The Role of Individuals' Intellectual Openness and Different Information Processing Styles in Perceived News Accuracy in The Context of Ideological Polarization

Bachelor of Science Thesis

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Abstract

Nowadays, the way people obtain news coverage becomes increasingly related to the internet. Here, users can reach a wide range of people by fast and simplified message transmission, which might be beneficial for valid, informative news. However, it can pose a serious threat to society if the spread news contains fake messages, especially in ideologically polarized contexts. Research has shown that fake news can trigger and uphold lies, racism, and stir up hatred against others. The current study takes on to investigate underlying factors of people's perceived fake news accuracy. More specifically, it researches the potential correlation of factors such as intellectual openness, heuristic, and systematic processing styles and general trust in journalists with perceived fake and, for the sake of comparison, with perceived real news accuracy. A correlational survey was conducted, including a convenience sample of 113 participants that have been recruited to take part in a questionnaire. The questionnaire contained several measurement scales that aimed at investigating the independent variables in a political context. Furthermore, individuals' perceived fake and real news accuracy was measured by having the participants rate different news items on a credibility scale. Multiple and moderation regression analyses were conducted to examine the data. The results showed significant correlations between the dependent variable of *Perceived Fake* News Accuracy and of Perceived Real News Accuracy with General Trust. Hence, the study proves that high trust in journalists leads to higher perceived real news accuracy in people, but to lower perceived accuracy of fake news. The variables Intellectual Openness as well as Systematic and Heuristic Processing showed to not account for Perceived Fake News Accuracy to a statistically significant extent.

1. Introduction

The World Wide Web and its numerous social media platforms have become of increasing importance in the current era of continuous technological progress. Computers and other mobile devices do not only dominate network communication but are also known as pioneers in the transmission and distribution of daily news all over the world. While this, on the one hand, might have the benefits of fast and simplified message delivery, it, on the other hand, also presents serious disadvantages. For instance, it gives users the opportunity to widely spread information that is factoid, manipulated, or utterly wrong. In most cases, this misinformation is intentionally presented as being true in order to mislead and deceive its recipients, and thus, disinform the readers (Lazer et al., 2018). One type of such information disorder that is frequently discussed nowadays is fake news which refers to made-up information that mimes genuine media content but lacks its credibility as well as it holds, unlike real news, deceptive intentions (Lazer et al., 2018; Tandoc, 2019). The current study aims at investigating the factors underlying people's perception of the accuracy of such fake news. It starts identifying precursors that can either support or hinder individuals to rate fake news on the internet as accurate. By the help of that, this study might give an approach to future research to intervene in the found factors in order to help people perceiving fake news as less accurate and thus, to cut the acceptance and spread of it and thereby its power.

Previous literature has found already that certain individual characteristics influence the impact fake information has on people and society. Cognitive ability, analytical thinking, and pre-existing attitudes are among the attributes researched most in relation to the fake news topic (De keersmaecker & Roet, 2017; Bronstein, Pennycook, Bear, Rand, & Cannon, 2019). Especially influential here seems to be analytical and actively open-minded thinking which has been shown to be related to people's perception of fake news. Bronstein and his colleagues (2019) have found that individuals who display reduced analytical thinking show an increased belief in fake news. Based on their work, the current study argues that people's general *Intellectual Openness* can be associated with their perception of fake news' credibility. *Openness* as one of the big five personality traits showed among other characteristics to be positively correlated with people's trust in real news (Shu, Wang, & Liu, 2018). However, *Intellectual Openness* as a sub-trait of *Openness* has not been investigated within the fake news topic so far.

Furthermore, Trumbo (2002) has found that different information processing styles, usually referring to the heuristic-systematic model (HSM) of Chaiken (1980), predict an individual's

perception of certain things, such as in risk evaluation. The HSM shows that people seek to find conclusion with the use of minimal cognitive effort. This means that humans tend to process a piece of information heuristically when they are required to make judgments about it, such as it might be the case with news media content (Kang, Bae, Zhang, & Sundar, 2011). Kang and his colleagues furthermore argue that the model shows that people's perceived credibility of news media content is derived from their perceived credibility of its source. This would mean that when users are demanded to judge, for example, a fake news piece's credibility on social media, this judgment is related to their use of a certain information processing style as well as their general trust in the news source.

Based on these findings, several factors seem to influence the way people perceive news on the internet. Identifying such processes that are possibly involved in the perceived accuracy of fake news can give future research an approach to help online news readers in the detection of such. This, in the long term, might help to intervene in the acceptance and spread of fake news. The goal of the current research is to focus mainly on the underlying factors of intellectual openness and people's information processing styles. On the one hand, literature has shown that people's openness in thinking can be associated with their perception of fake news. Once the relationship between those is examined, further research can focus on, for example, raising people's intellectual openness in order to change their perceptions of the accuracy of fake news. But also, the way individuals process news information has shown to be related to how they perceive and judge this information. Thus, there also might be an association between the way they perceive fake news accuracy and their systematic or heuristic information processing style regarding political news. In order to have a means to compare the values of perceived fake news accuracy with, people's perception of real news accuracy is considered in the current study as well. The resulting research question can then be stated as:

RQ. To what extent is people's intellectual openness linked to their perceived news accuracy concerning fake and real news? Are people's perceptions of the accuracy of fake news content in a political context related to different information processing styles?

1.1 The Dangers of Fake News Spread

What drives people to produce fake news is, according to Tandoc (2019), mostly for financial or ideological reasons. When being created out of ideological motivation, fake news is often used to

denigrate politicians and opposing parties and, thereby, to influence elections (Tandoc, 2019). Regardless of the motivation for its production, fake news is often unintentionally spread by users. This is because it tends to be more novel and, therefore, is more likely to be shared (Tandoc, 2019). Furthermore, such news usually trigger stronger emotions, such as disgust, fear, and surprise, but also humor, for which users have a stronger desire to share it with friends and family (Vosoughi, Roy, & Aral, 2018; Tandoc et al., 2018). Next to that, Vosoughi and his colleagues argue that in today's world, spreading false information is amplified by social media platforms, like Twitter. Here, users can easily share the claims and rumors of other people by retweeting them. In fact, research has found that fake news on Twitter tends to be retweeted quicker and by more users than real news, especially with regard to political contexts (Lazer et al., 2018). Thereby, users are able to reach and possibly influence a wide range of people. Next to the ease of spreading false information, some users are quickly convinced to accept and even adopt those without questioning their sources (Spohr, 2017). Spohr argues that this can be explained by a phenomenon called 'selective exposure' which shows that individuals tend to seek information that confirms their preexisting beliefs. Moreover, they tend to avoid information that is inconsistent with their attitudes. In the context of fake news, this would mean that people are prone to be biased by fake news if those are in line with their own opinions. People then might form new or even stronger opinions on the basis of false news, as well as they are likely to pass this fake information to others (Spohr, 2017). Furthermore, research has shown that fake news is even able to determine how people perceive the reliability of genuine, true information. The great amount of false information on social media platforms can lead to a decrease of trust in authentic and verified sources (Tandoc, 2019). To sum up, people can expose themselves to fabricated information on a daily basis but often do not seem to know that they might be believing and acting on the basis of fake information, or simply do not think that they do. In this way, fake news is hard to counteract on once it is doing its mischief in the world.

