

## **News personalization in the era of news algorithms**

Know your social media news feed! - Is news personalization in the algorithmic age shaping reality?

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### ABSTRACT

With the advent of social media platforms and algorithms, news consumption and journalistic practices are changing. Algorithms filter and recommend news for users on social media, and are also deployed in the newsroom. The way algorithms personalize news for users, and are embedded in journalistic practices is, however, also the subject of concern and comes with challenges. Algorithms can, for example, cause filter bubbles and spread fake news in personalized social media feeds. Also, combining the nature of algorithms with journalistic values can be challenging. Ultimately, news personalization, together with its challenges, can have an impact on how young users' reality is constructed. The question also is whether users are even aware of their news being personalized. Therefore, the main research question was formulated as: *What is the perceived influence of news personalization on individual perceptions of reality among young Dutch social media users?*

To uncover this, in-depth interviews were conducted with ten young Dutch social media users between 18 and 29 years-old. A grounded theory approach was taken to analyze the data, which resulted in four main themes. First, the shifting role of news was recognized as users mostly consumed news via social media, but also expressed doubts about the combination of journalism and algorithms. Second, the level of awareness towards news personalization was found to be minimal regarding news personalization, as well as the perceived level of control. For this, users indicated having to take responsibility, but would also like to see news organizations be more algorithmically transparent. Third, a paradox was recognized in the way news personalization is perceived by users. The personalization of news is stated as twofold and indicated by participants as convenient, as well as dangerous for example. Fourth, participants stated news personalization having a significant impact on the construction of their reality and on how they view the world.

Taking together, these results show a lack of awareness amongst the young Dutch generation regarding news personalization, perceptions on news personalization as paradoxically, and the perceived influence on perceptions of reality is indicated as significant. Furthermore, this research forms implications for media literacy programs, as well as for news organizations that could improve on algorithmic transparency. Also, the Dutch government can play a role in increasing awareness and future research is advised to focus more on this important topic to provide insights on a larger scale.

**KEYWORDS:** Social media news consumption, computational journalism, news personalization, algorithmic awareness, construction of reality

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# 1. Introduction

## 1.1 Social media news consumption and ‘myth traps’

On October 18<sup>th</sup> 2020 the ‘online fabeltjesfuik’ episode of the satiric news program *Zondag met Lubach* aired on Dutch national television which got widespread attention in newspapers, on YouTube, and on social media afterward. The host, Arjan Lubach, introduced the concept of the online ‘fabeltjesfuik’ in this episode which can roughly be translated as the online ‘myth trap’. With this trap, the host refers to a parallel reality people get sucked into when being on social media, and the opinion that is formed through this myth trap. Concerning news and information, it can form a rather radical opinion and a certain reality when falling for such traps online. Distrust towards the media and information society is therewith also growing (De Wit et al., 2020).

Other news media also warn about the fact that social media can form or even deform users’ opinions. Avid social media users sometimes lose sight of how the machinery behind it works. Few realize that these media are constructed to please, and users thus have their own opinion presented as the truth (Van Clé, 2020). NOS, a Dutch public-service news outlet, also argues that it is quite easy to end up in a ‘filter bubble’ where information is presented that confirms a user’s opinion, rather than challenging it. Moreover, users’ worldviews can be affected through this dynamic of social media. The ‘echo chamber’ of the internet echoes similar information and users are not consciously seeking to invalidate their opinion that can be formed through this. Also, the information presented does not necessarily have to be true, as misinformation is common online (Schellevis, 2021).

Phenomena such as the myth trap, filter bubbles, and misinformation increasingly dominate the public discourse, next to the academic debate. This stresses their importance and possible implications, as especially online and social media news consumption have increased significantly in recent years (Newman et al., 2020). Young users use social media the most daily and also consume news the most this way (Watson, 2020). For some of the younger generation, social media are their main source for information and news (Geers, 2020), as they argue that consuming news this way will give them a broader scope of opinions and information (Flintham et al., 2018). The question whether that is actually the case, however, is twofold. First, phenomena such as filter bubbles and echo chambers are present online, giving a specific selection of information to each individual (Schellevis, 2021). Second, the

consumption of news via social media does not always happen with the intention to actually consume it. News articles are for example stumbled upon when scrolling through Instagram or Facebook, making news consumption incidental and a byproduct of social media use (Boczkowski et al., 2018). But are young users aware of how these news articles appear in their feed and what possible concerns and implications are related to social media news consumption?

## **1.2 News personalization and algorithms**

The way news articles appear in users' social media feed can be explained by algorithms. Algorithms determine the flow of information that users encounter online and depend on (Gillespie, 2014). They are the key logic that creates a personalized experience online based on users' preferences and for example previous browsing behavior (Haim et al., 2018). As social media use is part of young users' everyday life nowadays, these algorithms present in the online world are also part of their everyday life (Willson, 2017). Algorithms thus shape what users see, what they experience, what they know, and what they discover. They choose what is most relevant, most important, and therefore most visible to users online (Beer, 2017).

As news is produced for the online context and social media on large scale in today's digital world, these algorithms also personalize users' news feeds and determine what news articles are shown and which are not (Helberger, 2015). Not only are these personalization techniques used by social media platforms, but they are also deployed in the newsroom. This type of journalism can be referred to as computational journalism and entails "the advanced application of computing, algorithms, and automation to the gathering, evaluation, composition, presentation, and distribution of news" (Thurman, 2019a, p. 180). Diakopoulos (2019) therefore calls this current period "the era of news algorithms" (p. 1). The use of algorithms in combination with journalism is, however, also the subject of critique. Some scholars argue that it can lead to the one-dimensionality of news (Thurman et al., 2017), and are critical towards the relationship between ethical values of journalism and the way this is combined with the way social media platforms work (Thurman, 2019a).

Traditionally journalists have a role in society of setting the news agenda and being gatekeepers of information by determining what information is valuable and newsworthy and is thus entered into the public debate (Brüggemann, 2014). This role is shifting, however, with the advent of technologies such as algorithms and the spread of news via social media

platforms (Deuze & Witschge, 2017). The relationship with the audience is also different, as they are not passive readers anymore, but can actively share, read, and comment on news online (Bro, 2016). It is argued that the internet has busted open the gates through which information flows and that the traditional role of journalists has gone (Shoemaker & Vos, 2009). A multiplicity of gates exists nowadays (Vos, 2015), and with the growing role of algorithms and social media platforms in news consumption and production, the question has raised: Who has the power in today's information landscape and who is ultimately in control?

### **1.3 The power of algorithms and young users' awareness**

Several scholars recognize the growing power of algorithms and social media platforms (Just & Latzer, 2017; Willson, 2017). Next to the traditional journalists, algorithms today also select and recommend news for individuals. They co-govern what is shown online and therewith also co-shape how individuals' reality is constructed (Just & Latzer, 2017). Together with the platforms, algorithms can shape users' opinions, shift their worldview, and ultimately have a role in how reality is perceived by users (Beer, 2017). This is specifically the case for young users who grew up with technologies such as algorithms and sometimes solely rely on social media as news and information source (Powers, 2017).

In the public debate, this impact is also discussed more and Dutch public news media for example express their concerns regarding the new digital world that causes people to experience more on an individual level than together. Also, because they are in an environment on social media where similar kind of information is presented to them, it is even argued that this can lead to radical opinions, polarization, and forms a threat to democracy (Van Dam, 2021). Van Dam, a board member at the Dutch Public Broadcaster, furthermore states that on social media the real is difficult to distinguish from the fake. Users' reality and opinions could thus be based on fake information without them even knowing about it. This is also dangerous for the trustworthiness of news and he therefore pleads for an authenticity stamp regarding the news. The Dutch Public Broadcaster is, furthermore, working on the idea of 'public algorithms' to prevent one-sided news. This would allow for an opinion and worldview based on multiple perspectives instead of just one that is algorithmically presented to users (NPO radio 1, 2021).

Sometimes users, especially young users, are unaware of the fact that algorithms filter news and information for them on social media and thus possibly have a role in shaping their reality (Cotter & Reisdorf, 2020; Powers, 2017). It is, for example, not emphasized when

scrolling through social media that algorithmic recommendation systems are present or how they work. Algorithms on social media thus operate as hidden processes (Eslami et al., 2015). It is also argued, however, that users do know that algorithms exist, but can't explain how they exactly work and how they personalize content for them (Brodsky et al., 2020). The fact that users know they exist might, however, not be enough to have the awareness regarding the role in co-constructing their reality. There is growing attention in the academic debate, as well as the public debate when it comes to algorithms and social media news consumption, but there is limited knowledge on the level of awareness among young users about news personalization. This is important, however, especially for the young users who grew up in a digital world and use social media as their main news and information source (Geers, 2020). The question is whether they are aware of how their worldview is possibly co-constructed by technology.

#### **1.4 Research question**

Due to changes in the digital world and the advent of algorithms on social media, several previous studies have given attention to the consumption side and awareness surrounding this (Brodsky et al., 2020; Bucher, 2017; Eslami et al., 2015; Powers, 2017; Rader & Gray, 2015). The results on awareness are divided, however, as some studies indicate users being somewhat aware of algorithms (Brodsky et al., 2020), while other results show less awareness (Eslami et al., 2015). Furthermore, there are only a few studies dedicated to how algorithmic awareness relates specifically to news and the impact news personalization could have on young users' worldview (Monzer et al., 2020; Powers, 2017). This is, however, an important topic as the younger generation relies on social media heavily (Geers, 2020), and the power of algorithms is rising (Willson, 2017). Therefore, this research aims at exploring the perceived influence of news personalization on individual perceptions of reality. Algorithmic awareness and the way news personalization is perceived are important topics relating to this. The following research question and sub-questions were formulated to uncover this:

*RQ: What is the perceived influence of news personalization on individual perceptions of reality among young Dutch social media users?*

(1) How aware are users of the shaping of their reality through news personalization?



(2) How do users perceive news personalization?

## 1.5 Scientific relevance

According to Diakopoulos (2019), algorithms are rewriting the media and thus also news media. In the current academic debate, the growing presence of algorithms in news media is discussed in several studies. Both on how this changes journalistic practices (Bro, 2016; Thurman, 2019a), as well as the shift that is visible in the consumption side of news (Boczkowski et al., 2018; Geers, 2020; Newman et al., 2020). Nowadays new forms of journalism, such as computational journalism, have for example occurred (Diakopoulos, 2019). On the consumption side of news, it is recognized that a shift has been made to more digital and social media consumption (Newman et al., 2020). Challenges and concerns are also discussed in relation to this (Spohr, 2017; Zuiderveen Borgesius et al., 2016), but how this shapes reality and can have an impact on young users' worldview is explored to a lesser extent (Just & Latzer, 2017).

Furthermore, Thurman et al. (2019b) state that algorithms and the recommendations they make are not new, but research relating to news personalization and audience perceptions on algorithmic and journalistic news selection is largely non-existent. Bodó (2019), in addition, argues that there is little insight into the attitudes, expectations, and concerns of users regarding news personalization. There is thus not a lot of attention given to the impact and meaning of news personalization for users. It is, however, an important topic as it can play a role in shaping the reality of users and impact how they view the world (Just & Latzer, 2017). News personalization can, furthermore, also change the relationship between the audience and news media. This can ultimately have an impact on how users engage with news media and how they might see the utility of it (Monzer et al., 2020). Overall, there thus needs to be more insight into the relationship between algorithms and end-users (Bodó, 2019), and audience perceptions on news personalization (Thurman et al., 2019b), as this is under-researched in the current debate.

Moreover, as algorithms come with challenges and concerns, several scholars stress the importance of research on algorithmic awareness (Brodsky et al., 2020; Dogruel et al., 2020; Powers, 2017). Several young users are for example unaware of how their social media feed is curated or the fact that algorithms are present on online platforms (Eslami et al., 2015). Algorithmic awareness has been given attention in the academic debate, but awareness about news personalization is less researched (Monzer et al., 2020; Powers, 2017). Also, the

exclusive focus on young adults in existing research on news personalization awareness is less present, while this is the group that relies on social media news the most (Powers, 2017). Lastly, as the results of existing algorithmic awareness studies differ significantly, more research is needed and this research can add value from the Dutch context to the current debate.

## **1.6 Societal relevance**

News and journalism traditionally have an important role in society by informing citizens about contemporary matters of public importance and interest. The news stories that are produced are strived to be presented truthfully and sincerely to diverse audiences (Schudson, 2011). However, the role journalists historically have as central gatekeepers of information has shifted with the advent of algorithms (Vos, 2019). Algorithms are embedded more and more in different sectors of society and are taking a crucial role in decision-making processes (Gran et al., 2020). They are part of today's society and are also interwoven in news production, distribution, and consumption practices. Algorithms on social media platforms for example filter news for users and therewith determine the information flow and 'truth' of individuals nowadays (Nechushtai & Lewis, 2019).

