkthrough of the prototype. The persona should be available for users to refer to during the user test as well. Have participants role-play as the given persona while testing the prototype interface, immersing themselves in its interests and traits. Present one and one user task until all is completed. Monitor how each participant choose to solve a given task, for example by having someone note immediate reactions. It is important that each participant try and visualize the persona while doing this.

#### *Step 4- Post-interview:*

Perform a semi-structured interview with each participant to discuss immediate thoughts. Have them talk about their understanding of the experience. For example, ease of use, clarity, consistency, freedom from ambiguity, and so on. While one may not be able to gather concrete usability issues, one can still adequately paint a picture of the participant's mental model of the current state of the prototype based of their experience while role-playing. Further have them elaborate on subjects related to their experience of trust, invasiveness, potential worries and so on.

#### *Step 5 - Iterate!*

Start a new development cycle. The second concept to be tested is user-controlled personalization. Use the established design frameworks' guidelines, E.g., Google design sprint, to create a user-controlled design concept while also improving and adding to the general design from previous cycle. Brainstorm potential user-controlled alternatives such as selection menus, navigations, clickable alternatives, categorization etc. The process further involves removing design elements that were unique to the first prototype, that is to say, all elements that were constructed with the hypothetical AI in mind. When reaching the prototyping stage, utilize the same 1-4 steps for evaluating and testing the concept.

In the third and last iteration, follow the established design frameworks' guidelines to create a hybrid design concept while also improving and adding to the general design from previous cycles. This involves adding design elements from both previous concepts and combining them in a meaningful way. One should base the design decisions on insight collected from both previous concepts. That is to say, remove or improve elements that were negatively perceived and re-introduce or highlight positively received elements. How you chose to combine elements is up to the designer. When reaching the prototyping stage, utilize the same 1-4 steps for evaluating and testing the concept.

## 5.2 Advantages to the method

Based on personal experience gained during the project development, one presents the following advantages that comes with utilizing the above-mentioned method guide

### *Demonstrating potential to customers and users*

One of the most important advantages to the method is that it stimulates a potential real and future personalized product without the need for advanced technology. It can help attract potential customers or investors before allocating any resources needed for implementation. No project will continue unless it shows a clear return on investment. Digital marketers must therefore focus their goals with personalization and use this to create a well-argued, measurable business case (Bellec, 2020). Using the method to create a non-functional and personalized prototype can contribute to strengthening an early business case when presented to investors. Furthermore, it provides valuable insight into how a potential real product may or may not serve the company.

### *Feedback from end-users*

A personalized non-functional prototype made available to a sample of users helps to efficiently find out in advance how the product may be experienced by real-time users. One can simply construct a single “persona” and make it the basis for testing, as shown by the use of the persona method in step 1 and 3. The company will achieve varied feedback from a high number of users without the need for large amounts of user data and hundreds of different versions of the prototype. It further ensures a valid focus on users, giving them the chance to directly influence the development of both concept and design. The method can for example contribute to the discovery of problems relating to users’ feelings of trust or privacy.

### *Discovering early design problems*

The method provides the opportunity to test a design’s correctness and thereby discover potential early design errors. This through persona-based user testing and post-interview, as shown in step 3 and step 4 of the guide. Creating three different personalized prototypes which all are tested and improved upon fast makes it possible to resolve major problems before they cause financial damages, if any of them goes into production. For example, problems related to user experience, coherence or lack of intuitiveness in the design. The method further provides the opportunity to test and experiment with a variety of different potential design solutions and errors that may follow.

### *Validating the concept*

As with any technology or strategy, if personalization is implemented poorly or without an overall objective it will fail. The method provides an opportunity to explore and validate three different personalization concepts with users without the need for full commitment, as shown by all 5 steps of the guide. This will help avoid investing in a personalization engine prematurely. It further provides insight regarding different approaches to help determine which may fit the company's objective best.