The assumption that ideologically motivated online fake news can have a great impact on the real world can further be supported when looking, for example, at the US presidential election in 2016. Back then, several fake news, especially in favor of today's president Donald Trump, was circulating around the internet and is said to have influenced the election outcome (Silverman, 2016). A great percentage of Americans now expect their own party to be vilified and to lose voters due to fake news attacks again in the presidential election in November 2020 (Tameez, 2020).

Furthermore, studies argue that fake news has a negative influence on democracy in general since political parties can take advantage of false information on the internet that favors their own goals (Morgan, 2018). Voters rely on the information they can gather when deciding between two candidates, but with fake news, this decision might be based on entirely false information (Persily, 2017). Additionally, fake news is susceptible to foster racist ideology. An example is the overt racism towards Chinese people due to fake news spread during the coronavirus outbreak in 2019 with its origin in Wuhan, China (Lazer et al., 2018; Shimizu, 2020). Thus, fake news seems to be able to affect a community's but also an individual's daily lives to a great, negative extent. For that reason, new measures should further be investigated that can counteract the spread of false information.

1.1.2 Fake News in the Context of Ideological Polarization

Ideological polarization refers to the extreme political attitudes of parties in two divergent directions, such as left- and right-wing. More specifically, polarization describes the extent to which parties in a system disperse ideologically towards the two extremes (Dalton, 2008). Literature has found that ideological polarization has a great, negative impact on democratic issues in society, and hence, can have unfavorable consequences for the individual and community. For example, it is known that polarized environments lack diversity, and support group thinking to an exorbitant, unhealthy degree (Bishop, 2008, as cited in Spohr, 2017). Spohr furthermore argues that in terms of right-wing ideologies, polarization can also involve serious threats in the lives of foreign and migrated citizens due to discrimination.

The role fake news played in the election process of US President Donald Trump gives a good impression of the link between false news and political ideologies. Crawford (2017) has found that fake stories that took the side of Trump were shared almost four times more often than Pro-Clinton stories during the election in 2016. Trump is, according to Winberg (2017), often positioned as right-wing populistic, Clinton is part of the Democratic Party in the US. Furthermore, it has been found that citizens who describe themselves as being conservative and Republican tend to be fooled more often by wrong political information on the internet (Shalby, 2019). In addition to that, news analyses have generally shown that considerably more fake news stories were published by right-wing media users than by left-wing ones (Silverman, 2016). Thus, false news

on the internet seems to have a great impact on the voting behavior of especially right-wing polarized citizens.

The approval for right-wing parties generally seems to have risen in the past few years, such as for the German Alternative für Deutschland (AfD) (Euronews, 2018). The AfD is currently the fourth-strongest party in Germany (Der Bundeswahlleiter, 2019). However, when interviewing an ex-member of the AfD, Franziska Schreiber, the German television channel SWR3 uncovered that the party intentionally creates and spreads modified and false information (Urschinger, 2019). During the interview, Schreiber describes the online news creation and spread of the AfD as purposefully evoking panic in the readers and as stirring up hatred against foreign people. Furthermore, she stated that non-verified statistics and facts are adopted and released which are not based on the genuine truth. Hence, the link between fake news production as well as its dissemination and extreme-wing parties is conspicuous. The spread of such news can leverage political parties and can help them to gain more approval as well as more votes (Morgan, 2018). This can become problematic for democracy if the ascension of these parties and thus, their fake news spread, increases as much as it did in the past few years. Hence, it is important to fight the impact of fake news in a political context to ensure fair and unbiased voting.

1.2 The Role of Intellectual Openness in Perceived Fake News Accuracy

Having the consequences and potential dangers of fake news in political polarized contexts specified, it is valuable for the current study to investigate the processes that underlie the susceptibility of some individuals to believe such fake information. As mentioned before, research has shown that individuals who indicate lower levels of open-minded, analytical thinking are more likely to accept and believe fake news (Bronstein et. al., 2019). Thus, people often fail to think analytically when perceiving false information as real one (Pennycook & Rand, 2019). However, analytical thinking can also increase ideological polarization. Pennycook and Rand (2019) also argue that people who tend to think analytically show less ability to be accurate in identifying fake news that confirms their attitudes, because they aim to protect their political belief.

Furthermore, cognitive ability seems to be involved in an individual's tendency for analytical thinking. Cognitive ability is defined as the human's competence to perform complex thought processes. These involve, for example, reasoning, problem-solving, learning, and memory as well as it is of high importance in social judgment (Bernstein, Clarke-Stewart, Penner, & Roy,

2011, as cited in De keersmaecker, & Roet, 2017). Thus, showing high levels of cognitive ability would also lead to higher levels of analytic thinking.

A study of DeYoung, Quilty, Peterson, and Gray (2014) links individuals' cognitive ability to one of the 'Big Five Personality Traits', *Openness/Intellect*, which is included in the five-factor model of McCrae and Costa (2008). They suggest that both attributes are underlying a joint concept of intelligence which has them connected to each other. Furthermore, DeYoung and his colleagues describe both *Openness* and *Intellect* as the central aspects of the overall trait *Openness*, but as distinguishable sub-traits. Whereas *Openness* refers more to seeking and analyzing sensory and aesthetic information, *Intellect* refers to the ability to use logic and reasoning when exploring abstract information. More importantly, DeYoung Quilty, Peterson, and Gray (2014) explain that individuals who show to be high in *Openness/Intellect* seem to have a greater ability to search and detect information than those low in this trait. Thus, it can be assumed that people scoring high on this trait might perceive fake news accuracy as rather low since they are better able to detect the falsehood of the message. In this case, higher levels of intellectual openness would lead to lower perceived fake news accuracy and might also have a positive effect on perceiving the accuracy of real news. Based on this, the variable *Intellectual Openness* was constructed in order to investigate the assumption.

To sum up, cognitive ability involves analytical thinking, which is crucial for fake news detection, as well as in intellectual openness. The current research aims at investigating the direct link between individuals' intellectual openness and their perceived fake news accuracy. Since individuals that are high on *Openness/Intellect* have, amongst others, higher abilities in seeking and detecting biased information, they might have higher abilities in detecting fake news as well, and thus, show lower perceived accuracy in fake news. Also, higher intellectual openness then might contribute to perceived real news accuracy to a positive amount. Therefore, the first hypothesis of the current study can be formulated as:

H1. "Individuals with higher intellectual openness generally tend to perceive fake news as rather inaccurate."

1.3 People's General Trust in News Media Journalists

Regarding the investigation of processes that underlie people's susceptibility to believe fake news on social media platforms, the general trust that the readers have in news journalists is explored

further. Carr, Barnidge, Lee, and Tsang (2014) investigated individual predispositions that influence the perceived trustworthiness of citizen journalism. They found a connection between people's perception of news credibility and their pre-existing attitudes toward the media and politics in general. These findings show that people are not affected by media information they abandon or ignore anyway because they do not trust the media source. Thus, even if a journalist provides high-quality, valid news, some readers still refrain from believing the information. They then rather perceive fake news as credible if they trust its author over others – however, this also works the other way around. Furthermore, a study of Coleman (2012) refers to a statement of Rosavallon that describes sufficient trust held by the reader as eliminating the need for other kinds of verification or proof of a certain source (Rosanvallon, 2008, as cited in Coleman, 2012). This supports the finding of Carr and his colleagues (2014) that trust builds the basis for believing information, regardless of the information being true or false. Tsfati and Cappella (2003) furthermore argue that people will always engage with media sources they trust. Thus, if individuals are convinced that the creators of a certain news source such as the Twitter posts of a particular party can be trusted, they tend to expose themselves to it on a regular basis. This makes them, according to Tsfati and Cappella (2003), again more vulnerable to believe its content, even when it contains fabricated information.