There are, however, several challenges and concerns when it comes to the way this 'truth' is determined. First, the aforementioned phenomena such as fake news and filter bubbles can form a threat to democracy and thus have a significant impact on society (Gran et al., 2020; Van Dam, 2020). Also, on an individual level, it can have significant implications for individuals' worldview and reality. Algorithms can co-shape the construction of users' reality and shift worldviews (Just & Latzer, 2017; Willson, 2017). Especially for the younger generation, the impact on their reality can be significant or even problematic (Powers, 2017; Spohr, 2017).

The fundamental and democratic role algorithms thus play in society, suggests the need to gain more insights into users' knowledge and awareness about them (Gran et al., 2020). It is important to understand how young users perceive news personalization and gain insights into their knowledge regarding algorithms and possible concerns relating to this. Do they see the dangers for example or perceive the personalization of their news feed as rather convenient? Moreover, it is vital to know how algorithmic aware the younger generation is regarding their news consumption, as it can have significant implications for how they see the world. This research is thus set up to uncover what the perceived influence of news

personalization is on young social media users' perception of reality. The results of this research can ultimately form implications for media and algorithmic literacy programs in society.

## **2. Theoretical framework**

This chapter explores current academic literature on news consumption, production, and distribution in the current digital information landscape. The advent of social media and new technologies such as algorithms are changing the way news is consumed and shape journalistic practices. Furthermore, these new digital technologies can possibly shape the reality of young users and bring challenges for both the consumption as well as the distribution end of news. Understanding the changing role of journalism and the audience nowadays, together with the challenges that arise, is important and will therefore be explored in this chapter.

### **2.1 Digital news consumption and changing journalistic practices**

#### **2.1.1 Digital news consumption**

News consumption has changed over time with more people turning to online sources and social media to gain an understanding of the news. Traditional printed newspapers or television news are becoming less popular and less consumed in today's digital media landscape (Newman et al., 2020). Especially the younger generation is not interested in these traditional forms of news consumption anymore (Geers, 2020). According to this generation consuming news through social media gives a broader scope of information and opinions (Flintham et al., 2018). Furthermore, as social media enables participation and multiple ways to communicate, users not only consume news, but are also part of the production process and can collaborate and interact with news outlets (Hermida, 2016). Users can also share content with friends and spread news via their social media profiles (Segado-Boj et al., 2019). The audience as a passive reader or user is thus an outdated thought as they are now taking a more active role as consumers (Hermida, 2016; Spyridou, 2019 ).

On the level of news consumption and production by users, two dimensions can hence be recognized. Users can internalize news by reading content that news media and others share, but they can also externalize news by sharing and providing their followers and friends with news stories (Segado-Boj et al., 2019). The way users are actively involved in the production process of news can also be described as citizen journalism. This type of journalism can be defined as “the involvement of nonprofessionals in the creation, analysis, and dissemination of news and information in the public interest” (Roberts, 2019, p. 1). The

audience then contributes to serving the public interest through engaging in this process and co-creates public information. With this, they are part of constructing meaning and co-determine the public news agenda (Roberts, 2019).

Popular media platforms for digital news consumption and co-production are Facebook, Twitter, YouTube, and in recent years also Instagram (Newman et al., 2020). As a wide range of media platforms are available nowadays, choosing a specific traditional media outlet to consume news from is not necessary anymore. There is thus a great array of choice, but despite this possibility not all young users specifically choose to consume news (Geers, 2020). Consuming news on social media amongst the younger generation generally happens in a moment of leisure or incidentally. News stories can be stumbled upon when scrolling through a social media feed for example, and hence are in that sense a byproduct of social media use (Boczkowski et al., 2018). Subsequent to this is the ‘news finds me perception’ which refers to young users believing that news will eventually find them without directly seeking for it (Toff & Nielsen, 2018). As social media platforms already provide the information they are interested in, the need to actively follow mass media is not present (Gil de Zúñiga et al., 2017).

The convenience of consuming news through social media is mostly praised by users, but scholars also point out that there are downsides to it and that consuming news incidentally can be problematic (Flintham et al., 2018; Gil de Zúñiga et al., 2018; Segado-Boj et al., 2019). Gil de Zúñiga et al. (2018) for example state that users become highly dependent on what is presented to them on social media which can lead to less quality in information and less trustworthy news stories. Also, the ‘news finds me perception’ is not based on rational decisions about which media and which news to consume. Users rather repeat previous patterns and to a lesser extent evaluate the available options online (Segado-Boj et al., 2019). This perception and other patterns in news consumption indicate the change young consumers have undergone with the advent of digital and social media news and help understand in what way they currently consume news.

### **2.1.2 Digital journalism**

Next to the change in the way news is consumed, especially by the younger generation, social media and other new technologies have also changed journalistic practices. Social media for instance are used by journalists in their everyday practices, are part of their technological infrastructure, and are intrinsically woven into the newsroom nowadays

(Gulyás, 2017). Hermida (2012) defines three areas in which journalists and news organizations use social media the most. Firstly, social media are used to gather news and find newsworthy information, stories, and sources. Second, social media are deployed for reporting news. Large news media corporations usually work with multiple platforms and for example make live blogs, videos, image posts, and podcasts (Malik & Shapiro, 2017). Lastly, social media are used by journalists to recommend news and extend the reach of news (Hermida, 2012).

The way social media and digital platforms are interwoven in such daily practice of news organizations and journalists can be referred to as digital journalism (Cammaerts & Couldry, 2016). This type of journalism is focused on creating newsworthy stories for the digital context and, according to Malik and Shapiro (2017), has a few distinct characteristics which are afforded by the digital landscape. It is amongst other things interactive, as audiences can respond, unfinished, as it can be changed anytime online, but also personal as the online language is conversational. They, furthermore, state that digital journalism revolves around the relationship between the news organization and the audience. The way the digital environment affords interactivity and engagement in this relationship is significantly shaping journalistic practices, as well as consumption practices.

### **2.1.3 Algorithms and computational journalism**

Besides social media, new computer technologies and software also contribute to a change in journalism. These new technologies transform journalism in the way that it is becoming more and more automated (Linden, 2017). Algorithms are such a form of technology that contributes to this and can be defined as “a key logic governing the flows of information on which we depend” (Gillespie, 2014, p. 167). They for example determine what is visible online and therewith are partly shaping the magnitude of human knowledge (Gillespie, 2014). Algorithms base search results on Google, recommendations on YouTube, and posts in social media feeds on users’ interests, demographics, or previous browsing behavior to create a personalized online experience (Haim et al., 2018).

This automation process is also present inside newsrooms. Automation happens in the area of gathering news, but also when news stories are composed, information is filtered, and eventually when the news is shared (Diakopoulos, 2019). This way journalists can spot what is potentially newsworthy and filter through stories and information in a structured manner, and also give users news stories that fit their preference (Thurman et al., 2019a; Thurman et

al., 2019b). Diakopoulos (2019) therefore describes the current period as “the era of news algorithms” (p. 1).

Journalism in this era of algorithms, that makes use of such computer technologies, can be called computational journalism (Thurman, 2019a). The term was coined in 2006 by Essa and was firstly defined in 2007 by stating that it involves the use of computation in the interface for online news and the overall use of ‘new media’ to tell news stories (Diakopoulos, 2007). Since then, several scholars have used the term and defined it in different manners. Hamilton and Turner (2009) for example see it as a combination between social science, computer science, and journalism and define it as “the combination of algorithms, data, and knowledge from the social sciences to supplement the accountability function of journalism” (p. 2). They were optimistic about this type of journalism in the sense that it would also afford more blending between the audience and journalists. Diakopoulos (2011) shared the optimism for a more prominent role for the audience, as it could lead to more public response, communication, and personalization. Flew et al. (2012) furthermore state that from the journalistic perspective the value of computation and automation mostly lays in the fact that the attention can be shifted more to the explanation and communication side of news for journalists, rather than spending time on obtaining information.

More recent definitions of computational journalism encompass not only the finding and sharing of news stories with the help of algorithms, but also news stories about algorithms (Diakopoulos & Koliska, 2017). Later, Diakopoulos (2019) added that computational journalism revolves around exploring the relationship between the way algorithms work and how they are used in news production, while keeping journalistic values in mind. Thus, blending journalistic ideology with the affordances of computation. Thurman (2019a) also describes this blending of journalism and computation in his definition of computational journalism, as he refers to it as “the advanced application of computing, algorithms, and automation to the gathering, evaluation, composition, presentation, and distribution of news” (p. 180). This use of algorithms, automation, and computation in the newsroom goes hand in hand with social media nowadays. Journalists are filtering and gathering newsworthy information on social media platforms, present the news on such platforms, and distribute stories on social media in a personalized manner by using algorithms (Thurman, 2019a).

Scholars are, however, also critical towards computational journalism. Anderson (2011) for example critiques the fact that there is too much focus on the tools in most definitions of computational journalism. He calls for more attention on political, social, cultural, and organizational aspects of journalism and thus an interdisciplinary approach to the

phenomena. Others critique the nature of this type of journalism and the use of certain computation techniques by news organizations. Thurman et al. (2017) for example state that it can lead to one-dimensionality, and Ford and Hutchinson (2018) are critical towards the dumbed-down nature of data used with computational journalism. Lastly, Thurman (2019a) emphasizes staying critical towards the consequences this type of journalism has on the level of economics and ethics for journalistic expertise. Unlimited amounts of information and news can be sent into the world and on platforms, while an institutional affiliation might not be present. Altogether, it can be stated that the digital environment and new technologies have given new shape to news and new types of journalism (Cammaerts & Couldry, 2016), but this also comes with challenges and consequences for traditional journalistic practices.

## **2.2 News personalization and the construction of reality**

### **2.2.1 News personalization and its challenges**

These challenges mostly have to do with the digital environment and the way algorithms work. As mentioned before, algorithms create a personalized online experience for users based on their individual preferences (Haim et al., 2018). The algorithmic recommendations on social media afford a tailor-made news feed (Helberger, 2015), and helps users cope with the abundance of news and information available online. Platforms such as Facebook are designed to facilitate their users with selective information to deal with the information overload (Spohr, 2017). As algorithms are part of the online environment, and spending time online is part of the everyday practices of people more and more, algorithms can almost not be avoided anymore (Willson, 2017).

News personalization is described by Thurman (2011) 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” (p. 397). Here, explicit preferences refer to choices made by individuals themselves of what they like to see, and implicit preferences refer to those based on previous browsing behavior for example. Both algorithms, as well as social media platforms, enable personalized content this way (Thurman, 2019b). Some scholars praise the personalized experience online (Liu et al., 2010; Zuiderveen Borgesius et al., 2016), while others raise serious concerns regarding the failure of free-flow of information,



misinformation, or one-dimensionality of personalization (Bódo, 2019; Domingo, 2019; Kitchens et al., 2020; Pariser, 2011).

### **2.2.2 Filter bubbles, echo chambers, and fake news**

This one-dimensionality of information through personalization can also be referred to as selective exposure, or as being in a personal ‘filter bubble’ (Pariser, 2011). Such a filter bubble means being in an information-limiting environment due to algorithmic filtering, with exposure to narrow information aligned with personal preferences. Through this filtering individuals generally see opinion-reinforcing information, which can lead to the exclusion of opinion-challenging information. This can shape someone’s opinion or viewpoint and is done with minimal diversity in perspectives or sources. A negative impact of this, is that it can for example lead to social fragmentation or intellectual isolation. Being in such a bubble often occurs without people being aware of it and is difficult to escape (Pariser, 2011). It is also pointed out that it could possibly be a threat to democracy and can lead to ideological polarization when algorithmic recommender systems don’t show a diversity of opinions and viewpoints. Isolated communities would be created in the public sphere through selective exposure, making national consensus nearly impossible for example (Spohr, 2017).

The online environment, with personalization through algorithmic recommendation systems and selective exposure, can also be conceptualized as being in an echo chamber (Sunstein, 2007). The ‘new’ information that enters this environment echoes what is already known by an individual. Referring back to Pariser’s (2011) notion of the filter bubble, an echo chamber thus deals with opinion-reinforcing information rather than information that challenges the already existing opinion. Despite the widespread attention filter bubble and echo-chamber theory get in the public debate, not all studies show evidence of the consequences and actual presence of the concepts (Nechushtai & Lewis 2019; Zuiderveen Borgesius et al., 2016). Zuiderveen Borgesius et al. (2016) for example found no empirical evidence to support strong worries about filter bubbles. They do, however, argue that the filter bubble debate remains important as personalization technologies evolve rapidly. When personalized news for example becomes the main source of information, it could cause serious negative effects for democracy.