### *Securing time- and cost efficiency*

The method provides the opportunity to explore personalization concepts without the need for large resources or timescales. This using the persona-part of the method. The method can be completed effectively in the course of a few months or weeks, depending on the size of the team. Further, the method is not dependent on advanced technology to be realized. It can be done using a low-tech prototyping program, as shown in step 2 and 3, thereby making it a cost-efficient approach. Furthermore, it helps developers to estimate development costs, timescale, skills and resource requirements for the realization of a potential real product.

## Chapter 6. Discussion - Sensitivity in three personalization designs

The following chapter presents a critical discussion of sensitivity in three types of personalization design. These are fully automated personalization, fully user-controlled personalization and hybrid personalization. Such discussion involves comparing the three to Fan and Poole's (2006) normative framework of personalization ideal "types" and placing them in the context of Pavličková, Nyre and Jurisic's (2013) definitions of trust and confidence.

### 6.1 A comparison between three personalization designs

In their analysis Fan and Poole specify four distinct kinds of user motives for using personalization systems: "aesthetic value for architectural personalization, social welfare/psychological well-being for relational personalization, productivity/efficiency for instrumental personalization, and material and psychic well-being for commercial personalization" (2006, p.198). The suggestion is that these motive types are indicators for different standards for assessing the effectiveness of personalization. Before discussing the balance of sensitivity in each of the personalization designs, one first makes a comparison to the personalization ideal types.

#### *Automated personalization*

Automated personalization can firstly be related to the instrumental view. It focusses on the functionality of the technology and aims at providing user-friendly tools to meet users' needs. Furthermore, it builds strongly on the instrumental assumption that users prefer systems that are designed and tailored to meet particular requirements (Fan & Poole, 2006). Its biggest advantage is being a system that adapts content to particularity suit individual news readers, i.e., a system that conveys the right functionality. One can further relate automated personalization to the commercial view. It aims at differentiating products and services to tailor to the needs of specific segments of customers, e.g., specific types of news interests. Further to fulfill users' material needs in the form of preferred news categories. In accordance with the commercial view, rich knowledge is key. The artificial intelligent algorithm is only effective to the extent that it manages to collect valuable user data and use it to differentiate between users' preferred news categories. That is to say, its purpose is singular – support users in reaching their goals of personalized news. The artificial intelligence has a central role in analyzing and presenting personalized news, thus the

functionality is of significant importance. Consequently, this places it in the class of productivity applications, emphasizing content, functionality and ease of use (Fan & Poole, 2006). That is to say, it has a main focus on maximizing convenience and efficiency through the use of an artificial intelligent algorithm.

To summarize, the automated personalization design is most probably a composite of Fan and Poole's (2006) instrumental and commercial aspects, whereas both contribute to making the design appear tailored to just a particular user.

### *User-controlled personalization*

The user-controlled personalization designed in the project can be related to both the relational and architectural view. Common for both of these views is a design emphasis on an individual's interaction with a given artifact. The user-controlled design focuses on improving the user experience by constructing a pleasant user space and a convenient platform for user-controlled interactions. Like the architectural view, it particularly relates to the interface aspect of the system. Its motive is to fulfill user needs and enable user expression through the design of a user-controlled news environment. As an example, it offers a selection menu to encourage and help users to customize their own news content. Based on the above mentioned, one can consider user-controlled personalization as being affect-oriented. That is to say, rather than being focused on getting something done, its focus lies in the process and experience itself (Fan & Poole, 2006). However, that is not to say that it fully relates to the class of entertainment applications. It is important to remember its fundamental purpose as an application for deliverance of news – it has to be a reliable and dependable source of information available to the public. Otherwise, it will not belong to the category of news applications. It has to be somewhat effective in getting the job done, that is to say, it has to make sure that the latest and most important news reaches the public daily in an effective and informative manner.

To summarize, this user-controlled design resonates mostly with the relational and architectural aspects, having an emphasis on user's feelings, both aesthetic and socioemotional. Its focus lies in reassuring users by giving them a sense of control, and to provide a pleasant user experience. This by giving users the chance to interact with the interface through user-controlled elements. It can therefore be assumed to correlate mostly with the class of entertainment applications. However, it is important to note that it also

resonates with some of the aspects of the class of productivity applications. That is to say, as a credible news application it has a responsibility for being productive in its deliverance of news.