Hence, the role of trust seems to be an important one in the context of believing fake news. The literature findings show that trust is a strong predictor that can determine to what extent people perceive news media as credible. To have the predictive power of general trust in journalists on perceived news accuracy, regardless of whether the news is real or fake, investigated, the following hypothesis was added based on the previous literature:

H2. Individuals that show higher general trust in journalists generally tend to perceive news as rather accurate, regardless of whether they are real or fake.

Furthermore, it is assumed that trust moderates the influence of other processes that underlie the perceived accuracy of online news on perceived fake and real news accuracy. One of the main processes investigated in this study is an individual's intellectual openness. Subsequently, the following two hypotheses will be tested:

H3. An individual's general trust in journalists moderates the influence of intellectual openness on perceived fake and real news accuracy.

1.4 Information Processing in Fake News Contexts

The previous findings suggest a connection between people's intellectual openness and their trust in certain news sources with their tendency to perceive fabricated news as accurate. This leads to the question regarding the ways people tend to receive and process certain information in fake news contexts. Chaiken (1980) proposes the Heuristic-Systematic Model of Information Processing (HSM) which suggests that people process and assess information in two distinct ways, heuristically and systematically, or in both ways at the same time. Here, the systematic processing style requires more cognitive effort as well as it involves active engagement in the understanding and evaluation of the perceived message, whereas heuristic information processing relates to a simpler, less effortful style. The latter rather has recipients rely on easily accessible and better available information in a judgmental way while neglecting the details and actual content of the message (Chaiken, 1980). Thus, a systematic processing receiver would rather judge the genuineness of a piece of information by its actual content. A heuristic processing individual would judge its validity more superficially by applying general rules and by relying on past observations in similar contexts.

Regarding fake news, literature proposes that the preexisting beliefs an individual holds influence their use of certain information processing styles (Tandoc, 2019). For example, phenomena such as selective exposure have people process information in a way that is consistent with their attitudes and thus, can make them also more vulnerable to perceive fake news as credible. Hence, a relationship between the general use of an individual's processing style in a certain context - in this case, a political - and their susceptibility to perceive fake news as either accurate or inaccurate can be expected. Connected with the model of Chaiken (1980), one might argue that a systematic information processor is more likely to perceive a fake news piece when judging it based on its actual content as less accurate. A heuristic information processor, on the other hand, might tend to perceive fake news' accuracy as high due to his or her more superficial analysis of the news piece. These expectations result in two additional hypotheses in order to answer the research question:

H4. A systematic processing style negatively correlates with an individual's perceived fake news accuracy.

H5. A heuristic processing style positively correlates with an individual's perceived fake news accuracy.

2. Methods

2.1 Design

The study was designed as a correlational survey and employed four independent variables, namely *Intellectual Openness*, *Systematic Processing*, and *Heuristic Processing* as well as *General Trust* in journalists as an independent and moderator variable, and *Perceived Fake News Accuracy* as well as *Perceived Real News Accuracy* as the dependent variables. The latter two were measured by using fake and real news items as stimulus material.

2.2 Participants

The current study comprised a convenience sample of 113 people who took part in the survey voluntarily. Next to recruitment via the Test Subject Pool System (SONA) of the University of Twente, most of the participants were enlisted via accessibility, such as through social network posts and by further convenience. There were no rewards granted for participation besides 0.25 credit points for students who took part in the study via SONA. The inclusion criteria required participants to be at least 18 years old or older as well as sufficient English skills. This left a sample with an age range from 19 to 60 years (M = 23.4, SD = 5.5) of which 40,7% of the participants were male and 59,3% were female. Furthermore, 92% of them stated being of German nationality, 6,2% were Dutch, and 1,8% of the participants had another nationality. Regarding their highest completed level of education, the majority of participants indicated to have a high school or equivalent degree, 24,8% a bachelor's degree, and 4,4% stated to have a master's degree.

In total, 179 responses were recorded. 66 of them were not taken into consideration due to non-completion of the questionnaire or due to not having the consent of some participants to use their data. At least eleven people who took part in the study were students at the University of Twente since they took part in the study via SONA and, thus, the other 168 participants were recruited by convenience.

2.3 Materials

Four Facebook posts were constructed and used as stimulus material for measuring the participants' *Perceived Fake News Accuracy* and *Perceived Fake News Accuracy* (see *Appendix C*). Two of the posts contained fake information, while the other two presented real news to the reader. Their content was taken from the fact-checking website snopes.com as well as from online news articles.

With the help of a fake posts generator website called zeoob.com, the information pieces were all put into the format of Facebook posts to have the participants not be biased by the kind and design of the websites they initially originated from. All the posts contained political information concerning topics that can be considered being been up-do-date today or in the past two years (Soler i Lecha, 2018). Also, the topics are all known for currently being some of the most discussed ones by politically polarized parties, such as election fraud, illegal immigration, and Islamic terrorism. This was done to have the dependent variables measured in a context of ideological polarization.

The first fake post was derived from an article found via scopes.com. The content of the post originated from an item that went viral in December 2019, first published on the website 'Hardnox & Friends' which is known for spreading false rumors and subversive news (Evon, 2019). For the purpose of the study, the topic of this meme was put into a fabricated text that used noticeably impulsive and affect-driven language as well as clear propaganda against Islamists. Additionally, it ended with a call for spreading awareness by sharing the post. This was done to pick up on the layouts of social media posts that seem to be common for being created by ideologically polarized parties. Furthermore, the author ascribed to the post, recognizable by the trademark icon as well as by the Facebook page's name, was chosen to be 'The American Conservative' which is an actual news magazine that promotes conservatism and aims at opposing power in government and business, as stated on the magazine's webpage (The American Conservative, 2020). The news magazine was chosen to be the author of the fake news post based on their existent posts which often come close to the content of the fake news message that was created for the stimulus material. Also, it was expected that the 'Conservative' in the magazine's name was giving a hint that the post creator might produce politically motivated news over genuine or factual ones.

The second fake stimulus was also taken from snopes.com. The original article was published on the website 'Conservative Fighters', in which an illegal immigrant was accused of unlawful voting behavior in favor of Hillary Clinton. However, the fact-checking website revealed that the defendant neither immigrated in The United States illegally nor voted unrightful during the presidential election in 2016 (Garcia, 2017). Based on the information provided on snopes.com, the news message was put into a fabricated Facebook post and was presented to the readers as being published by the conservative television news channel 'Fox News'. This channels' news has

been found to have a significant effect on its readers' voting behavior in favor of Republicans over the years and therefore, might be a questionable new source (DellaVigna & Kaplan, 2007). Additionally, the wording of the post was based on examples of social media propaganda which are commonly phrased in a provocative way with hostile and aggressive language (Farkas, Schou, & Neumayer, 2018). Thus, the formulations were a second hint that the news item might not be credible but propagandized.