Next to the lack of diversity and worries about filter bubbles, scholars also argue that misinformation or fake news is more commonly consumed through media in recent years, and present in personalized news feeds (Allcott and Gentzkow, 2017; Spohr, 2017; Zimmer et al.,

2019). Fake news can be defined as “phony news stories maliciously spread by outlets that mimic legitimate news sources” (Torres et al., 2018, p. 3977). These fake news outlets can spread information on social media platforms such as Facebook or Twitter without being fact-checked by journalists or the platforms for example (Spohr, 2017). As social media also affords this false information to spread fast and easy, it can reach many individuals’ filter bubbles and echo chambers without these individuals knowing the information is false (Zimmer et al., 2019). Quattrocioni (2017) calls “the viral spread of hoaxes, conspiracy theories, and other false or baseless information online [...] one of the most disturbing social trends of the early 21st century” (p. 60). This spread of fake news on its own is the cause of great concern, but also together with news personalization and algorithmic filtering (Zimmer et al., 2019). It is, however, also argued that not only new technologies cause filter bubbles or spread fake news, but that individuals themselves have a leading role in this (Davies, 2018). According to Davies (2018), filter bubbles are caused by people’s own behavior and, in contrast to what Pariser (2011) states, are escapable.

### **2.2.3 Shaping perceptions and reality**

Taking together, the personalization of news, algorithms, digital platforms, filter bubbles, echo chambers, and fake news all contribute to shaping the opinion, viewpoints, and ultimately the reality and perception of users (Beer, 2017; Just & Latzer, 2017; Willson, 2017). Just and Latzer (2017) for example state that, in the same light as traditional mass and news media, “automated algorithmic selection applications shape daily lives and realities, affect the perception of the world, and influence behavior” (p. 238). Not only traditional media and news organizations determine what individuals see and read anymore, as algorithmic news selection is happening more and more. Algorithms co-govern what is shown online and are co-shaping the construction of reality of individual users. Therefore, their power is rising (Just & Latzer, 2017). Willson (2017) also recognizes this powerful role of algorithms. She states that algorithms are becoming embedded in everyday life more and more and are therewith shaping everyday practices. They have the ability to shift worldviews through their recommendation systems and cause complex relationships between humans and technology: Because who is in control in the end?

Beer (2017) furthermore presented the notion of “the social power of algorithms” (p. 3), as algorithms are a central part of the social world. They are embedded in social practices and should thus be understood as an object that exists within social processes. Within these

social processes “algorithmic systems feed into people’s lives, shaping what they know, who they know, what they discover, and what they experience” (p. 6), thus having a significant impact on how they perceive reality. Especially amongst the younger generation, such shaping of reality can be seen as problematic. They grew up in a world full of technology and rely heavily on personalized social media news feeds through algorithms (Powers, 2017). They therewith also possibly encounter filter bubbles, echo chambers, and for example misinformation. This can contribute to a rather problematic way of shaping the reality and perception of young users (Pariser, 2011; Spohr, 2017).

## **2.3 The role of journalism in society**

But what do new technologies such as algorithms and social media, and the challenges that come with that mean for the role of journalism in society? To determine this, it is first important to define the role of journalism. A broad definition to describe journalism traditionally as stated by Schudson (2011) is that it is “the business or practice of regularly producing and disseminating information about contemporary affairs of public interest and importance” (p. 3). He further describes that this practice is performed by a set of institutions that periodically presents news stories truthfully and sincerely to a diverse audience (Schudson, 2011). Moreover, journalists have an interpretive role as they determine what is newsworthy and what information is thus entered into the public debate (Brüggemann, 2014). They are part of a meaning-making process and make key decisions in this process (Baden, 2019; Boesman et al., 2016).

Three concepts that are related to this role of journalists and the process of news selection, production, and distribution are agenda-setting, gatekeeping, and framing. These concepts have been linked to traditional forms of journalism and mass media since the 20<sup>th</sup> century and are still being used today concerning media and journalism. The theories behind it are separate entities, but also intertwined. Hence, they will be explained separately to gain an understanding of how they are distinct from each other, but will also be linked to understand how they work together.

### **2.3.1 Agenda-setting and framing**

One of the firsts who researched the function of mass media as agenda-setters were McCombs and Shaw (1972). Through choosing and displaying news and important topics,

McCombs and Shaw state that news media are setting the agenda for the public debate. The theory ultimately revolves around transferring the salience of certain elements from the media to the public (McCombs, 2004, 2014; McCombs & Shaw, 1972). In this sense, it is determined what kind of issues, events, or people deserve public attention and news media thus do more than merely inform the public (Althaus & Tewksbury, 2002). Therefore, agenda-setting revolves around the accessibility of news that is provided by journalists and news organizations (Scheufele & Tewksbury, 2007).

This attention-directing function journalists have can theoretically be referred to as the first level of agenda-setting, where the focus lies on prioritizing objects in the news that are most important. Next to this first level, a second level can also be recognized that can also be called second-order agenda-setting (Bro, 2016). On the second level, the focus is shifted to the attributes used to portray the prioritized objects and the influence this can have on perceptions of the public. First-level agenda-setting thus is focused on which stories are prioritized, while second-level agenda-setting is more focused on what is used to prioritize these stories (Guo, 2015; Vargo et al., 2018).

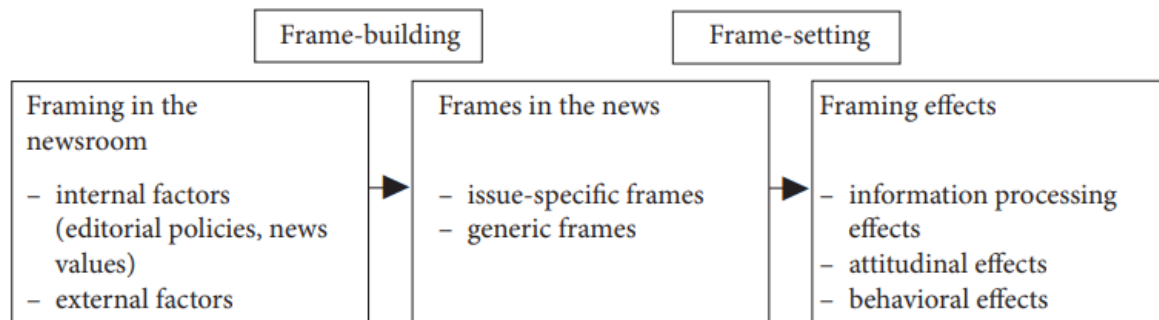
Closely linked to agenda-setting theory is framing that revolves around *how* to think about certain topics, rather than *what* to think (Scheufele & Tewksbury, 2007). Following a frequently cited definition of Entman (1993): “to frame is to select some aspects of a perceived reality and make them more salient in a communication text” (p. 52). More recently, framing was defined as “the purposefully selective representation of an issue, object, or situation, which serves to guide interpreters to construct specific frames that coherently organize the foregrounded information and render it meaningful” (Baden, 2019, p. 232). Frames help to make sense of what are relevant issues or events and the journalistic framing practice entails including these frames in news stories, while neglecting others (Brüggemann, 2014). Framing thus revolves around applicability rather than the aforementioned accessibility of agenda-setting (Scheufele & Tewksbury, 2007).

De Vreese (2005) furthermore makes a distinction between frame-building and frame-setting. Frame-building happens in the newsroom and denotes both internal as well as external factors that influence news frames. Frame-setting, on the other hand, refers to frames in the news and the interaction between the audiences’ prior knowledge and the frames. For frame-setting, a distinction is made between issue-specific frames and generic frames. The latter refers to frames that relate to different topics and contexts with no thematic limitations, while issue-specific frames are only relevant for certain events or topics. This set of frames can in turn affect both individuals as well as society. Certain frames can for example change an

individual's behavior or attitude and on the societal level it can shape social or political processes and decision-making (see figure 1.).

**Figure 1**

*An integrated process model of framing (De Vreese, 2005)*



The debate and theory surrounding framing are however not concise in their definition of the concept. Some scholars, for example, see similarities between framing and agenda-setting (Weaver, 2007), and see framing as second-level agenda-setting or part of this (Coleman & Banning, 2006; Golan & Wanta, 2001; McCombs & Ghanem, 2001), while others see framing and agenda-setting as distinctly different (Scheufele & Tewksbury, 2007; De Vreese, 2005). Golan and Wanta (2001) for example state that framing certain elements can influence how the public perceives attributes of issues or events, which according to them “is at the heart of second-level agenda-setting” (p. 248). McCombs and Ghanem (2001) also acknowledge that framing and agenda-setting theory converge, and place framing in the midst of the agenda-setting process. However, de Vreese (2005), amongst other scholars, makes a difference between the two theories. He states that “while agenda-setting theory deals with the salience of issues, framing is concerned with the presentation of issues” (p. 53). This outlines that scholars do not all agree on the definition of both concepts and how they relate to each other. For this research, however, to make the distinction clear, framing and agenda-setting are seen as linked concepts, but are in essence seen as different. Agenda-setting is further referred to as *what* to think about, while framing is referred to as *how* to think.

### 2.3.2 Gatekeeping

A last important concept that is frequently used in academic literature relating to journalism is gatekeeping. Gatekeeping can be defined as “the process of culling and crafting

countless bits of information into the limited number of messages that reach people each day” (Shoemaker & Vos, 2009, p. 1). The information flows through communication channels, which can be seen as the ‘gates’, that decide what flows through and eventually reaches the public as a news story (White, 1950). Journalists can be seen as gatekeepers who select those bits of information and are responsible for passing along that information. They selectively gather, write, edit, schedule, and in any other way mold information into news. Journalists are those who cull and craft (Vos, 2016; Vos, 2019). They are, however, not the only gatekeepers. From a historical perspective journalists were seen as central gatekeepers, but with the nuance of mediators as other communication channels, they also part of the gatekeeping process (Vos, 2019). Such channels, that also form modes of selectivity, are referred to as secondary gatekeepers by Singer (2014). In current times social media can be mentioned as such a secondary gatekeeper.

In essence, gatekeeping theory revolves around inclusion and exclusion: What information flows through the gates and what information does not? According to Meraz and Papacharissi (2016), gatekeeping theory is therefore closely aligned with framing theory, as to frame also means to foreground certain information and to leave other information out of the public debate. Moreover, the gatekeeping concept is in that way also linked to agenda-setting, as it also revolves around what information is eventually entered into the public debate and accessible to the public. In this way, it can be stated that all three concepts are intertwined.

There is, however, also some critique on the different concepts and the practice of them. The original gatekeeping definition of White (1950) for example got critiqued for simply concentrating on the notion of gatekeepers deciding what is ‘in’ and what is ‘out’ (Reese & Ballinger, 2001, p. 647). This view was found to be too individualistic and linear in a one-way direction. Furthermore, agenda-setting theory is criticized similarly, as it is stated it would not grasp the complexities when it comes to the effects and function of news media as agenda-setters (Bro, 2016). Lastly, the practice of all three concepts is criticized for the power it has in shaping news content, the public debate, and ultimately reality. Especially in democratic societies, where enabling citizens to form their own independent opinion is a key pillar, concerns are raised about news framing (Baden, 2019; Brüggemann, 2014).

### **2.3.3 Shifts in the role of journalism**

The role of journalists and news organizations, as primary gatekeepers who set the news agenda, is shifting in current times with the advent of new technologies such as

algorithms and social media platforms. Not only has this changed the production and consumption of news, but it has also affected the relationship between journalists, information sources, and the audience (Bro, 2016). It is argued that the role of media, newsrooms, and journalists as gatekeepers has gone, or that the idea of gatekeeping has died with the presence of the internet (Shoemaker & Vos, 2009). Rosen (2006) claims that it has “busted open the system of gates and gatekeepers” (p. 1), which makes it more difficult for journalists to set the agenda outside of the newsroom (Bro, 2016). Singer (2008), therefore, argues that journalists, with the no longer existing traditional gatekeeping role, also no longer control the information landscape. Vos (2015) states that nowadays the gatekeeping model exists with a multiplicity of gates.

Some scholars argue that the gatekeeping role has partly shifted to mechanisms such as algorithms. These algorithms are playing a growing role in the production of news, the appearance of news online, and in how it reaches audiences (Nechushtai & Lewis, 2019), and are thus taking over gatekeeping functions that were formerly ascribed to journalists (Shoemaker & Vos, 2009). Just and Latzer (2017), however, state that not all functions can be attributed to algorithms, as media still serve as first-hand gatekeepers and agenda-setters. According to them, algorithms add an extra layer by filtering information as secondary gatekeepers. Others argue that algorithms do have the ability to overpower journalists in their role of news gatekeepers (Thurman et al., 2019b), and are the “arbiters of truth online” (Cotter & Reisdorf, 2020, p. 745). Algorithms are, for example, selecting and filtering what people see online (Nechushtai & Lewis, 2019), and therewith determine the flow of information and ‘truth’ of individuals.