### *Hybrid personalization*

It can be argued that this design can be related to the instrumental, commercial, relational or architectural view. However, it is most probably a composite of all four aspects. Each aspect contributes in some way or form to making the hybrid personalization user-centered and personalized to particular needs. According to Fan and Poole (2006), it is possible, and even likely, that several perspectives might be combined in designing particular personalization applications. As an example, Normark (2014) refers to his prototype construct as being a composite of three of the four aspects. Hybrid personalization can thereby be placed in the middle of productivity and entertainment. It lays emphasis on both functionality and user interaction. Functionality is emphasized by the intended system providing an artificial intelligent algorithm to analyze and filter news, thereby focusing on the content of the given system. User interaction is emphasized through the design and implementation of user-controlled options, thereby having the system concerning itself with individual use of the interface as well. To contextualize, the hybrid personalization utilizes an automated algorithm for effective personalization of news. That part of the system is all about technology and efficiency, basing itself upon the instrumental and commercial assumption that users prefer systems that are designed and tailored to meet particular requirements. It further gives users the option of overriding the algorithms' choices and replace them with personal preferences through a selection menu. In contrast, that part of the system relates to a relational and architectural emphasis on an individual's interaction with a given artifact (Fan & Poole, 2006).

It can, based on the above mentioned, be said that the hybrid personalization possesses both utilitarian and affect-oriented motives. The hybrid resonates well with all four aspects to some degree. It focuses on conveying functionality while also enabling user expression through its design. To put it another way, it tries to maximize convenience and effectivity by providing users with individually tailored content while also focusing on the process and experience of using the system.

## 6.2 The balance of trust

As stated by Pavlíčková, Nyre and Jurisic's (2013): "Media have to be trusted as credible sources of truthful and accurate information and as investigators of the government, politicians and businessmen in the name of the public. More importantly, media must also be trusted as commentators and analysts of important events, problems and processes in society, giving rational, well-argued reasons for their positions". Even though the same semantic content is distributed through different technological platforms, institutions and genres, one might nevertheless have different relationships of trust in each case.

Before discussing the different dimensions of trust in relation to the three personalization designs, one first puts it in the context of Fan and Poole's (2006) established framework. Confidence is described as being linked to stable conditions. That is to say, conditions that there is little to no reason to believe will suddenly stop working or stop meeting established needs. The instrumental and commercial aspects focus on efficiency and technology, meaning it does not establish itself upon the basis of personal experiences. Rather, it appeals to something familiar and well-known, something that one has come to expect to be the same as before. This in the form of technology and effective, familiar processes. It is thereby assumed that one does not talk about trust in instrumental and commercial aspects, but confidence. Such confidence can be said to base itself upon expectations based on previous experience with technology. Trust is linked to more uncertain conditions where the personal relationship is more important. The relational and architectural view can be said to base themselves upon users' personal feelings, both aesthetic and socioemotional. It focuses on the strategy of mediation and providing a convenient platform for users. The goal lies in the experience itself, that is to say, success is dependent upon users' personal experience of the system in question. The relationship between users and the personalization taking place can thereby be said to be more personal. Users must be willing to accept vulnerability to a certain degree, putting their trust at risk. The same goes for the aesthetic and socioemotional aspects, rendering the dependence, to some part, mutual. That is to say, there must exist a willingness from users to trust a product and risk that their personal expectations are not met, and a willingness from the designer to trust his users and risk that the system manages to fulfil users' needs. This suggests that one in reference to relational and architectural personalization often needs to talk about users' trust rather than confidence.

### 6.3 Potential for balance of trust in three personalization designs

One continues with a comparison between Pavlíčková, Nyre og Jurisic's (2013) definitions of trust and confidence and the three personalization designs. Such entails discussing the potential balance, or imbalance, of trust and confidence in each of the personalization designs and further comparing them to each other.