The other two posts that acted as stimulus material contained real, truthful information. One of the posts originated from an online article by 'tagesschau', one of the biggest German newscasts, and was dealing with the e-mail affair of Hillary Clinton in the election campaign of 2016 (tagesschau, 2015; see Appendix C). The author was changed to 'CNN Politics' since this American news-based channel seemed to be internationally better known than the 'tagesschau'. The content of the second real news post was derived from the British daily newspaper 'The Guardian' and was selected because of its topic that contained immigrants' health care options in the USA as well as Trump's statement about the situation (The Guardian, 2019). Thus, it depicts controversial news topics and the participants might have been rather skeptical of its content. The two real Facebook posts were created and added to the stimulus material to have the true aim of the study disguised, so the participants would not immediately notice by means of the posts that Perceived Fake News Accuracy was investigated. Additionally, they were supposed to help measuring participant's Perceived Real News Accuracy, its items functioned as a measurement scale for this variable. Moreover, the participants' ratings of how credible the real posts were, were telling how they generally perceive the verity of online news media, regardless of whether they are real or fake. As a difference to the fake news, the real posts were not written and presented as politically polarized nor as seeking for ideological gain.

All four Facebook posts can be found in *Appendix C*.

2.3.1 Instruments

Intellectual Openness

The participant's *Intellectual Openness* was measured by a construct of the Six Factor Personality Questionnaire of Jackson, Paunonen, and Tremblay (2000). From this questionnaire, seven items were extracted whereas four of them were negatively keyed and three were not (α =.63). Examples of the negative items that measured *Intellectual Openness* were: "I am not interested in theoretical

discussions", or "I try to avoid complex people". The others were, for example, "I prefer variety to routine", and "I am open to change". The participants were required to indicate the extent they perceive that the items' statements applied to them by using a seven-point Likert Scale, ranging from 1 ('Strongly Disagree') to 7 ('Strongly Agree'). All items can be found in *Appendix B*.

General Trust in Journalists

The second variable was investigated by using a six-item scale of Siegrist, Gutscher, and Earle (2005) that was supposed to measure a person's general trust in people. For the purpose of this research, one item was left out and the other items were slightly adapted into the context of the study by replacing the words 'people' and 'strangers' with 'journalists' (α =.81). Thus, this part of the questionnaire consisted of five items extracted from the corresponding literature, such as: "I can't trust journalists anymore", and "If given a chance, most journalists would try to take advantage of me" (see *Appendix B*).

Information Processing Styles

In order to measure what information processing style the participants tend to use when it comes to political information in the media, in total nine items on heuristic and systematic processing were extracted from the literature of Griffin, Neuwirth, Giese, and Dunwoody (2002). Again, the wording of the statements was slightly modified in order to stay within the context of the study by changing the topic the participant was asked about in each item into a 'political topic'. After that, the *Systematic Processing* variable showed poor inter-item reliability, so Cronbach's alpha was raised by deleting several items from the scale. Thus, the final variable consisted of only two items which were "After I encounter information about a political topic, I am likely to stop and think about it", and "After thinking about a political topic, I have a broader understanding" (α =.62). The same procedure was applied for *Heuristic Processing*: one item got deleted in order to increase Cronbach's alpha to an acceptable level (α =.56) and left the final variable with three items instead of four (see *Appendix B*). Here, all items in the questionnaire were rated by the participants on a seven-point Likert scale as well.

Perceived Fake News Accuracy and Perceived Real News Accuracy

Furthermore, the participants were required to rate the posts and their contents' credibility on a scale constructed by Appelman and Sundar (2015). The originators have found that message

credibility can be best measured when participants must rate the content of a news source in three adjectives: *accurate, authentic*, and *believable*. By the means of this credibility scale and based on the fake news items in the survey, the variable *Perceived Fake News Accuracy* was computed in the current study (α =.83). Additionally, the two real news posts and thus, the corresponding six items were combined under a second dependent variable named *Perceived Real News Accuracy* which also showed to be of good reliability with α =.84. After been given time to read and inspect each news stimulus, the participants were asked to rate the extent to which they perceive it as "accurate", "authentic", and "believable" by presenting the statement "I think the content of this Facebook post can be described as being ..." first. Then, they were asked to agree to those three items on a seven-point Likert scale, again ranging from 1 ('Strongly Disagree') to 7 ('Strongly Agree'). The credibility scale was repeatedly shown to the participants to ensure that their perception of the trustworthiness of each post was captured. It can be found together with the stimulus material under *Appendix C*.

2.4 Procedure

The study was generated with the help of the software company Qualtrics. Before it went online, it was approved by the BMS Ethics Committee of the University of Twente.

Furthermore, the study was distributed via an online link that the participants either received from the researcher herself or were able to access via the SONA System of the University of Twente. Before starting the survey, the people who took part received some information regarding the study, the participants' rights, and the use of their data (see *Appendix A*). However, within this informed consent, the true aim of the study was disguised and pretended to be the investigation of a potential relationship between people's character traits and their social media use regarding political news information. This was done in order to avoid participant bias. The participants should not actively focus on potential hints that might reveal one of the posts as fake news, but solely on rating how accurate, authentic and believable the information seemed to them personally. Furthermore, they could choose to consent or not consent to the information they have been given. On the next page, they were first required to fill in their demographics, namely age, gender, nationality, and highest completed level of education they hold. Then, the participants were introduced to the first questionnaire that aimed at measuring their information processing style in a political context. They were asked to carefully read the statements and indicate to what extent

they agree with them on a seven-point Likert scale. In the following, the questionnaire that measured *Intellectual Openness* and then, five items to measure *General Trust* in journalists were presented to the participants. They were again required to rate to which extent they agree to the statements on the same Likert scale as before. After that, the four news stimuli were shown to the participants and a short statement explained that they originated from Facebook. After every post the participants were asked to carefully inspect, they were expected to rate their overall trustworthiness about what they just have read on the credibility scale. The scale was repeatedly shown to them after every post. It was stated that there was no time limit for reading the posts. Then, the survey ended with a detailed debriefing which picked up the fact that the true aim of the study was disguised. Moreover, it revealed its actual purpose and included an explanation of why this kind of deception had to happen for the purpose of the study (see *Appendix D*). Here, the participants were given another opportunity to either agree or disagree with the informed consent signed beforehand and, thus, to decide whether the data can be used by the researcher or not. In the end, the participants were thanked for taking part in the study as well as for their time and honesty.

All in all, conducting the study took around ten to 12 minutes per participant.

3. Results

3.1 Descriptive Statistics

To get a general impression of the data, basic statistical analysis was conducted. Overall, the variables do not differ much in their mean values. The results indicate that the participants scored rather high on the character trait of *Intellectual Openness* (M = 5.02, SD = 1.76). Additionally, this variable showed to have a negative correlation with *Perceived Fake News Accuracy* (r (111) = .20, p < .05), and a moderate, positive relationship with *Perceived Real News Accuracy* (r (111) = .32, p < .01).

Furthermore, the values for *Systematic Processing* (M = 4.93, SD = 1.03) and *Perceived Real News Accuracy* (M = 4.58, SD = 0.95) showed that the sample generally tended to process political news information more in-depth as well as they tended to perceive the credibility of the real news items as rather high in most of the examples. *Perceived Fake News Accuracy* had a relatively low mean value (M = 2.92, SD = 1.08), thus, the participants tended to rate the accuracy of the fake news items as rather low. In addition, *Systematic Processing* showed to have a significant but weak negative correlation with *Perceived Fake News Accuracy* (r(111) = -.22, p < 0.95).

.01) and a positive but weak one with *Perceived Real News Accuracy* (r(111) = .20, p < .05). The results furthermore indicate that the participants scored less high on a more *Heuristic Processing* style (M = 3.40, SD = 1.03) in political information contexts. Also, this variable showed to have a positive correlation with *Perceived Fake News Accuracy* (r(111) = -.26, p < .01), and a negative one with *Perceived Real News Accuracy* (r(111) = -.28, p < .01).