This flow of information is displayed on digital platforms such as Facebook or Twitter and also determines how news feeds are curated. These platforms thus serve as intermediaries (Kleis Nielsen & Ganter, 2018), or secondary gatekeepers (Singer, 2014). On the one hand, it can be argued that these platforms empower news organizations and journalists to reach their audience fast and easy, on the other hand, it can be stated that the intermediary role of the platforms does take away some of the traditional control for news organizations (Kleis Nielsen & Ganter, 2018). Digital platforms are even argued to be ‘new’ gatekeepers as they, together with algorithms, manage a large part of the flow of information audiences see (Napoli, 2015; Russell, 2019). After all, digital platforms are run by private companies who have their own interests and are individual actors. Journalists are then challenged to collaborate with these platforms to deliver news to the audience and not let them overpower their overall gatekeeping role (Kleis Nielsen & Ganter, 2018).

Individuals are also gaining a more prominent role in the gatekeeping process and are also argued to serve as gatekeepers in the digital environment of today (Meraz and Papacharissi, 2016). Active online audiences can share news content with their friends or network on social media and therewith act as secondary gatekeepers (Russell, 2019; Singer, 2014). Merten (2020) also recognizes this, as she argues social media users can curate and filter their own news repertoire, thus creating a personal newspaper, and becoming a gatekeeper or editor themselves. She does state, however, that users do not have final control over this personal newspaper as the information initially displayed to them is based on journalistic gatekeeping and algorithmic filtering. As Vos (2019) argues “journalists continue to embrace a gatekeeping role, whether shared with the public or not” (p. 93).

So, the power and control over news content seems to be more divided nowadays, with both technologies as algorithms and digital platforms sharing or even partly taking over the gatekeeping role of journalists, as well as the audience gaining more control of what news content is displayed to them. The question, however, is whether audiences are really gaining more control over what they see. With large amounts of information, multiple gatekeepers, and filtering techniques present, one could argue that this, in the end, does not leave much final control for the audience. The question also is: Are users aware of the pre-made selection of news and information that is displayed to them, or do they believe they are true gatekeepers and setting their own agenda?

## **2.4 Awareness and media literacy**

### **2.4.1 Algorithmic awareness**

Several scholars stress the importance of research into algorithmic awareness, as algorithms have the power to shape the reality and perceptions of users, but yet the awareness amongst users about their presence is generally lacking (Brodsky et al., 2020; Bucher, 2017; Eslami et al., 2015; Powers, 2017; Rader & Gray, 2015). The unawareness can, for example, be explained by the fact that algorithms are rarely emphasized in the online interface of social media, and operate as hidden processes (Eslami et al., 2015). Eslami et al. (2015) studied the awareness of algorithms in the news feed amongst Facebook users and found that more than half of the participants were not aware of any algorithms in their news feed. They, furthermore, found that users were mostly annoyed about the fact that the algorithm hid people from them, more than hiding content. Social filtering, thus, does not leave users with



positive feelings towards algorithms. Another study by Bucher (2017) also examined Facebook users and their experience with algorithms, and found that most participants did not know about the algorithm on the platform, but could produce some theories and assumptions on how it might work. In contrast, Rader and Gray (2015) established in their study that the majority of the participants were aware of not seeing all the posts of their network. They do, however, recognize that users differ widely in how they understand and perceive algorithmic filtering in their social media news feed.

In addition, more recent studies also differ in their outcomes. Some studies indicate limited algorithmic awareness amongst users online (Gran et al., 2020; Cotter & Reisdorf, 2020), while other research shows that users do know more about algorithms nowadays (Brodsky et al., 2020; Dogruel et al., 2020). A study by Dogruel et al. (2020) found that in areas of news consumption and navigation online, users perceived the impact of algorithms as low and were less aware of them. They furthermore link the level of awareness to the perceived autonomy of users. Users are, for example, less aware that algorithms have an impact when they feel in control. However, when it came to obvious personalized content relating to online shopping, for example, users were more aware of the algorithms being present online. According to Brodsky et al. (2020), users overall recognize that algorithms exist and are present online, but they do not exactly know how the algorithms filter, present, and personalize information for them. The results of a study by Cotter and Reisdorf (2020), in contrast, show that users are still limited in their knowledge and awareness about algorithms while being online.

In general, four different user groups can be distinguished, according to Min (2019), when it comes to the awareness and curation of algorithms within the social media news feed. The first group is unaware of algorithms and does not control their social media news feed in any way. The second group curates their feed by blocking certain information or unfollowing certain profiles to have less news and information. In contrast, the third group curates with more positive actions by liking and following on social media to receive more news. Lastly, the final group is aware of the algorithm in their social media news feed and also actively tries to manipulate this. These different groups and varying outcomes of previous studies regarding algorithmic awareness, indicate that different views and perceptions on algorithms are present and algorithmic knowledge gaps also still exist among users.

### **2.4.2 Algorithmic transparency and news media literacy**

Given the impact of algorithms and the process of personalization on users' online experiences, and in turn perceptions of the world, it is argued by several scholars that awareness about this should be increased (Brodsky et al., 2020; Bulger & Davison, 2018; Dogruel et al., 2020; Head et al., 2020). First, as algorithms generally operate invisibly, Diakopoulos and Koliska (2017) argue that algorithmic transparency should be a key feature of journalism ethics. Algorithmic transparency can be defined as "the disclosure of information about algorithms to enable monitoring, checking, criticism, or intervention by interested parties" (p. 811). Such transparency would help users understand underlying points of view and processes of news products by allowing them to determine certain biases, ideologies, or values that are in operation. Through this transparency, users can evaluate journalists and the journalists are still able to fulfill their mission (Diakopoulos & Koliska, 2017).

On the one hand, this can enhance users' acceptance of algorithms (Eslami et al., 2015), on the other hand, it can also increase feelings of 'creepiness' and privacy violation when users are confronted with the collected data (Head et al., 2020). Head et al. (2020), however, do state that algorithmic transparency will help users make more informed decisions. Especially when it comes to news, it would give users more trust if news organizations disclose how algorithms are used in the journalistic process by making overt how personalization policies are used for example. In sum, they state that in the algorithmic age full of misinformation and filter bubbles "media organizations need to be much clearer about what information they collect, how they use it and with whom they share it" (p. 34).

Next to the call for more algorithmic transparency, the need for increased media literacy concerning algorithms is also widely mentioned in the debate surrounding algorithmic awareness (Brodsky et al., 2020; Bulger & Davison, 2018; Head et al., 2020; Powers, 2017). While algorithms are part of everyday life, knowledge gaps still exist (Cotter & Reisdorf, 2020). Also, in general, media literacy is inconsistently related to awareness about algorithms, as current media literacy curricula do not focus on how algorithms work (Brodsky et al., 2020). It is therefore argued that media literacy should be more extensive by incorporating instructions and information about algorithms (Brodsky et al., 2020; Head et al., 2020). Valtonen et al. (2019) add to this by stating that education about computational mechanisms such as recommendation systems, filtering, and tracking is important nowadays. This 'algorithmic literacy' will create more awareness amongst young users on how algorithms

shape online experiences, and will help them assess the information they encounter more adequately and critically (Brodsky et al., 2020).

Furthermore, Vraga and Tully (2021) argue that consuming news through social media requires news literacy, as news online co-exists with misinformation for example. This news literacy is focused on providing skills and knowledge to news consumers to become mindful and critical and understand “the relationship between journalists, news production, citizens, and democracy in changing media environments” (p. 151). It is important to understand both news production and consumption, and their content and context, the role of social media platforms, and the role of users and their interpretations (Maksl et al., 2015). As news on social media is a combination of selective and incidental exposure through personal choices, journalists selection, and algorithms (Nechushtai & Lewis, 2019), it is important to be media-, algorithmic-, and news literate in today’s digital world when consuming news online.

### **3. Methodology**

To answer the research question central to this research, a clear methodology needs to be outlined. The research question and the theoretical framework have laid the foundation for the way the research design was established. This was set up with a qualitative approach, as this research is focused on understanding the perceptions and awareness regarding news personalization of young Dutch social media users. Therefore, a qualitative method based on in-depth interviews was best suited and thus used for this research. This approach will be explained and justified in this chapter together with the sampling technique used, the operationalization of the research question, a description of how the data was collected and processed, an outline of the way the data was analyzed, and lastly the reliability, validity, and ethical considerations of the research will be addressed.

#### **3.1 Research design**

Traditionally news stories and journalism, in general, have played a significant role in determining the agenda and reality of audiences, but nowadays algorithms also contribute to the shaping of this reality (Just & Latzer, 2017). This research aims to understand how, in specific the younger segment of these audiences that consume news through social media, perceive the influence of these algorithms in their news consumption, and how aware they are of personalization practices. As suggested by Monzer et al. (2020), more attention should be given to the impact of these personalization practices on users, and the way they perceive this (Bodó et al., 2019). Furthermore, Brodsky et al. (2020) state that further research should also focus on awareness about algorithms among young users and understand how they engage with them. These gaps in the current body of literature were taken into account to set up a qualitative research design with which user attitudes, understandings, and awareness about news personalization could be further explored.

The qualitative design is based on in-depth interviews, as this will allow direct interaction with the young social media users and gives the ability to explore perceptions and understandings in-depth (Babbie, 2014). This method was therefore found to be best suited for this research and to answer the central research question. Interviewing is one of the most powerful tools in qualitative research (McCracken, 1988), and allows the researcher to grasp a deeper understanding of a certain phenomenon or experience that goes beyond the surface (Johnson, 2001). It can be described as a probing conversation between a skilled interviewer and a suitably competent interviewee (Guest et al., 2013). With such a conversation it is

important to consider both verbal and non-verbal responses (Brennen, 2017). The in-depth interview will help uncover an interviewee's views and insights into the *how* and *why* of certain interpretations, perceptions, or motivations. Besides, as the interview is conversational and the structure will be familiar to participants, they are expected to be comfortable engaging in the conversation and sharing their thoughts (Guest et al., 2013).

To ensure both structure and flexibility for the conversations, the nature of the in-depth interviews was semi-structured. An interview guide was developed beforehand with a schematic presentation of topics and open-ended questions, but other questions and topics could also emerge during the conversation between the interviewer and interviewee (DiCicco-Bloom & Crabtree, 2006). The researcher actively made use of inductive probing to gain more richness in the data and go beyond potentially simple responses to questions. The interview was also made conversational through building rapport, which furthermore created an environment in which interviewees felt comfortable sharing their experiences and understandings (Guest et al., 2013). In addition, the interviews with the young Dutch social media users were conducted in Dutch, the native speaking language of all interviewees, to make it easier for the participants to express themselves and ensure the preservation of meaning as much as possible.

## **3.2 Sampling**

### **3.2.1 Units of analysis**

For this research, the units of analysis can be considered the young Dutch social media users, as the focus lies on understanding their perceptions and awareness regarding news personalization. These young users are interesting as units of analysis, as they are starting to decline more traditional forms of news consumption and use social media as a news source the most daily (Geers, 2020; Watson, 2020). As this younger generation prefers consuming news through social media (Geers, 2020), they also encounter algorithmic recommendations and news personalization practices daily, either consciously or unconsciously.

### **3.2.2 Sampling strategy**

The Dutch users were sampled based on purposive snowball sampling. This non-probabilistic sampling approach revolves around selecting participants based on their purpose

for a specific research (Guest et al., 2013). According to Patton the power of purposive sampling lies with selecting information-rich participants “from which one can learn a great deal about issues of central importance to the purpose of the inquiry” (Patton, 2002, p. 230). For this type of sampling, it is important to operationally determine certain criteria for participants to be eligible for the study.

For this research, it was chosen to firstly select based on Dutch citizenship, and as this study is conducted in the Dutch context participants needed to be Dutch speakers. Second, an age range was chosen to fit the characteristic of being a ‘young’ user. The age range was set between 18 and 29 years old as this is the age group that uses social media the most daily (Watson, 2020), and this age group is part of the younger generation. Also, earlier research on news personalization has focused on students (Powers, 2017), for which in the Netherlands ages range between 18 and 35, while another study about social media news consumption focused on the youngest part of the younger generation, aged between 16 and 21 (Geers, 2020). However, this research follows the age range of research by Boczkowski et al. (2018) on news consumption in the online context that also interviewed 18 to 29-year-old’s. This age group was chosen to have a specific age range that was not too narrow and not too wide, but still varied enough to select information-rich young participants. Lastly, participants were also selected based on their social media news consumption. They had to use social media and consume news either daily or occasionally, via social media platforms.

These specific participants were approached using snowball sampling. The social networks of participants were utilized to identify more participants suitable for this research (Guest et al., 2013). The first participants, unfamiliar to the researcher, were approached and selected via a post on social media and through the own social network of the researcher. After this, the snowball strategy was used to recruit additional interviewees. This strategy can however lead to a biased sample. A biased sample could for example be a sample that originates from a single network and is therefore not diverse (Morgan, 2012). This was counteracted by working with several initial ‘gatekeepers’ of networks to access several different social networks (Given, 2008).