#### *Automated personalization*

Based on the above mentioned one can make the assumption that the automated design first and foremost generates confidence. Confidence lies in a user's emotional assessment in their understanding of the product. That is to say, it is all about a user's confidence in using the product and how they feel about themselves when using it. Regardless of trust in a product, users will not utilize it if they are worried about using it correctly. They must be willing to rely on themselves and have confidence that they are able to use the product (McKay, 2018). With the automated design such uncertainty is removed, that is to say, there is little personal risk associated with the personalization design. There is little room for personal mistakes from users, this since the system is fully automatic in its operations and all choices regarding personalization is done for them. Users might not know how the algorithm operates, but there still exists a fundamental belief in the technology as something familiar. It can thereby be said to provide confidence by enhancing efficiency and personal productivity through the use of technology. Confidence further takes the form of a relationship with the information provided as well as expectations to the genre. Users might not know the full extent to how content is provided, but they still make the assumption that there are certain processes within which the journalistic content has been produced. Further that whatever content that is provided is a representation of actual news. Such confidence is, of course, dependent on the producer of content (Pavlíčková, Nyre & Jurisic, 2013). As an example, one can assume that such confidence would exist if TV 2 were to introduce a fully automated design approach. This given TV 2's position as a well-established public institution in the Norwegian media landscape. However, less-established businesses utilizing a automated design might experience less information and genre-based confidence. Such an assumption is based on collected insight from user testing, further described in the separate impact report.

Trust is a relationship one has to earn with users. This by consistently demonstrating confident, open, respectful and honest behavior to the extent that people are willing to rely upon or take risks with something or someone. It has to be earned by the way one chooses to

do tasks, this so that users can feel good about the product and is willing to take risks with it (McKay, 2018). The automated design takes for granted its users in that it presumes that they trust that the program will always get it right. That is to say, the design takes for granted that the user and the algorithm agree on the personalized news categories that are presented. Users have no way of controlling it. Furthermore, its functionality, though effective, may appear unclear or intrusive. Even though users might be aware that by turning on personalization they agree to having an algorithm take control of their content, it still might not be fully clear to them exactly what they are agreeing to by using the service. In addition, they lack the opportunity to control the dissemination of their personal or behavioral information. Such can lead to users becoming skeptical, ultimately lessening their trust. The lack of user control is another aspect one might consider. Users should feel taken care of and involved in the design to some degree for the product to be seen as trustworthy. The total exclusion of user opinion and control leads to a lack of personal reliance. That is to say, users may not be willing to take the risk of trusting the product. Based on the above mentioned one can make the conclusion that there exists an imbalance of trust and confidence in the automated personalization design. It has the potential for generating a fair amount of confidence but is lacking in trust.

#### *User-controlled personalization*

It is assumed that the user-controlled design generates a higher amount of trust compared to the automated personalization, this due to its user-controlled options. The assumption is that by providing a sense of individual control one creates a more personal relationship with end-users, which again, makes it easier for them to rely on the product. To exemplify, one can consider the user-controlled options as trust builders. With the automated design one risks not getting the desired content, that is to say, the program may make incorrect assessments of users desired news content. There might be a fundamental confidence in the technology, but that is not to say that it is trustworthy. There is something at stake: possibly getting undesired content that one has no chance of correcting, wasting both time and patience. Users might not be willing to take that chance. A better option would thereby be to choose your own categories manually and be certain. By providing users with personal choice, one removes the associated risk while also strengthening the sense of individual control. That is to say, the product will do what the users want and respond accordingly, lessening the fear of taking risks and increasing the potential for trust.