Slightly higher values were again detected regarding people's *General Trust* in journalists (M = 4.45, SD = 0.99). Since the scores for *General Trust* were still above average, it can be said that the sample generally inclined to show trust in news journalists. However, a significant negative relationship to *Perceived Fake News Accuracy was* observable which showed that both variables are strongly associated with each other (r(111) = -.38, p < .01). The relationship between *General Trust* and *Perceived Real News Accuracy* also showed to be a rather strong and positive one (r(111) = .35, p < .01). Thus, it can be noted that all variables showed significant, moderate to strong correlations with each other which are illustrated in *Table 1*.

It is further noticeable that there have been large differences in the mean item scores for $Perceived\ Fake\ News\ Accuracy$ and $Perceived\ Real\ News\ Accuracy$, having generally higher mean scores for $Perceived\ Real\ News\ Accuracy$. Thus, the participants generally tended to perceive the real news items as more and the fake news as less accurate. Furthermore, $Perceived\ Fake\ News\ Accuracy$ and $Perceived\ Real\ News\ Accuracy$ showed to have a statistically insignificant correlation with each other $(r\ (111) = -.02, p = .86)$. Hence, a significant connection between how people perceive the accuracy of real news and fake news does not exist.

Table 1. Pearson Correlation Between All Variables

Variable	1	2	3	4	5	6
1 Perceived Accuracy of Fake News	-					
2 Perceived Accuracy of Real News	02	-				
3 Intellectual Openness	20*	.32**	-			
4 General Trust in Journalists	38**	.35**	.38**	-		
5 Systematic Information Processing	22**	.20*	.37**	.45**	-	

Note: *p<.05. **p<.01

3.2 Main Analysis

Four of the five hypotheses were tested by conducting two multiple regression analyses. By the means of both analyses, the predictive power of people's *Intellectual Openness, Heuristic* and *Systematic Processing*, and *General Trust* on their *Perceived Fake News Accuracy* as well as on *Perceived Real News Accuracy* was investigated. Additionally, two multiple regression analyses were conducted to investigate the moderation effect of *General Trust* on the correlation between *Intellectual Openness* on both dependent variables. All four assumptions of linearity, normality, homoscedasticity, and multicollinearity were checked and have been met for the analyses.

For the first model, analyzing the predictive power of the independent variables on *Perceived Fake News Accuracy*, a significant regression equation was found (F (4, 108) = 5.23, p < .01) with an R^2 of .16. With regard to the research question, the results have shown that individuals' *Perceived Fake News Accuracy* cannot be explained by their levels of *Intellectual Openness* to a significant extent (B = -.02, SE = .14, p = .86). However, it has been found that *Perceived Real News Accuracy* is positively correlated with people's *Intellectual Openness* since the relationship was a significant one (B = .20, SE = .12, p < .01). The regression equation for this model analyzing the predictive power of all independent variables on *Perceived Real News Accuracy* showed to be significant as well (F (4, 108) = 6.04, p < .01) with an R^2 of .18. Based on these results, the first hypothesis suggesting that individuals with higher intellectual openness tend to perceive fake news as inaccurate needs to be rejected. In fact, the individuals' higher level of intellectual openness has shown to predict that they perceive real news as rather accurate, but results did not indicate that their *Perceived Fake News Accuracy* is related to their intellectual openness levels.

Furthermore, the research question thematized the influence of different information processing styles on people's perceptions of the accuracy of fake news content. Here, the results of the multiple regression analysis have shown that for the *Systematic Processing* variable, there is a non-significant relationship with *Perceived Fake News Accuracy* (B = -.01, SE = .11, p = .95). The outcome indicated the same for *Heuristic Processing* with B = .13, SE = .11, and p = .19.

Looking at these results, people's perceptions of the accuracy of fake news cannot be related to the different information processing styles they tend to use in political contexts. Thus, the hypothesis that a systematic processing style negatively correlates with an individual's *Perceived Fake News Accuracy* needs to be rejected. The same applies to the fifth hypothesis suggesting that *Heuristic Processing* positively correlates with an individual's *Perceived Fake News Accuracy*. Thus, both hypotheses cannot be confirmed by the results of this study.

A Pearson Correlation has shown that the relationship between *General Trust* and *Perceived Fake News Accuracy* as well as *Perceived Real News Accuracy* were rather strong ones (see *Table 1*). With the help of the multiple regression analysis, these relationships were investigated more closely. Firstly, *General Trust* has proven to account for a statistically significant amount of *Perceived Fake News Accuracy* (B = -.32, SE = .11, p < .01). Moreover, the results have shown the relationship to be a negative one. This means that participants who scored high on having trust in journalists perceived the credibility of the fake news items as less accurate. Furthermore, the relationship between *General Trust* and *Perceived Real News Accuracy* has been tested. Here, the results indicate that people's *General Trust* positively predicts the dependent variable with B = -.25, SE = .10, and p < .05. Based on the results, the hypothesis that people who show higher trust in new journalists generally tend to perceive news as accurate, regardless of whether they are real or fake, needs to be rejected due to the negative relationship between *General Trust* and *Perceived Fake News Accuracy*. However, it can be said based on the analysis outcome that individuals with higher trust in journalists tend to perceive real news as more accurate, and fake news as less accurate.

Table 2. Summary of Multiple Regression Analyses for Variables predicting Perceived Fake News Accuracy and Perceived Real News Accuracy (N=113)

		Perceived Fa		Perceived Real News Accuracy				
Variable	В	SE B	p	В	SE B	p		
Intellectual Openness	02	.14	.86	.20	.12	.05		

General Trust	32	.11	.00	.25	.10	.02
Systematic Processing	01	.11	.95	05	.10	.61
Heuristic Processing	.13	.11	.19	15	.09	.13
R^2		.16			.18	
F for Change in R ²		5.23**			6.04**	

Note: **p < .01.

Finally, two moderated regressions were run within the analyses in order to test the effect of General Trust on the relationship between Perceived Fake News Accuracy and Intellectual Openness and, secondly, on the relationship between Perceived Real News Accuracy and Intellectual Openness. The outcome of the first model showed that both standardized variables of General Trust and Intellectual Openness accounted for a statistically significant amount of Perceived Fake News Accuracy ($R^2 = .15$, F(2, 110) = 9.47, p < .01). Furthermore, the interaction effect introduced in this analysis contributed to the variance in *Perceived Fake News Accuracy* to a statistically significant extent ($\Delta R^2 = .05$, ΔF (1, 109) = 6.60, p < .05). Here, the results indicate that General Trust moderates the correlation between Intellectual Openness and Perceived Fake News Accuracy in a negative way. This means that the higher the trust people have in news journalists is, the lower is the effect of their intellectual openness on how they perceive the accuracy of fake news (B = -.22, SE = .11, p < .01). In summary, the effect of both independent variables General Trust and Intellectual Openness accounted for a significant extent of Perceived Fake News Accuracy, although both individual variables do not account for the dependent variable to a statistically detectable extent. Thus, the partial hypothesis that individuals' general trust in journalists moderates the influence of intellectual openness on Perceived Fake News Accuracy is confirmed. Moreover, it can be concluded that General Trust has a negative interaction effect on the relationship between Perceived Fake News Accuracy and Intellectual Openness. Thus, if people hold high trust in the journalists of a certain fake news source, their levels of intellectual openness have a lower effect on how their perception of the accuracy of this news.