The final sample consisted of ten young Dutch social media users of which four were male and six were female. Ages varied from 20 to 29. Out of the final sample, four participants were students, and six had a profession in varying fields. A description of the final sample can be found in appendix A. Therefore, the sample can be described as heterogenous. However, due to the limited sample size, the results of this research are not

generalizable compared to the large number of young Dutch social media users in the Netherlands.

### **3.3 Operationalization**

As mentioned before, an interview guide was created to give direction to the semi-structured in-depth interviews. Five different topics were included in this guide: *background and social media use, news consumption, algorithms, news personalization, and the perceived influence of algorithms on individual views on reality*. These topics were derived from the theoretical framework and together with the questions belonging to each topic, helped answer the central research question. During the interviews, it was first of all necessary to start with getting an idea of the participants' social media use and news consumption practices. Second, it was important to understand the interviewees' perceptions and knowledge regarding algorithms. Next, their thoughts on news personalization were explored to gain an understanding of the participants' perceptions and awareness of this phenomenon. Lastly, the perceived influence of algorithms on individual views of reality was discussed.

These topics and questions made it possible to gain insights into the interviewees' understandings and perceptions towards social media news consumption, and helped answer the research question. Moreover, additional probing questions were asked during the interviews to get more in-depth answers and create a meaning-making process (Johnson, 2001). Also, some questions were slightly adjusted during the first interview period when questions were deemed too difficult to answer for example. This resulted in the final interview guide that can be found in appendix B.

### **3.4 Data collection and processing**

The interviews were conducted during April and May of 2021. During this period the Netherlands was in lockdown because of COVID-19, which made face-to-face interviewing more difficult. Despite this difficulty, it was possible to conduct six interviews face-to-face and four interviews were conducted online with the video chatting service Zoom. With in-depth interviewing the intimacy of face-to-face contact generally allows for building rapport and self-disclosure (Johnson, 2001). Despite not having this type of contact with some interviewees, they still felt comfortable sharing their thoughts, and rapport was still built as services such as Zoom are more regularly used nowadays, and thus interviewees were also

more familiar with this type of contact. Moreover, the video connection allowed for an interaction that mimics the face-to-face contact that was present in the real-life interviews, and non-verbal cues could also be picked up this way.

In addition, an advantage of the online interview is the familiar environment interviewees were in when the interview was conducted. The online participants were in their own homes during the interviews, which allowed for a comfortable, private, and trusted setting. This also made disclosing sensitive information and certain opinions easier for the participants (Johnson, 2001). The face-to-face interviews were conducted in the homes of the interviewees, allowing them to be in a familiar environment while respecting the COVID-19 rules of the Netherlands. Overall, the results are not expected to be significantly different from when all interviews were conducted face-to-face, as previous research has also confirmed the difference in results between the two interview types not to be significant (Shapka et al., 2016).

To further build trust between the interviewer and interviewee and help gather meaningful data (Brennen, 2017), a consent form was sent out to the participants before the interviews. The consent form contained contact information from the researcher, a short description of the research's subject and purpose, the risks and benefits of participation, and information about participants' rights. Furthermore, before every interview, a short introduction about the researcher and the research was given to break the ice and make everything clear for the interviewees. As some participants experienced difficulties digitally signing this consent form, all interviewees gave their consent verbally instead at the start of each interview.

The final data set consisted of ten interviews that were between 33 and 65 mins long. The interviews were recorded with a voice recorder available for smartphones and later transcribed verbatim. The transcribe program Amberscript was used to create preliminary transcripts of the interviews. Later, these transcripts were edited and complemented manually by the researcher. The transcripts were made in Dutch, as all interviews were also conducted in Dutch, and varied between 5500 and 11500 words. To be able to use pronunciations from the interviewees for this research, quotes were translated into English during the analysis process as accurately as possible.



### **3.5 Analysis**

To analyze the collected data a grounded theory approach was taken (Corbin & Strauss, 1990). The focus of this approach in qualitative research lies in conceptual thinking and building theory from the collected data, rather than testing theory or hypotheses. The aim of collecting data and analyzing it, is to explore and understand certain perceptions of participants associated with a specific phenomenon. It can be called a method of discovery where treated categories can emerge from the analysis of empirically collected data (Khan, 2014). These categories were discovered by coding the transcripts thematically and exploring patterns across the interviews. The software ATLAS.ti was used in this coding process to make it more structured.

The first step in the process was open coding. The data was divided into fragments and grouped into categories that were dealing with the same subject. Coding was done paragraph-by-paragraph and line-by-line (Corbin & Strauss, 1990), as this allowed to grasp the entire context of participants' statements. After this, axial coding was done by reassembling the data and making connections between the different categories. By axial coding, the researcher determined which elements in the data were dominant and important. Lastly, selective coding took place with which relationships were established between categories and concepts. The preliminary categories were merged into the final selective themes. In this last coding phase the findings were also interpreted and, along with the literature presented in this research, placed within the existing academic debate (Boeije, 2014; Corbin & Strauss, 1990). This way, a conclusion could be drawn from the coding process and the research question was answered. In total ten axial preliminary categories were found in the data that were merged into four final themes. The complete coding scheme of this research can be found in appendix C.

### **3.6 Reflexivity**

#### **3.6.1 Reliability and validity**

To ensure the 'trustworthiness', and also the reliability and validity of this research, there is first of all the necessity to account for the personal biases of the researcher. Every researcher brings certain personal perspectives and pre-understandings into research, which can make the interpretations in qualitative research subjective (Elo et al., 2014). This subjectiveness was recognized and reflected on during the research process by documenting

certain decisions and interpretations, to increase the credibility of the overall research. Also, the representativeness of the findings in relation to the subject of this research was ensured by creating an interview guide, recording the interviews, and transcribing them verbatim afterward. This allowed for the repeated ability to revisit the collected data, the ability to find emerging patterns, and to remain true to the interviewees' pronunciations (Noble & Smith, 2015). Furthermore, the presented interview guide and other details outlined offer a framework for future research, and make the research and the interviews repeatable (Flick, 2007). To further enhance the auditability of this research, the research process was made clear and transparent by outlining the developments in the process, explaining the methods used, and reporting on the findings (Noble & Smith, 2015). Lastly, for the operationalization earlier research mentioned in the theoretical framework was taken into account, and theory and concepts used in the interviews were derived from that.

### **3.6.2 Ethical consideration**

Several ethical principles were taken into consideration during the research process. First, the participants were respected in recognizing their rights in the research by being informed about the study, the right to participate voluntarily, and the right to withdraw at any time (Orb et al., 2001). This was done by sending out informed consent forms to the participants before the interviews, and again by the introduction chat at the beginning of each interview. This introduction also contained information about the research, asked for the consent of participants for the interview as well as for recording the interview, and allowed interviewees to ask questions before starting the actual interview. Furthermore, the confidentiality of the collected data was ensured by informing participants that the interviews would only be used for this research, and recordings and transcripts would not be shared outside of this research. Also, to ensure the anonymity of participants, pseudonyms were used to refer to the interviewees (Allmark et al., 2009). Furthermore, the description of the sample contains a simplified outline of individual characteristics to further guarantee anonymity, and can be found in appendix A.

## 4. Results and Discussion

The thematic analysis revealed four main themes that indicate how young Dutch social media users perceive the impact of news personalization. This chapter outlines these four themes and related sub-themes, which will be contextualized using the collected data and aforementioned literature. First, the data suggest that a shift has taken place in both perceptions regarding the role of journalism, as well as the way news is consumed by the younger generation. The second theme focuses on the level of awareness the individuals' have towards news personalization, and the control and responsibility they have in that. Third, the young Dutch social media users identify news personalization as being paradoxical. The fourth and final theme revolves around the impact news personalization has on shaping reality. The coding scheme of the thematic analysis can be found in figure 2.

**Figure 2**

*Overview of themes and subthemes from the thematic analysis*

<i>Themes</i>	<i>Sub-themes</i>
<b>The shifting role of news</b>	Social media news consumption
	The shifting role of journalism
<b>The level of awareness towards news personalization</b>	Algorithmic knowledge and awareness
	Control level in news consumption
	Responsibility in social media
<b>The news personalization paradox</b>	Positive perception towards news personalization
	Negative perception towards news personalization
<b>The shaping of reality</b>	Impact on individuals' worldview
	Societal implications news personalization
	Trustworthiness of news

### 4.1 The shifting role of news

This first theme indicates that a shift has taken place in how the younger Dutch generation of social media users perceive the role of news. Traditional news consumption has

taken a back seat and is considered complementary to social media news consumption or is not consumed at all by some of the participants. The majority of the young users indicate that social media is their main news source and usually this news appears in their news feed, rather than them actively searching for news stories. Furthermore, young users stress the importance of news being for a general view and the change this has undergone by the distribution and consumption of news via social media. On the one hand, social media news is mentioned as being more interactive, for example, and adequate to distribute on platforms such as Facebook and Instagram. On the other hand, participants also have doubts about the use of social media platforms and algorithms in combination with news, and the journalistic values intertwined in that.

#### **4.1.1 Social media news consumption**

No, I would not [watch traditional news]. It is so easy to get it by grabbing your phone instead of taking the trouble to turn on a TV and keeping an eye on when exactly the news is, I would not even know, I would have to look it up. I think I and many others are just too lazy for that (Rafael, May 5, 2021).

20-year-old Rafael indicates not watching or reading traditional news at all anymore. It has gotten so easy to consume through smartphones on social media, that he argues not to be willing to grab a newspaper or turn on the television to follow the news. He is also not interested or informed about when the news is on television and would rather see it on social media. This fits the general pattern of more news being consumed via social media and also the decline of traditional news forms by the younger generation (Geers, 2020). Rafael's comment illustrates this decline, which is shared by five other participants who also indicate social media as being their main way of consuming news. However, overall seven out of the participants do indicate sporadically watching traditional news via television, mostly in the background while doing other activities, as complementary to their social media news consumption.

Rafael's comment furthermore illustrates the laziness of young social media users nowadays. The younger generation does not necessarily feel the need to actively search for news stories or even follow news organizations on social media. 23-year-old Sofia explains this by stating: "No, I do not follow anything [news related]. It is more that it appears and is suggested to me in that category, but I do not follow it myself" (Sofia, April 23, 2021). This

notion fits the fact that young users generally do not choose to consume news, despite the broad range of news channels being available on social media (Geers, 2020). Sofia for example argues that she is just not interested enough in news to search for specific stories, but she does find it convenient and enjoys reading news when it appears to her.

However, some participants do indicate following news channels on social media as they are interested in the news, but this applies to only three out of the ten participants. The majority shares the understanding of being a somewhat lazy news consumer share and enjoy the appearance of news in their social media feeds, rather than actively searching for it. This opposes the assumption that audiences have become more active with the advent of web 2.0 and is in line with Spyridou's (2019) findings. The way most participants experience the consumption of news via social media is through the 'news finds me perception' (Gil de Zúñiga et al. 2017; Toff & Nielsen, 2018). 22-year-old Sarinah illustrates this by stating:

It is not so much that I am looking for news when I am on social media. If it comes by and it interests me for example then yes, I will read it, but it is not that I necessarily look for it if I do not have to (Sarinah, May 11, 2021).

The way she uses social media is not necessarily to consume news, but the news finds her on the social media platforms she is present on. If the news articles will already appear to her, she indicates not feeling the need to go search for news when she does not have to. News is thus consumed incidentally and happens in a moment of leisure, without users having to actively seek it. In this sense, the consumption of news is thus a byproduct of the social media use of young users (Boczkowski et al., 2018). This incidental news consumption is defined by all of the participants. These results thus suggest that the younger generation overall is less interested in traditionally consuming news or actively searching for news, but mostly 'stumble upon' news through social media in a moment of leisure. This is also supported by the Reuters Digital News Consumption report 2020 that, moreover, found 38% of the younger generation coming across news on social media as opposed to merely 26% in the all-ages category (Newman et al., 2020).

#### **4.1.2 The shifting role of journalism**

The traditional role of journalism has been changing with the advent of technologies such as algorithms and social media platforms (Deuze & Witschge, 2017). Journalists are not

alone anymore in determining what is on the news agenda and are no longer the main gatekeepers of information (Bro, 2016; Nechushtai & Lewis, 2019). However, half of the participants still value the traditional role of journalism and mostly indicate getting a broader scope of news with traditional news when they sporadically watch or read it. This is contradictory to the aforementioned decline several participants also have towards traditional news forms (Geers, 2020).

I think when you watch the news you just want to get an update and I personally think that it is better to get a general picture of everything instead of a lot about one specific topic. But that is more the base from which I find that you watch the news because you want to generally stay up to date (Phara, April 30, 2021).