The question then becomes to what extent individual control might disturb the balance of confidence. That is to say, to which degree it might affect users' willingness to rely on themselves when using the product. Compared to the automated design there is more uncertainty regarding users' emotional assessment in their understanding of the product, i.e., their confidence in technology might be lower. The class of entertainment applications, which the user-centered personalization resonates the most with, capitalize on the process and experience of using the system. The class of productivity applications, on the other hand, lays focus on key-usability issues such as ease of use, clarity, consistency, freedom from ambiguity, and error. These are all design elements that help build a user's confidence. The automated personalization removes most of the potential usability-issues by being almost fully automatic. That is to say, it leaves a very small room for users to make mistakes with the interface. By not involving the consideration of alternatives it builds confidence as something stable and well-known that there is little reason to believe will stop working. The user-controlled personalization on the other hand introduces more components for users to interact with and removes elements of familiar technology, forcing users to rely more on themselves. Having more control over their own interface can thus affect users' confidence in using the product and how they feel about themselves when using it. This does not mean that the user-controlled approach cannot generate high confidence in terms of its technology. It just indicates that there is a higher number of potential usability issues associated with it, which demands more sensitivity and consideration from the designer. However, its potential for confidence in the form of a relationship with the information provided as well as expectations to the genre are equal to the automated approach, this for the same reasons stated. Based on the above mentioned one can make the conclusion that there exists an imbalance of trust and confidence in the user-controlled personalization design as well. Compared to automated personalization the user-controlled personalization generates a greater amount of trust, but risks losing confidence in technology by giving more control over to the users.

### *Hybrid personalization*

Given the above one makes the assumption that the hybrid design best balances confidence and trust. This through its combination of automated and user-controlled alternatives. The automated design generates confidence by being a technology-driven and easy-to-use interface. It is believed that the introduction of automated technology provides users with confidence in using the program correctly, that is to say, it generates a prevailing sense of being sure. However, this has been concluded to affect the automated design's potential for

trust. Confidence in a technology does not equal trust, and in the automated design technology is given to much control. This leaves users feeling unsure. The user-controlled design counters such by providing more individual control and thereby establishing a more personal relationship with its users. It removes the personal risk of having to trust an artificial intelligent algorithm, handing control over to its users. This makes it easier for users to rely on the program. Users are, after all, personally in charge of their own content, meaning they can manually do tasks and be certain about the outcome. However, this has been concluded to affect the user-controlled design's potential for confidence. User can no longer rely on familiar technology, that is to say, they have to rely on themselves instead. Such might increase the potential for usability issues, ultimately affecting users' confidence in the system.

Where the other two fail to balance trust and confidence, hybrid personalization introduces a combination that can be said to balance both. The design generates confidence by having an artificial intelligent algorithm provide individually tailored news content. It generates trust by having user-controlled options that enhances individual control. In other words, it balances a reliance on both the program and on users themselves. Users can rely on technology to get personalized content, thereby removing potential usability issues associated with doing it manually. This leads to increased confidence in using the system correctly. However, where the automated design fails in generating trust, the hybrid personalization removes such risks. Users can manually correct the algorithm and thereby feel certain that there is less personal risk associated with trusting the system. To exemplify, if the algorithm makes an incorrect assessment of a user's preferred news interests, he can adjust it manually through a user-controlled selection menu. Where the user-controlled design runs the risk of reducing confidence, the hybrid personalization lays emphasis on providing options. The users are not completely left to themselves, that is, they have the opportunity to rely on the technology as well as themselves. It does not force users to be self-reliant in the same way the user-controlled design does, thus strengthening users' confidence in using the program correctly. If a user does not wish to rely upon himself and make manual selections, he can have confidence in the technology to do it for him. Based on the above mentioned one can make the conclusion that there exists an imbalance of trust and confidence in both the automated and user-controlled personalization design. Such imbalances are countered with the hybrid personalization design, this by combining aspects of each individual personalization design that leads to increased confidence and trust.