An additional moderation analysis investigated the effect of *General Trust* on the relationship between *Perceived Real News Accuracy* and *Intellectual Openness*. Here, the centered variables in the first model showed to have a significant effect on the outcome variable ($R^2 = .17$, F(2, 110) = 10.95, p < .01). However, the interaction effect of *General Trust* showed to be an insignificant one when testing for the impact of both independent variables on *Perceived Real News Accuracy* ($\Delta R^2 = .17$, $\Delta F(1, 109) = .41$, p = .71). These results indicate that the suggested interaction effect on *Perceived Fake News Accuracy* needs to be rejected (see *Table 3*).

Table 3. Summary of Moderated Regression Analyses to Test for an Interaction Effect of General Trust(N=113)

		:		ed Fake N ccuracy	lews		Perceived Real News Accuracy					
		Model	Model 1		Model 2			Model 1			Model 2	
Variable	В	SE B	p	В	SE B	p	В	SE B	p	В	SE B	p
Intellectual Openness	05	.14	.59	08	.13	.39	.22	.12	.02	.22	.12	.03
General Trust	36	.10	.00	36	.10	.00	.27	.09	.01	.27	.09	.01
Intellectual Openness x General Trust				22	.11	.01				03	.10	.71
R^2		.15			.20			.17			.17	
F for Change in R ²		9.47**			6.56**			10.95**	*		.14	

Note: Intellectual Openness and General Trust were centered at their means.

Note: **p < .01

4. Discussion

The research question to be answered in the current study was stated as "To what extent is people's intellectual openness linked to their perceived news accuracy concerning real and fake news? Are people's perceptions of the accuracy of fake news content in a political context related to different information processing styles?". The aim of this research was to answer this question in order to identify potential underlying factors that influence an individual's susceptibility to perceive fake news accuracy on social media platforms as rather high. The same analyses as for perceived fake news accuracy were conducted to investigate people's perceived accuracy of real news for the sake of comparison. By the means of this, the study overall aimed at providing an approach to help future research finding means that might help people in the detection of fake news, once the underlying factors that possibly influence perceived fake news accuracy are identified. Thereby, the influence of fake news in a society can be reduced simultaneously with the perceived fake news accuracy of people.

Based on previous literature, the influence of several factors on people's perceived accuracy of online fake news was hypothesized. The first hypothesis indicated that individuals' intellectual openness is an underlying factor that plays a role in perceived fake news accuracy. More specifically, the hypothesis stated that people who are displaying higher levels of intellectual openness are more likely to perceive the content of a fake news item as inaccurate. The assumption was based on several papers that linked analytical thinking, which is involved in the acceptance and belief of fake news, to cognitive ability, and individuals' cognitive ability to their intellectual openness (Pennycook & Rand, 2019; De Young, Quilty, Peterson, & Gray, 2014). The current study took on to investigate the direct link between intellectual openness and perceived fake news accuracy, but also between intellectual openness and perceived real news accuracy for comparative reasons. Inconsistently with the previous assumption, the results showed an insignificant correlation between the two variables Intellectual Openness and Perceived Fake News Accuracy. Thus, intellectual openness cannot be identified as an underlying factor of the way people perceive the accuracy of fake news. Nevertheless, the level of intellectual openness an individual tends to hold showed to be positively correlated with their perception of the accuracy of real news. Hence, it can be concluded that higher levels of intellectual openness lead to higher perceived news accuracy. People with higher intellectual openness tend to perceive the correctness of real news as high, but do not perceive the accuracy of fake news as rather low.

Furthermore, a positive relationship between the general trust people hold in news journalists and their perceived fake as well as real news accuracy was hypothesized. Since literature had shown that trust generally builds the basis for believing information, it was assumed that people who trust journalists also have a stronger belief in the accuracy of their news, regardless of whether these are true or false (Coleman, 2012). The outcome of the current study cannot confirm that individuals who hold higher levels of trust in journalists are more likely to show greater perceived news accuracy in real and fake news. In fact, the results have shown that individuals with higher trust in journalists also indicated higher perceived real news accuracy which would partly confirm the hypothesis. However, a negative relationship was found between trust and their perceptions of the accuracy of fake news, which means that people with higher trust tend to perceive the accuracy of fake news as rather low. Thus, individuals that show higher general trust in journalists do not show to generally tend to perceive news as accurate, disregarding whether they are real or fake.

Even though the trust people have in journalists did not indicate to be of predictive power for Perceived Fake News Accuracy, it showed to have moderate to strong correlations with both dependent variables. Hence, further analysis investigated the effect of General Trust on the correlation between Intellectual Openness and Perceived Fake News Accuracy, which had previously shown to be an insignificant one. However, although both individual independent variables of trust and intellectual openness were accounting for *Perceived Fake News Accuracy* to a marginally statistical extent, together they showed to have a significant effect on the dependent variable. Furthermore, the results indicate that there is a negative interaction effect of people's trust on Intellectual Openness and Perceived Fake News Accuracy. Thus, firstly, the partial hypothesis that trust in journalists affects the strength of the relationship between people's intellectual openness on their *Perceived Fake News Accuracy* is confirmed. Moreover, since the moderation effect showed to be a negative one, it can be said that when people hold high trust in the journalists of a certain fake news source, their levels of intellectual openness have a lower effect on how their perception of the accuracy of this news. On the other hand, the results for the investigation of the effect of trust on the correlation between people's intellectual openness and their Perceived Real News Accuracy showed that general trust does not have a significant interaction effect here. Hence, individuals' general trust in journalists indeed moderates the influence of intellectual openness on their perceptions of fake news accuracy, but not on how accurate they perceive real news to be. The overall hypothesis needs to be rejected, but it is noticeable that trust in news journalists moderates the influence of people's intellectual openness only on their perceived accuracy of fake news in a negative way. This finding might give an approach for future research, highlighting the importance of trust in the perception of fake news as an underlying factor of general perceived fake news accuracy.

With regard to the research question, two further hypotheses suggested a correlation between different information processing styles and people's perception of fake news accuracy. Literature had shown that the way people process information can be described in terms of systematic and heuristic processing (Chaiken, 1980). The author argued that individuals either use one or both processing styles when evaluating and judging an information piece. Systematic processing refers to a style that involves more cognitive effort as well as an in-depth evaluation of the perceived information. A heuristic processing style, on the other hand, relies on easily accessible information such as external cues of the information piece, rather than on its actual content (Chaiken, 1980). Based on this, it was argued that an individual who processes political information in a more systematic way will perceive fake news as less accurate when approaching an information piece more in-depth. Moreover, a heuristic information processor would assess them as more accurate. The results indicate that these assumptions cannot be confirmed. The correlation between Systematic Processing and Perceived Fake News Accuracy as well as between Heuristic Processing and the dependent variable showed to be insignificant. Thus, neither a systematic processing style was found to negatively correlate with an individual's perceived fake news accuracy, nor has a heuristic processing style shown to positively correlate with it.