29-year-old Phara primarily wants to consume news to get a general view and indicates that through social media one mostly gets informed about specific topics through personalization, rather than getting the general picture. Hence, why she consumes news through watching the news on television complementary to her social media news consumption. Another participant indicates the doubt she has about wanting the general picture or specific topics as she states: “But when it comes to news, is it important that you only see things that you like or find interesting, or is it important that you see everything?” (Elise, May 6, 2021). These comments by Phara and Elise illustrate that half of the participants do not completely decline traditional news and that the traditional form of news is still appreciated (Vos, 2019). This can partly be explained by COVID-19 that has been an important subject in the news since 2019 (Newman et al., 2020). Users want to be informed about the virus by trusted sources and thus turn on the television during breakfast for example to get a general update, or visit the website of trusted news organizations more often than they used to.

In addition, the combination of social media and news is also appreciated by the young users. Five participants defined social media news as interactive and overall see this as a positive aspect. Rafael for example states: “The nice thing about receiving news via social media is that you can see reactions from other people. So, you can also see how other people react to the news” (Rafael, May 5, 2021). This illustrates how interactivity changed the information landscape and the way users perceive this interactivity of news in a positive light (Malik & Shapiro, 2017). Another participant, 29-year-old Phara, indicates a positive shift in the ability for a debate and discussion between users while reading news articles on social

media. Furthermore, social media changes the relationship between readers and news organizations (Malik & Shapiro, 2017), and the interaction it enables is addressed by half of the participants. This is indicated by 27-year-old Endi who states: “The difference for me, which I also notice the most, is that through social media you have a little more interaction between the article and the people who read it” (Endi, May 7, 2021).

As much as the interactivity of social media news is appreciated, participants also see the downside and identify a disconnection between the role of news and the social media platforms where algorithms operate on. 25-year-old Maarten for example states: “News should not be aimed at who is reading it. [...] some news should actually be placed outside the algorithm because it is so important to get a general picture” (Maarten, May 14, 2021). Similar to critics of computational journalism, this comment illustrates that this participant perceives the use of algorithms in news production and consumption as taking away the general picture. This can lead to the one-dimensionality of news and conflict with journalistic ethics and values (Cammaerts & Couldry, 2016; Thurman et al., 2017), hence why Maarten and seven other participants do question the use of algorithms in journalism.

These results thus show that the young Dutch social media users overall appreciate the shift news has undergone and the opportunities it offers for consuming via social media, but also question whether the purpose of news can actually be combined with algorithms. News is traditionally produced to inform a diverse audience in society (Schudson, 2011), and the question thus is whether targeting a specific audience and using algorithms fits this role, or misses the purpose of news.

## **4.2 The level of awareness towards news personalization**

This second theme reveals the knowledge and awareness the Dutch young social media have relating to news personalization. Moreover, this final theme discusses the level of control users perceive to have and the sense of responsibility participants feel comes with news personalization. The majority of the young users have basic knowledge of algorithms, but when it comes to the level of awareness regarding news personalization in specific this can be stated as being minimal among all participants. Furthermore, perceptions concerning the level of control are divided. Three young users state still having some control over the way their news feed is composed, while the others feel there is hardly any control anymore. In that light, seven participants state having a personal responsibility regarding their social media news consumption. Moreover, the young users argue that intermediaries such as platforms

and news organizations also have to take responsibility, and have to create more transparency concerning personalization techniques.

#### **4.2.1 Algorithmic knowledge and awareness**

As all participants consume news via social media and it overall being their main source of information, it is important to establish how knowledgeable and aware the Dutch young users are of algorithms being present in their news feed. Recent research on the algorithmic awareness and knowledge level of users shows quite some variance in its outcomes (Brodsky et al., 2020; Cotter & Reisdorf, 2020; Dogruel et al., 2020; Gran et al., 2020), and it is noticeable that within this research the level of awareness and knowledge also differs among the participants. When it comes to the knowledge about algorithms, the young Dutch social media users are able to produce some theories and associations regarding algorithms, but are all not exactly sure how it really works.

Well, that is just: You look up things on the internet, and Google and other companies hold that information on what you look up online and sell that to other companies. And those companies are going to advertise on your feed and it is the algorithm that collects all that information I think. I actually do not know that much about it (Rafael, May 5, 2021).

The other participants share similar statements regarding algorithms relating it to cookies for example or referring to it as a certain code. But just like Rafael, all users also admit after their explanation that they are not sure if what they say is correct or are, according to their own words, not deepened enough in the concept. It can, however, be stated that seven out of the ten participants do have basic algorithmic knowledge, which is in line with recent research from Brodsky et al. (2020) that also established users having some knowledge about algorithms, but not enough to tell how the algorithm exactly worked. The Dutch young social media users from this research indicate gaining this knowledge through their study, social network, or for example influencers they follow online. The knowledge level can further be explained by the attention it has been given in the public debate more recently (De Wit et al., 2020). However, the minority of the participants also state knowing very little about algorithms.



I have no idea [how algorithms work]. I just think that it goes via a Wi-Fi network or something and if you have clicked on something that it will end up with you or something? But I think almost no one knows this except if you really dive deep in on it (Kim, April 30, 2021).

20-year-old Kim's comment illustrates the lack of knowledge three out of the ten participants also have regarding algorithms, making the knowledge level amongst the Dutch young social media users of this research inconsistent. However, when it comes to the level of awareness regarding algorithms and news personalization, the results can be stated to be more consistent. Overall, almost all participants are unaware of algorithms also filtering the news in their feed.

I am informed about it [personalization by algorithms], but not aware of it. So, I know it exists, but I am not aware of it. That is of course something completely different, I am not aware when I see something from AD for example (Menno, May 7, 2021).

This comment by 26-year-old Menno illustrates how he indicates being informed about algorithms and aware of their existence, but not aware of the technology while using social media and the fact it is deployed for news too. The other participants share similar statements, which indicates them being aware of the existence of algorithms, but unaware of how it exactly works and what data is collected to curate their news feed. This is in line with findings by both Dogruel et al. (2020) and Brodsky et al. (2020).

Menno furthermore mentions not being aware of personalization when he sees something from the Dutch news organization AD. The other participants also notice being aware of personalization when it comes to advertising for example, but are unaware that the news they consume is personalized. Maarten states: "But that [being aware] is not really with news I think, that is more with advertising. With news I am less aware of it, I think. [...] I did not know that news was also personalized (Maarten, May 14, 2021). This illustrates how awareness amongst participants regarding news personalization is less than when it comes to advertising or online shopping for example. Similar results were found in previous research by Dogruel et al. (2020), and almost all participants can be stated to belong to the group that is unaware of news personalization (Min, 2019).

#### 4.2.2 Control and sense of responsibility in social media news

Without users being aware, algorithms can shift worldviews through their recommendation systems and cause complex relationships between humans and technology (Willson, 2017). The question about who is actually in control in this relationship rises with this. Seven participants perceive the level of control in their news consumption as being almost non-existent.

You don't have a lot of control over it [composition of your news feed], because it is determined for you what does and does not appear to you. It is not that you can actually determine it yourself. It is of course just what they think you are interested in (Nikki, May 5, 2021).

23-year-old Nikki illustrates how her news feed is composed for her, without her having a say in this. Six other young users also state having little to no autonomy over their news consumption and not being able to curate their own feed. The way the majority of the participants perceive this contrasts with the assumption of users as secondary gatekeepers that can create their own online newspaper (Merten, 2020). However, one participant also has doubts and is not sure who actually is in control: "I indicate what I find interesting by clicking, by liking, by sharing, by scrolling, by whatever, and social media bases my feed on this. So, does social media influence me then or do I influence my social media?" (Elise, May 6, 2021). This comment by 26-year-old Elise illustrates that users might have an impact on what is shown to them by interacting with content in a certain way and through that somewhat control their news feed. This can also be described as manipulating the algorithm to take control in what the algorithm recommends (Min, 2019). Half of the participants feel that they take part, or have taken part, in such manipulation by liking certain content extra or scrolling fast through content they like less. However, in the end, the young users overall feel that they cannot actually create their own news feed, as algorithms eventually are in control of what news is placed in their feed.

It [news personalization] just gets taken over by the algorithm and you just have no control over that. It is a self-thinking system [...] and I wonder whether such an algorithm can really be manipulated. I think an algorithm is much smarter than you are or than I am (Menno, May 7, 2021).

This is in line with how Merten (2020), next to the audience control, does state that both journalists and algorithms have the final control. Journalists are still gatekeeping what news is entered in the public debate and algorithms filter what is eventually shown to the audience. Together with Menno, eight other participants also recognize this notion.

The Dutch young social media users, furthermore, acknowledge a sense of responsibility they have regarding their own social media news consumption and awareness level. Participants, for example, state having to take responsibility to figure out what they base their truth on and to get more deepened in the platforms they consume news on.

It is not that algorithms are unknown. More and more people are becoming aware of this. So, I do not think you should let your news consumption depend on that. There is really partly personal responsibility with that. [...] Everything is getting easier and faster, but that also comes with responsibilities (Menno, May 7, 2021).

Like Menno, seven other participants stress the importance of taking responsibility in consuming news via social media and find it important to increase the level of awareness, as algorithms can have a significant impact. Because of this impact, the majority of the young users also indicate news organizations having to take responsibility and argue that they should increase algorithmic transparency, as they are mostly unaware of news being personalized.

I think they [news organizations] might be afraid that we will question them more, but I do that already because I know that it [news personalization] exists now. So, I prefer them being honest and transparent about using it. Then at least we are made aware of it and then we can decide for ourselves what to do with it (Sofia, April 23, 2021).

Sofia's comment illustrates how users prefer algorithmic transparency so they know how certain personalization techniques were used. This could help the young users understand underlying points of view and processes of the news articles they read (Diakopoulos & Koliska, 2017). It could furthermore help users make more informed decisions and increase the level of trust towards news organizations when they disclose how algorithms were used in the journalistic process (Head et al., 2020).

### **4.3 The news personalization paradox**

The third theme reveals the perceptions of the young Dutch social media users towards the personalization of their news on social media. Within these perceptions a paradox can be recognized, as all participants mention both positive and negative aspects in a contradicting manner. Participants, for example, mention enjoying the convenience of the personalization that is close to their interests and are accepting of algorithms, while they also stress that they find it annoying or dangerous and the personalization leading to one-sided news consumption at the same time. The young users call news personalization twofold and having both pros and cons. Thus, overall a paradox can be recognized in the perceptions of participants towards news personalization.

#### **4.3.1 Positive perception towards news personalization**

I think that [personalization] is a great advantage. Look, if you read a newspaper, there are a lot of articles in there that do not really interest me at all, but Instagram only shows content that you want to see and also in the order of what you prefer to watch, so I like that (Maarten, May 14, 2021).

This positive note Maarten makes about news personalization refers to the tailor-made news feed that is presented to him and other users based on personal preferences (Helberger, 2015). Instead of having to look for articles in newspapers that fit their interests, all the Dutch young social media users indicate enjoying the convenience of not having to do that themselves. Kim also illustrates this by stating: “An advantage is that you go from a wide range of things, to the things you actually like to watch [...] and thus you are well aware of the things you deal with on a daily basis” (Kim, April 30, 2021). This thus saves the users from getting an overload of information and helps them deal with the abundance of news available online (Spohr, 2017). It is seen as an advantage as it fits with matters participants deal with daily, like Kim states, and fits personal preferences. The selection of news provided to the young users based on their preferences is overall perceived as positive by all participants, as it represents what they are interested in and is thus seen as easy, fitting, and convenient.

Nine out of ten participants are furthermore accepting of algorithms and the data that is used, as they feel that it is necessary to create a personalized news feed.

As a result [of algorithms tracking data], they naturally also remember what you find interesting and what does and does not need to appear for you. So, I think it is just okay in that area. [...] I do not really have a lot of problems with it (Nikki, May 5, 2021).

Like other participants, Nikki's comment illustrates how she does not have a problem with algorithms being present on social media, as they filter what is interesting and thus need to know what is fitting for each individual. As Menno states it: "We have made a choice in that. I think, you have made a choice in that and to be present there [on social media platforms] and then you are okay with that" (Menno, May 7, 2021). This shows that when users decide to be present on social media platforms and consume news there, that according to Menno, users should also be okay with algorithms operating on these platforms. Eight other participants share this opinion, which illustrates the embeddedness of algorithms in everyday life. They are part of the everyday practices, consuming news and scrolling through social media for example, and can almost not be avoided anymore nowadays (Willson, 2017). The young users in this research recognize that and are mostly accepting of this embeddedness in their everyday life.

#### **4.3.2 Negative perception towards news personalization**

However, all participants argue that news personalization is twofold and do not perceive it as merely positive. They also recognize it having a negative side and ascribe both pros and cons to the personalization of news. Half of the participants, for example, stress worries about their privacy when they are confronted with their personalization (Head et al., 2020).

On the one hand, it is nice because there will be things that you like, but it can also be bad, because they take everything you say from you, so it is also a violation of privacy. So it is a little bit double (Kim, April 30, 2021).