## 6.4 Limits to personalization

Given the above mentioned, it is important to acknowledge that there should exist a limit to personalization in the news. That is to say, there should be limits to how accurate personalization should be presented to users. Otherwise, one runs the risk of unhealthy relationships occurring. To exemplify, if users were given the option of getting news content personalized based on preferred journalists, it might lead to the creation of personal identifications. Such would lead to personal relationships becoming too important in the selection of personalization. That is to say, it would introduce a new perspective of trust in the personalization process. All personalization is, to some degree, unnatural in its processes. This regardless of it being user-controlled or automated. If an AI, or the user himself, were given the choice of deciding whether an author was to be deemed “preferred” or “unpreferred”, it might end up cultivating a very strange relationship with news content. It can be related to Pavličková, Nyre og Jurisic’s (2013) definitions of trust. Users often create a more personal relationship of trust to a particular name or journalistic personality, thereby linking it directly to suspicion and doubt. Introducing such potential associations to the processes of personalization poses a major risk. Users might simply choose to not read certain news content due to being given the choice of not liking the author. In such cases a hybrid solution might be the worst outcome. Not only would a hybrid system utilizing an AI make users aware of preferred and unpreferred authors, but it would further give them the chance to make personal selections based on feelings of suspicion and doubt. These are important considerations to reflect upon when discussing the potential for personalization in both the hybrid system and other system of personalization.

## Chapter 7. Conclusion

In an effort to answer RQ1, this thesis presents a 5-step user-centric ideal method for sensitive personalization design. The method entails the construction and testing of three prototypes each representing a personalization system – automated, user-controlled and hybrid personalization. At step 1 construct a persona representing the average news reader. It has to contain specific news preferences and dislikes that are easy to present in a design. At step 2, construct a personalization system representing fully automated personalization. Adapt the content of the personalized interface to match the given personas traits and interests. At step 3, have participants test the interface of the given system while role-playing the persona, immersing themselves in its interests and traits. This while also giving them specific user tasks to perform. At step 4, perform a semi-structured interview with each participant to discuss immediate thoughts. When at step 5, start a new development cycle. Go through steps 1-4 again, this time while constructing and testing user-controlled personalization. When reaching step 5 a third time, start the last development cycle focused on hybrid personalization. For each new cycle, improve and add to the general design based on feedback from the previous cycle.

The above-mentioned method provides a range of advantages for constructing and testing personalization systems. Utilizing the persona approach to develop and test personalization systems enables the opportunity to demonstrate a concept's potential to both customers and investors before having to allocate any resources needed for implementation. It further ensures a valid focus on the involvement of end users while also providing the opportunity to test a design's correctness and discover potential early design errors. This by enabling the creation of a scenario where a prototype can be experienced as being personally adapted to testers, even though choices are constructed in advance. Such also makes for an efficient way of understanding how individuals interact with personalization systems with respect to the extension of trust, and how such extensions can be addressed by design. Lastly, and most importantly, the method facilitates for a time- and cost-effective design process. It can be done in the course of a few months or weeks depending on the size of the team. Furthermore, the method is not dependent on advanced technology to be realized, that is, it can be completed using a low-tech prototyping program. Collected insight as well as the final prototype that resulted from the use of method can be viewed in the separate impact report.

### *Future research*

The personalization technology of today requires a large number of resources, both in terms of money and time. Making design plans on behalf of such expensive processes is therefore to be deemed important. The presented method holds the potential for doing so very efficiently. By being a cost-effective solution, the method opens up for all companies to more easily explore the potential of advanced personalization technology. It reduces the chance of funds being wasted by providing relatively good insight without the need for large assets. One could refer to it as a type of fail-fast process. It is beneficial for any given company to come to the conclusion that they should not invest in expensive personalization technology within a couple of weeks instead of, for example, five years. Businesses interested in the technology can save a lot of money and time by utilizing the method to explore the potentials of personalization more easily. It could also lead way for a greater focus on user-centric design and the extensions of trust in the development of personalization technology.

The results presented in this thesis is based on a limited set of user tests in an experimental setting. Future research should provide a broader evaluation of the use of method. For example, by constructing and testing with more personas. Further, by testing on a larger group of people while having a greater focus on the addressed limitations of the method. The potential for implementing the method in the design and testing of other technologies should also be considered in greater detail.

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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)

---

#### 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, rettfærdighet 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 fremside 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
    1. Hvis de kjapt trykker på pil: Var det intuitivt og stolte du på at valgene dine var lagret i det du trykket?
    2. Hvis de stusser og leter etter en lagre-knapp: Hvorfor stusset du, var det noe du følte manglet?
  - Var den oversiktlig? /Hvor intuitivt følte 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?