As mentioned before, for the sake of comparison, the measurement of *Perceived Real News Accuracy* has been included in the current study although it mainly focused on underlying factors in people's perception of fake news. Overall, two of the four independent variables indicated predictive power of the dependent variable *Perceived Real News Accuracy*, regardless of whether there was a correlation between the variables and *Perceived Fake News Accuracy*. People's intellectual openness and their trust in journalists both positively correlated with the real news dependent variable. Thus, people who showed high *Intellectual Openness* or *General Trust* tended to perceive the real news items as rather accurate. After previous literature had shown that a lack of open-minded, analytical thinking leads to a greater believe fake news, the current study shows that high levels of intellectual openness account for higher perceived real news accuracy. Also, it indicates that people tend to perceive real news as more accurate when generally trusting in

journalists, but that if they have low trust, they tend to perceive fake news accuracy as rather high. Furthermore, it is noteworthy that *General Trust* showed to have a significant, negative interaction effect on the correlation between *Intellectual Openness* and *Perceived Fake News Accuracy*, whereas *Intellectual Openness* had shown to not account for the dependent variable to a statistically significant extent. However, it did for the variable of *Perceived Real News Accuracy*, but here, the interaction effect of trust did not show to be significant. Overall, the investigated underlying factors tended to account mostly for the perception of real news accuracy. Thus, the study found more underlying factors that contribute to people's perceived real news accuracy, and that different information processing styles as well as intellectual openness alone do not account for people's perception of the accuracy of fake news.

4.1 Limitations and Recommendations

Next to the valuable findings of this research, there are also some weak points to it. Firstly, it needs to be mentioned that the chosen sample has not been well-defined with regards to the actual content of the study. Since the study included a convenience sample that is not representative of the whole population, it is likely that sampling bias has been a problem (Farrokhi & Mahmoudi-Hamidabad, 2012). A vast majority of the participants were German or Dutch, and basic English skills were expected from them to meet the inclusion criteria and to be able to take part in the survey. To know and understand a second language other than one's mother tongue in terms of reading and language usage, a certain level of education, as well as general intelligence, is fundamental for the possession of these skills (Genesee, 1976). All of the participants indicated having least a high school or equivalent degree which means that the study has not taken people with lower educational levels into account. Furthermore, the basic level of intelligence a person needs to hold in order to be able to learn a second language is related to the level of an individual's intellectual openness measured in the current study. DeYoung, Quilty, Peterson, and Gray (2014) positively associated the big five personality trait Openness/Intellect, on which the variable Intellectual Openness is based on, with both verbal and nonverbal intelligence. Thus, it can be expected that the participants included in the sample had due to their English skills as well as their basic levels of general intelligence a higher level of intellectual openness before taking part in the study. This means that the sample is not representative of the entire population.

Furthermore, the mean age of the participants was 23 years, which is quite low in the overall age range from 18 to 60 years. Literature has found that in comparison to older people, young

people in Europe generally tend to show lower political participation (Briggs, 2017). This finding is in line with a study by Šerek, Machackova, and Macek (2017) which links people's levels of political participation to their age. This means that there is a chance that most of the young participants in the current study might not have been interested in the political content of the news items. Additionally, to keep it international, the study was dealing with American politics mostly. However, since the sample included almost only participants of German and Dutch nationality, the interest in the political content could have been even more decreased because it did not deal with topics in the participants' home countries. Thus, the results of this study might be biased by the general non-interest in the American politics of some participants. Future studies should take this limitation into account and measure perceived fake news accuracy in several, different contexts to avoid such biases.

An additional limitation is the poor reliability of the information processing scales which might be due to their modification into a political context for the purpose of this study. Other studies that investigated systematic and heuristic processing with the same items used in the current research, but unmodified ones, showed to have an acceptable to good inter-item reliability (Griffin, Neuwirth, Giese, & Dunwoody, 2002). The low-reliability values of the scales used in this study are a possible reason for the insignificant results regarding the information processing variables. It is recommended for future research to increase the reliability by, for example, including more items in both scales.

Another recommendation for future studies is to further research the influence of people's general trust on underlying factors for perceived fake news accuracy. This study has shown that general trust in news journalists points in the direction of having a significant, negative interaction effect in the correlation of *Intellectual Openness* and *Perceived Fake News Accuracy*. Furthermore, trust has shown to be a predictor of the way individuals perceive the accuracy of online fake and real news items. These results can be taken to find means to increase people's trust in journalists as high levels of trust showed to lead to lower perceived fake news accuracy. Thus, acceptance and hence, the spread of fake news on the internet might be counteracted in the long term by further investigating the role of people's trust in invalid messages.

4.2 Conclusion

The aim of this research was to investigate to what extent underlying factors such as people's intellectual openness and different information processing styles people tend to use in politically polarized news contexts are related to their perceived accuracy of fake and real news.

Based on the results, it can be assumed that an individual's level of trust in journalists is a factor that plays a significant role in their perception of the accuracy of news. Also, the results showed that general trust in journalists has a negative effect on the strength of the relationship between intellectual openness and perceived fake news accuracy. This might build a basis for further investigation of this factor in future research. What needed to be rejected was the assumption that underlying aspects such as people's intellectual openness and their use of different information processing styles play a significant role in the perception of fake and real news. The results have shown a non-significant relationship for both, whereas systematic and heuristic processing have been measured with items of poor reliability. For future research, it is recommended to investigate the factors that have shown to underlie the perception of fake news such as people's trust in journalists as well as further ones, also in other contexts next to ideological polarization. In defiance of the limitations and the sampling problems, the outcome of this study does point at the involvement of trust as an underlying factor in perceived news accuracy. More specifically, general trust showed to have a negative correlation with perceived fake news accuracy, and a positive one with perceived real news accuracy. Furthermore, it showed to account for a statistically significant extent to the correlation between intellectual openness and perceived fake news accuracy. Therewith, the overall aim of the study to identify processes that are involved in the perceived accuracy of political real and fake information on the internet is met. Future research can build upon this study and establish an approach to intervening in underlying processes such as people's trust in order to help readers in the detection of fake news, and thereby, to cut its power.

References

- Appelman, A., & Sundar, S. S. (2016). Measuring message credibility: Construction and validation of an exclusive scale. *Journalism & Mass Communication Quarterly*, 93(1), 59-79. Doi: 10.1177/1077699015606057
- Briggs, J. (2017). Young people and participation in Europe. In *Young People and Political Participation* (pp. 63-86). Palgrave Macmillan, London. Doi: 10.1057/978-1-137-31385-0 3
- Bronstein, M. V., Pennycook, G., Bear, A., Rand, D. G., & Cannon, T. D. (2019). Belief in fake news is associated with delusionality, dogmatism, religious fundamentalism, and reduced analytic thinking. *Journal of Applied Research in Memory and Cognition*, 8(1), 108-117. Doi: 10.1016/j.jarmac.2018.09.005
- Carr, D. J., Barnidge, M., Lee, B. G., & Tsang, S. J. (2014). Cynics and skeptics: Evaluating the credibility of mainstream and citizen journalism. *Journalism & Mass Communication Quarterly*, 91(3), 452-470. Doi: 10.1177/1077699014538828
- Chaiken, S. (1980). Heuristic versus systematic information processing and the use of source versus message cues in persuasion. *Journal of Personality and Social Psychology*, *39*(5), 752–766. https://doi.org/10.1037/0022-3514.39.5.752
- Clayton, K., Blair, S., Busam, J. A., et al. (2019). Real solutions for fake news? Measuring the effectiveness of general warnings and fact-check tags in reducing belief in false stories on social media. *Political Behavior*, 1-23. Doi: 10.1007/s11109-019-09533-0
- Coleman, S. (2012). Believing the news: From sinking trust to atrophied efficacy. *European Journal of Communication*, 27(1), 35-45. Doi: 10.1177/0267323112438806
- Crawford, K. (2017). Stanford study examines fake news and the 2016 presidential election.