The way Kim calls news personalization double is also stressed by the other participants who mention terms such as twofold, two-sided, and contradictory. This two-sidedness can further be explained by giving the young users too much of the same news and therewith creating one-dimensionality in their news experience (Bódo, 2019).

According to the algorithm, things are shown that you like and that you look at more often and as a result you end up in Arjen Lubach's 'myth trap' and there you will only keep seeing things you find interesting, with thus quite one-sided news as a result (Elise, May 6, 2021).

Elise's comment illustrates how young users recognize the one-dimensionality of news and the possibility of ending up in a 'myth trap' (De Wit et al., 2020). This trap is generally referred to in the academic debate as being in a filter bubble with selective exposure to information, and limits the selection of news young users get presented (Pariser, 2011). All participants state that this a dangerous side of news personalization, as it will limit what they see without them having a say in that. 29-year-old Phara for example refers to it as being in an "infinite pitfall" and such a pitfall is difficult to escape (Pariser, 2011). Another participant states: "I do not want to live in such a bubble, because I notice that I just see a lot of negativity, a lot of extreme things and I just don't enjoy that at all" (Menno, May 7, 2021). A filter bubble is, thus, mostly perceived as negative and not something participants want to be in. However, they do recognize that they are probably all in such a bubble or trap without them even knowing about it (Pariser, 2011). Furthermore, when participants reflect on the ability to stay away from such a bubble, they mostly see it as inevitable to end up in it.

A lot of people only have the idea that there is a trap when you are very deep into something, but that is of course the idea of a trap. If you swim into something, that is of course where the whole trap came from with fish, that they have no idea where they are until they are stuck. That is how it works. So, the moment you enter an app, install it for the first time, you are already in a trap (Menno, May 7, 2021).

Because of this filter bubble and one-dimensionality of news, participants describe the personalization of news as dangerous, but also as annoying and too much of the same information. One participant stated not even wanting news personalization at all.

For recreation, I like that it is personalized, but for more important things, such as the news with which you become aware of what is happening around you, it is just not useful, so I would rather not want it (Rafael, May 5, 2021).

Rafael's comment illustrates how he would rather not want a personalized news feed, but does enjoy personalization for recreational purposes. Four other young users also mention the difference between personalization of their news feed and the personalization of the other part of their feed, but do not reject news personalization like Rafael does.

Overall it can be stated that the young Dutch social media users are not merely positive or negative towards news personalization, but feel that the phenomenon is twofold. Participants contradict themselves in certain statements about news personalization and even catch themselves contradicting. For that reason, a paradox can be recognized in the perceptions of the young users towards news personalization. They appreciate the convenience it can bring and the way it helps them deal with the overload of information available online (Spohr, 2017), but also see the dangers and recognize that, for example, filter bubbles are almost inevitable online (Pariser, 2011).

#### **4.4 The shaping of reality**

The fourth and final theme relates to the perceptions of the young Dutch social media users about the role that news personalization plays in shaping their reality, the impact this has on their worldview, and in general on society. Overall, nine out of ten participants agree on the significant impact algorithms have on their worldview, and the way news personalization shapes what they see. Furthermore, it is stated that algorithmic filtering is in its early stages and can have an even more significant role in how the world is perceived in the future. Moreover, the young users stress the societal implications news personalization can have and how this could also shape society.

##### **4.4.1 Impact on individuals' worldview**

That [algorithms] has a lot of influence, because my news consumption depends on what is being put together for me, so indeed such an algorithm is very important for me at this time to get my news. [...] so, I think that has a big influence on how I look at the world and my reality (Sofia, April 23, 2021).

This comment by Sofia illustrates how she, and with her eight other participants, recognize the growing power of algorithms (Willson, 2017). Algorithms co-govern what is shown online and thus, like Sofia states, also have a role in the co-construction of the young

user's reality (Just & Latzer, 2017). Sofia perceives this role as having a big influence on how she sees the world. This can be explained by the fact that she depends on the algorithmic selection in her news consumption, which has the ability to shape what she knows, discovers, and how she experiences things (Beer, 2017). She thus, like most of the younger generation, relies heavily on social media as a news and information source, whereby algorithms are playing a central role. Nine out of ten participants state algorithms having a big or strong role in shaping their reality. Only one participant stated not being impacted by algorithmic selection.

No, I do not think that [algorithms shaping reality] is the case at all. Look, I really like social media and being online and I see a lot of things that interest me, but it will never affect how I see the world or who I am (Sarinah, May 11, 2021).

Sarinah thus does not recognize the way algorithms can possibly shape her worldview. She states that her worldview is shaped more by real-life experiences and everyday conversations, than her algorithmically filtered news feed. In contrast, the other nine young users do acknowledge the growing power of algorithms and the way it co-shapes their reality. As Phara illustrates: "I think the effect of algorithms is so enormous and it is only still in its infancy. But I think it is really big and it is going to probably be even bigger" (Phara, April 30, 2021).

The majority of the participants state that this reality shaping mostly happens in combination with social media platforms, as that is where the algorithms operate invisibly (Diakopoulos and Koliska, 2017), and the news articles are posted on. Four participants also state that journalists and news organizations play a role in this shaping process.

They actually, let's say, have power over the world. Not literally, but in terms of how we look at it. So, I think they have a lot of responsibility in that. [...] because journalists, of course, make the first setup, those are the people who put everything on it [social media] first (Endi, May 7, 2021).

In this sense 27-year-old Endi, together with three other participants, recognizes that journalists are first-level agenda-setters and have an attention-directing function in determining what is on the news agenda, before it is even posted on social media or filtered by an algorithm (Bro, 2016). After journalists post news articles, algorithms take the role of



second-level agenda setters or gatekeepers by prioritizing news articles for users, which can ultimately influence their perceptions (Guo, 2015; Vargo et al., 2018).

In sum, almost all participants perceive the impact of the algorithmic filtering of their news as strong, big, or significant for the way their reality is shaped. Nine out of ten participants acknowledge the role news personalization plays in shaping their perception of the world. The role journalists and platforms play in this is also mentioned by some, but ultimately nine young users acknowledge algorithms to have the most significant role in the way they perceive the world.

#### **4.4.2 Societal implications and trustworthiness of news personalization**

The young Dutch social media users not only recognize the impact news personalization can have on their worldview, but also the impact it can have on shaping society. Firstly, there is an overall distrust in social media news, which is also supported by recent research on news consumption (Newman et al., 2020), as participants indicate finding it hard to distinguish what is real and what is fake news in their feed. This perception by the young users can be explained by the fact that fake news is a common phenomenon online. Users can get misinformed without them even being aware of it, as fake news mimics legitimate news sources (Torres et al., 2018).

Users are, however, aware that fake news is very common online and acknowledge the dangers of it being in between their personalized news feed (Zimmer et al., 2019). As Maarten states: “There are probably a lot of things that you believe to be true, but that are actually not true at all and that is because fake news is just not distinguishable anymore” (Maarten, May 14, 2021). This comment illustrates how he sees the dangers of people basing their truth on fake news, as it is hard to distinguish it as being fake. This can be referred to as mal-information and mimics news the most, as it is information based on reality to inflict a certain entity (Ireton & Posetti, 2018). This could be dangerous, as social media users also have a more active role as users and can thus share and spread this news in their network to reach even more users (Hermida, 2016). Maarten, furthermore, stresses the dangerous societal impact fake news can have with COVID-19 nowadays and the conspiracy theories being spread about that.

This fake news and news personalization, in general, is even argued to possibly form a threat to democracy. It could, for example, form isolated communities through the selective

exposure algorithms offer and make national consensus nearly impossible (Spohr, 2017).

Phara gives an example of the societal impact by stating:

Well, I think what we saw with for example the American elections, especially with Trump one, so Trump versus Clinton, that it came out for the first time how much influence social media can have on matters that should not really be related to social media (Phara, April 30, 2021).

This illustrates how social media can have enormous implications for society and the way news personalization nowadays can have even more impact. Aligned with this example about the American elections, news personalization could for example also lead to polarization, as the algorithmic recommendation systems on social media do not show a diversity of opinions or viewpoints (Spohr, 2017). The algorithms merely personalize fitting information and news that is opinion-reinforcing, rather than opinion-challenging (Pariser, 2011).

It [news personalization] becomes quite one-sided, and as a result you no longer see what someone else means. And as a result you are not only distancing people who think differently, but it is also almost of national interest that you can cause polarization that way (Elise, May 6, 2021).

Elise illustrates with this comment how she finds it problematic that people are distancing from each other through news personalization, and also sees the societal implication this can have. She ,furthermore, states that she finds it a shame how personalization keeps confirming her opinion, rather than challenging it.

These perceptions about the overall distrust in social media news and the societal implications news personalization can have, highlights the concerns young Dutch social media users have. They are not only acknowledging the way it can shape their worldview on an individual level, but also how it can shape on a larger scale and cause problems on a societal level.

## 5. Conclusion

The new digital information landscape, with new ways of consuming news and changing journalistic practices, has proven to also come with challenges. Challenges concern phenomena such as filter bubbles, echo chambers, and the spread of fake news. Also, for the production and distribution of news it can be challenging to combine algorithms with journalistic values. Altogether, these new forms of news consumption and journalism can also shape the reality of young social media users. This is sometimes, however, happening without users being aware of it. This research found support for changing patterns in news consumption and perceptions towards news. Moreover, this research outlined the way young Dutch social media users perceive news personalization, the perceived influence on their world view, and their level of knowledge and awareness regarding the personalization

Furthermore, rather than focusing on algorithmic awareness in general, this study related it specifically to news and the way news personalization can have an impact on young users' worldview (Monzer et al., 2020; Powers, 2017). This was done as there is overall little insight in how young users perceive this (Thurman et al., 2019b), and the level of awareness they specifically have regarding news personalization (Monzer et al., 2020). Resulting from this study are new insights into how users perceive news personalization and the influence it can possibly have on their worldview. These insights provided the means to answer the central question of this research: *What is the perceived influence of news personalization on individual perceptions of reality among young Dutch social media users?*

This research question was answered with the help of ten in-depth interviews with young Dutch social media users. After thematically analyzing the resulting transcripts, four overarching themes were found. Firstly, *the shifting role of news* was recognized by changing consumption patterns with more social media consumption of news in an incidental way. Also, users indicate having doubts about journalism combined with new technologies nowadays. Second, *the level of awareness towards news personalization* was found to be minimal regarding news personalization. Furthermore, the level of control users have over their news consumption is perceived as little. Several users also indicate having to take responsibility concerning their consumption behavior, as well as news organizations having to be responsible and transparent regarding the use of algorithms. Third, users exemplify a *news personalization paradox* in the way they perceive this. News personalization is explained as twofold and being both convenient, for example, as well as dangerous and in general as having positive and negative sides. Lastly, when it comes to *the shaping of reality*, the

majority of the users indicated news personalization and algorithms having a significant impact on how they see the world. This impact is not only exemplified on an individual level, but also on a societal level. News personalization, according to the interviewees, not only shapes their individual worldview, but also has implications for society such as possibly forming a threat to democracy or leading to polarization.

## **5.1 Theoretical implications**

The results outlined in this research are similar to results found in previous research. Also, these results reassemble those of research conducted in different countries. However, this research also provides new insights, as previous research regarding perceptions towards news personalization is scarce (Thurman et al., 2019b). Therefore, the results of this research partly validate existing understandings in the current academic debate (Sousa, 2014). Traditional news is consumed to a lesser extent as the Dutch young social media users indicate mainly consuming news via social media. The decline some young users have towards traditional news is in line with previous research (Geers, 2020), but interestingly this research also shows that traditional news formats are still appreciated by some of the younger generation. The majority of the participants argue that traditional news can be trusted more, which can be explained by more and more fake news being present on social media (Zimmer et al., 2019). Also, young users seem to trust traditional news sources more than social media when it comes to COVID-19 news (Newman et al., 2020).

When looking at the level of awareness and knowledge the young users have regarding news personalization, the results of this research show that some participants have basic knowledge about algorithms, but awareness about news personalization, in general, is lacking. This aligns with previous research that also established a basic knowledge level amongst participants (Brodsky et al., 2020). However, not all participants had the same level of knowledge and differed in their associations with algorithms. The level of awareness of the young Dutch users, furthermore, aligns with previous research that found users being aware of personalization when it comes to advertisements for example, but less aware of the personalization of their news feed (Dogruel et al., 2020).

In sum, this thus means that there are still knowledge gaps when it comes to algorithms, and awareness concerning news personalization is lacking among the Dutch young social media users. Also, users perceive their level of control regarding news consumption overall as little. This is in contrast, however, with previous notions of the

audience taking a more active role (Hermida, 2016), and more control in curating news feeds (Merten, 2020). This research, therefore, states that with the large amounts of information, multiple gatekeepers, and filtering techniques present online, the final control for the users in their news consumption and the perception of this is regarded as little.

When looking at the way young users perceive news personalization, this can be seen as paradoxical. They both appreciate the convenience and the fact it is close to their interests, but also finding it dangerous, confronting, or point out privacy worries. The participants also expressed concerns regarding myth traps and filter bubbles that are in line with previous research by Pariser (2011). Overall, users exemplify how they see it leading to one-sided news and confirming their opinion, rather than challenging it. One participant, however, states not being worried about filter bubbles or being in such a bubble, which is in line with research by Davies (2018) who claims filter bubbles are caused by people's own behavior and can be escaped.

Relating to the perceptions about news personalization, is the perceived impact this has on the worldview of young users. They overall perceive this influence as significant and algorithms overall having the largest role in shaping their reality through news personalization. This perception connects to previous research on algorithms constructing reality that found theoretical support for algorithms co-shaping individuals' reality (Just & Latzer, 2017). Insights from this research confirm this through the perceptions of the young Dutch social media users. Furthermore, on a societal level, the majority of the participants also recognize news personalization shaping society by forming a threat to democracy and leading to polarization for example. These societal implications are subject of concern in previous studies (Spohr, 2017; Vraga and Tully, 2021), and also mentioned as concerns by some of the Dutch users.

## **5.2 Societal implications**

This research furthermore presents implications for several sectors in society. Firstly, the results show that there are still knowledge gaps when it comes to algorithms and awareness regarding news personalization is lacking. Therefore, there is a need to incorporate information about algorithms in general, but also specifically relating to news, into media literacy programs. Several scholars suggest this already in the academic debate (Brodsky et al., 2020; Bulger & Davison, 2018; Head et al., 2020), as it will help users understand the filtering process better and will support them to make more informed decisions regarding their

news consumption behavior. It will help fill certain knowledge gaps and make users more aware of how their news feed is created (Brodsky et al., 2020; Head et al., 2020). Not only do the results of this research confirm this need, but the young Dutch social media users themselves also stress the importance of creating more literacy and wanting to be informed more about news personalization.

Furthermore, the Dutch government can also play a role in creating more knowledge and awareness regarding news personalization. Although the government finds tackling concerns such as fake news important (Duin, 2020), the Dutch young social media users perceive the actions they take, when it comes to algorithms and news personalization, as inadequate. Some users argue that the government should start a campaign to create more overall knowledge and especially more awareness amongst the younger generation. Also, because news personalization can have serious implications for society, policymakers should pay more attention to the phenomena.

There is also a call for more algorithmic transparency. This would increase the level of awareness, as well as the trustworthiness of news personalization. Head et al. (2020) stress the importance of news organizations making the production process, which includes algorithms, more overt. Young users can then make more informed decisions and the level of trust can increase (Eslami et al., 2015). The young users in this research confirm this and would like news organizations to be more transparent. This is something news organizations thus should consider incorporating in their policy.

Lastly, the news personalization paradox and the way some participants see a disconnection between news and algorithms, the public algorithm NPO board member Van Dam suggests should seriously be considered. The one-dimensionality of news and the implication of leading to polarization can be tackled by this. Such an algorithm would allow users to form an opinion and worldview based on multiple perspectives of news, rather than just one (NPO radio 1, 2021). As multiple young users are concerned about the one-sidedness of news, the impact news personalization can have on both their reality as well as society, and the way some see a disconnection between algorithms and news, such a public algorithm might be a step closer to tackling these concerns.

### **5.3 Limitations and recommendations**

Despite several measures being taken to strengthen this research, some limitations should be considered. Firstly, the small sample that was used for this research consisting of

ten young Dutch social media users is not generalizable to the larger population of young social media users in the Netherlands (Guest et al., 2013). However, this research reached a point of saturation after ten interviews, as additional interviews would not provide any new valuable insights for the analysis (Bryant & Charmaz, 2007). Furthermore, similar findings were found in previous research conducted in different contexts, making the results of this research reliable. Second, the grounded theory approach used for this qualitative study is subject to the researcher's pre-understandings and subjectivity (Elo et al., 2014). To mitigate this limitation the role of the research was critically reflected on during the entire research process on a continuous level.

Furthermore, as the interviews were conducted partly face-to-face and partly via Zoom, some interviews suffered the limitation of having less chance to build intimacy and establish rapport through the online connection. Also, non-verbal cues were expected to be more tricky to pick up during the online interviews (Guest et al., 2013; Johnson, 2001). However, as the online interviews were with good image quality and an overall stable internet connection, non-verbal cues could easily be picked up. Also, as interviewees were in their own homes while conducting the online interviews, the participants felt at ease to share their thoughts and intimacy could still be built.

In addition, some recommendations for further research are in place. Firstly, more research is necessary regarding audience perceptions on news personalization, as this is still lacking in the academic debate and needs more exploration. Future studies are advised to use a larger sample size and not just focus on the Netherlands, but also other countries. This will also allow a comparison between groups. Age might for example be a determining factor in perceptions towards news personalization, as some of the younger generation grew up with algorithms and others also know a digital world without them. Second, as participants were not concise in their general level of algorithmic knowledge, and awareness regarding news personalization was mostly lacking, future research should focus more on these phenomena. Also, because previous research is not concise in its outcomes. A more quantitative approach can, for example, be taken for this with a survey or an experiment to indicate the level of algorithmic knowledge and awareness among young users through objective measurements and statistical analysis of data.

Lastly, future research should consider COVID-19 as a factor that can influence perceptions on news personalization. The majority of the participants mentioned the virus as a subject to news that together with personalization causes radical opinions through filter bubbles and the spread of conspiracy theories for example. These developments surrounding

COVID-19 could possibly change news consumption behavior among users, or have an impact on perceptions towards news personalization and should thus be given focus in future research.

In sum, this research provided new insights regarding audience perceptions on news personalization and the way young users perceive the influence on their reality. Furthermore, understandings were provided related to algorithmic knowledge and the level of awareness towards news personalization. Overall, these results add to the existing academic debate surrounding news personalization, but further research is desirable to provide additional meaningful insights on a larger scale.



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## Appendix A: Description of the sample

	<b>NAME</b>	<b>AGE</b>	<b>GENDER</b>	<b>PROFESSION</b>	<b>INTERVIEW DATE</b>	<b>INTERVIEW SETTING</b>
<b>1</b>	Sofia	23	Female	Social worker	04/23/2021	Face to face
<b>2</b>	Phara	29	Female	Musician	04/30/2021	Zoom
<b>3</b>	Kim	20	Female	Brokerage student	04/30/2021	Zoom
<b>4</b>	Rafael	20	Male	Student applied physics/ social media assistant	05/05/2021	Face to face
<b>5</b>	Nikki	23	Female	Hotel management student	05/05/2021	Face to face
<b>6</b>	Elise	26	Female	Primary school teacher	05/06/2021	Face to face
<b>7</b>	Menno	26	Male	Programmer	05/07/2021	Face to face
<b>8</b>	Endi	27	Male	Student sports marketing & management/ logistic employee	05/07/2021	Zoom
<b>9</b>	Sarinah	22	Female	Location manager	05/11/2021	Zoom
<b>10</b>	Maarten	25	Male	Gym employee	05/14/2021	Face to face

## **Appendix B: Interview guide**

### **Background and social media use**

- Could you please introduce yourself?
- How do you use social media daily?
- How do you consume news? (online, social media, traditional etc.)
- What news did you last read online? How did you find out about it?
- How else do you come across news articles that you read online?

### **News consumption**

- What are your thoughts on consuming news through social media rather than traditional media?
- To what extent do you trust news that you consume through social media? And why?
- How do you feel about fake news and possibly being disinformed by news online?
- How do you think news becomes apparent to you in your social media feed?

### **Algorithms**

- What do you associate with the term 'algorithm'? How do you know about this?
- How do you feel about your behavior and preferences being tracked online?
- What do you think about the personalization of your online news experience?
- Are you aware of any concerns that can come with this personalized experience?
- What do you think about phenomena such as filter bubbles or echo chambers?
- Do you feel you are informed enough about how and what kind of data is used from you?

### **Algorithmic news selection/news personalization**

- How strongly do you think your online experience and news feed is influenced by algorithms?
- How do you feel about your autonomy/control regarding your news consumption through social media?
- Has there ever been a situation in which you became specifically aware of your personalization/algorithms? Because you received a particularly good or bad recommendation in your news feed for example?

- How aware are you of news media also using such techniques (personalization/algorithms)?
- What would be the advantage of a personalized online news experience for you?
- And what would be the disadvantage of a personalized online news experience for you?
- How important are either journalistic or algorithmic choices regarding your news consumption to you?

**Perceived influence of algorithms on individual views on reality**

- What are your thoughts on the possible influence of algorithms in shaping your reality?
- And what are your thoughts on the possible influence of journalists in shaping your reality?
- Who do you think is more influential in shaping your views on reality: algorithms, journalists or the social media platforms?
- Do you think you are critical towards your own news consumption on social media? Why?
- Do you think we need to be made more aware of how algorithms may influence our world view? How do you think this can be achieved?
- What do you think news organizations could do to improve transparency?
- How do you feel about media literacy in school programs for example?
- Is there anything we didn't discuss that you would still like to talk about or share with me?

**Appendix C: Coding scheme**

<i>SELECTIVE CODES</i>	<i>AXIAL CODES</i>	<i>OPEN CODES</i>
<b>THE SHIFTING ROLE OF NEWS</b>	<b>Social media news consumption</b>	Incidental news consumption Interactivity social media news Lazy news consumer Leisure Not actively seeking for news Social contact Social media main news source Social media news consumption Social media usage Superficial news consumption
	<b>The shifting role of journalism</b>	Combining human touch and technology Decline traditional news Disconnection news and algorithms News for a general view News to create value news via social network Preference journalistic news selection Rejection social media news Relevance of news Secondary traditional news consumption Social media adequate for news distribution Static news selection
<b>THE LEVEL OF AWARENESS TOWARDS NEWS PERSONALIZATION</b>	<b>Algorithmic knowledge and awareness</b>	Algorithmic awareness Algorithmic knowledge Algorithms invisible Careful with social media news consumption Critical towards social media news consumption Fake news invisible

		<p>Importance of algorithmic awareness</p> <p>Inadequate media literacy</p> <p>Lack of awareness news personalization</p> <p>Little algorithmic knowledge</p> <p>Not critical towards news consumption</p> <p>Not deepened in own news consumption</p> <p>Striving for more awareness</p> <p>Uninformed about news personalization</p>
	<p><b>Control level in news consumption</b></p>	<p>Call for more control</p> <p>Control in news consumption</p> <p>Forced to accept algorithms</p> <p>Little autonomy in news consumption</p> <p>Manipulating personalization</p> <p>No control over news consumption</p> <p>Satisfied with control level</p>
	<p><b>Responsibility in social media</b></p>	<p>Actively seeking for news</p> <p>Communicating algorithmic transparency</p> <p>Importance different perspectives</p> <p>Journalistic transparency</p> <p>Own responsibility</p> <p>Platform responsibility</p>
<p><b>THE NEWS PERSONALIZATION PARADOX</b></p>	<p><b>Positive perception towards news personalization</b></p>	<p>Accepting of algorithms</p> <p>Algorithms as comfortable</p> <p>News personalization as convenient</p> <p>News personalization as easy</p> <p>News personalization specific</p> <p>No algorithmic influence</p> <p>Normality of algorithms</p> <p>Not missing news</p> <p>Personalization close to interests</p> <p>Personalization reflection of self</p> <p>Positive news personalization</p> <p>Preference algorithmic news selection</p>



	<p><b>Negative perception towards news personalization</b></p>	<p>Dangers of algorithms  Filter bubble dangers  Infinite pitfall  Missing news  News personalization as annoying  News personalization as dangerous  News personalization as forced  News personalization as scary  News personalization confronting  News personalization twofold  Not wanting personalization  One-sided news consumption  Privacy worries  Questioning news personalization  Too much of the same</p>
<p><b>THE SHAPING OF REALITY</b></p>	<p><b>Impact on individuals' worldview</b></p>	<p>Brain washing  Impact algorithms on worldview  Impact journalism on worldview  Impact platforms on worldview  Influence fake news  Limited news selection  Limited worldview  Opinion confirming  Opinion forming  Strong algorithmic influence  Wrongful truth</p>
	<p><b>Societal implications news personalization</b></p>	<p>Algorithms as part of society  Fake news dangerous  Individuality  Polarization  role of journalist in society  Role of news in society  Threat to democracy</p>

Vulnerable younger generation

**Trustworthiness of news**

Distrust in online/social media news

Distrust traditional news

Fake news inevitable

Fake news part of online news

Journalism biased

Loss of context

Sensation news

Traditional news manipulating

Traditional news trustworthy

Trust in news source dependent

Trust in online/social media news

Trustworthiness check when interested