 Stanford News. Retrieved from. https://news.stanford.edu/2017/01/18/stanford-study-examines-fake-news-2016-presidential-election/
- Dalton, R. J. (2008). The quantity and the quality of party systems: Party system polarization, its measurement, and its consequences. *Comparative Political Studies*, *41*(7), 899-920. Doi: 10.1177/0010414008315860
- De keersmaecker, J, & Roets, A. (2017). 'Fake news': Incorrect, but hard to correct. The role of cognitive ability on the impact of false information on social impressions. *Intelligence*, 65, 107-110. Doi: 10.1016/j.intell.2017.10.005

- Della Vigna, S., & Kaplan, E. (2007). The Fox News effect: Media bias and voting. *The Quarterly Journal of Economics*, 122(3), 1187-1234. Doi: 10.1162/qjec.122.3.1187
- Der Bundeswahlleiter. (2019). Europawahl 2019. Ergebnisse Deutschland Der Bundeswahlleiter. Retrieved from. https://www.bundeswahlleiter.de/europawahlen/2019/ergebnisse/bund-99.html
- DeYoung, C. G., Quilty, L. C., Peterson, J. B., & Gray, J. R. (2014). Openness to experience, intellect, and cognitive ability. *Journal of personality assessment*, 96(1), 46-52. Doi: 10.1080/00223891.2013.806327
- Evon, D. (2019). Were 10,150 Americans Killed by 'Illegal Immigrants' in 2018? *Snopes.com*. Retrieved from https://www.snopes.com/fact-check/immigrant-homicides-us/
- Farkas, J., Schou, J., & Neumayer, C. (2018). Cloaked Facebook pages: Exploring fake Islamist propaganda in social media. *New Media & Society*, 20(5), 1850-1867. Doi: 10.1177/1461444817707759
- Farrokhi, F., & Mahmoudi-Hamidabad, A. (2012). Rethinking Convenience Sampling: Defining Quality Criteria. *Theory & Practice in Language Studies*, 2(4). Doi: 10.4304/tpls.2.4.784-792
- Garcia, A. (2017). Did an 'Illegal Immigrant' Brag About Voting Five Times for Hillary Clinton? Snopes.com. Retrieved from https://www.snopes.com/fact-check/immigrant-hillary-illegal-vote/
- Genesee, F. (1976). THE ROLE OF INTELLIGENCE IN SECOND LANGUAGE LEARNING
 1. Language Learning, 26(2), 267-280. Doi: 10.1111/j.1467-1770.1976.tb00277.x
- Griffin, R. J., Neuwirth, K., Giese, J., & Dunwoody, S. (2002). Linking the heuristic-systematic model and depth of processing. *Communication Research*, 29(6), 705-732. Doi: 10.1177/009365002237833
- Jackob, N. G. E. (2010). No alternatives? The relationship between perceived media dependency, use of alternative information sources, and general trust in mass media. *International Journal of Communication*, 4, 18. Retrieved from. https://ijoc.org/index.php/ijoc/article/view/615
- Jackson, D. N., Paunonen, S. V., & Tremblay, P. F. (2000). Six Factor Personality

 Questionnaire: Technical Manual. Port Huron, MI: Sigma Assessment Systems.
- Kang, H., Bae, K., Zhang, S., & Sundar, S. S. (2011). Source cues in online news: Is the proximate

- source more powerful than distal sources?. *Journalism & Mass Communication Quarterly*, 88(4), 719-736. Doi: 10.1177/107769901108800403
- Lazer, D. M., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., Metzger,
 F., Nyhan, B., Pennycook, G., Rothschild, D., Schudson, M., Sloman, S. A., Sunstein, C.
 R., Thorson, E. A., Watts, D. J., & Zittrain, J. L. (2018). The science of fake news. *Science*,
 359(6380), 1094-1096. Doi: 10.1126/science.aao2998
- McCrae, R. R., & Costa, P. T., Jr. (2008). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (p. 159–181). The Guilford Press. [no doi]
- Mourão, R. R., & Robertson, C. T. (2019). Fake news as discursive integration: An analysis of sites that publish false, misleading, hyperpartisan and sensational information. *Journalism Studies*, 20(14), 2077-2095. Doi: 10.1080/1461670X.2019.1566871
- Pennycook, G., & Rand, D. G. (2019). Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning. *Cognition*, *188*, 39-50. Doi: 10.1016/j.cognition.2018.06.011
- Pennycook, G., Bear, A., Collins, E. T., & Rand, D. G. (2020). The implied truth effect: Attaching warnings to a subset of fake news headlines increases perceived accuracy of headlines without warnings. *Management Science*. Doi: 10.1287/mnsc.2019.3478
- Šerek, J., Machackova, H., & Macek, P. (2017). The chicken or egg question of adolescents' political involvement: Longitudinal analysis of the relation between young people's political participation, political efficacy, and interest in politics. *Zeitschrift für Psychologie*, 225(4), 347. Doi: 10.1027/2151-2604/a000297
- Shalby, C. (2019). Facts about fake news's influence on U.S. elections and the fight against misinformation. Los Angeles Times. Retrieved from. https://www.latimes.com/science/sciencenow/la-sci-sn-fake-news-election-20190319-story.html
- Shimizu, K. (2020). 2019-nCoV, fake news, and racism. *The Lancet*, *395*(10225), 685-686. Doi: 10.1016/S0140-6736(20)30357-3
- Siegrist, M., Gutscher, H., & Earle, T. C. (2005). Perception of risk: the influence of general trust, and general confidence. *Journal of risk research*, 8(2), 145-156. Doi: 10.1080/1366987032000105315
- Silverman, C. (2016). This Analysis Shows How Viral Fake Election News Stories

- Outperformed Real News On Facebook. BuzzFeed News. Retrieved from. https://www.buzzfeednews.com/article/craigsilverman/viral-fake-election-news-outperformed-real-news-on-facebook
- Spohr, D. (2017). Fake news and ideological polarization: Filter bubbles and selective exposure on social media. *Business Information Review*, 34(3), 150-160. Doi 10.1177/0266382117722446
- Soler i Lecha, E. (2018). The World in 2019: Ten Issues that will Shape the Global Agenda. *CIDOB Barcelona Centre for International Affairs*. Retrieved from. https://www.cidob.org/en/publications/publication_series/notes_internacionals/n1_208/the_world_in_2019_ten_issues_that_will_shape_the_global_agenda
- tagesschau.de. (2015). *Hillary Clinton übergibt FBI ihren Server*. Retrieved from https://www.tagesschau.de/ausland/hillary-clinton-121.html
- Tameez, H. (2020). Americans of all political stripes expect 2020's fake news to be biased against their side. Nieman Lab. Retrieved from. https://www.niemanlab.org/2020/02/americans-of-all-political-stripes-expect-2020s-fake-news-to-be-biased-against-their-side
- Tandoc Jr, E. C. (2019). The facts of fake news: A research review. *Sociology Compass*, 13(9), e12724. Doi: 10.1111/soc4.12724
- Tandoc Jr, E. C., Ling, R., Westlund, O., Duffy, A., Goh, D., & Zheng Wei, L. (2018).

 Audiences' acts of authentication in the age of fake news: A conceptual framework. *New Media & Society*, 20(8), 2745-2763. Doi: 10.1177/1461444817731756
- The American Conservative. (2020). *About Us*. Retrieved from https://www.theamericanconservative.com/about-us/
- The Guardian. (2019). *US immigrants will be denied entry if they can't afford health care*.

 Retrieved from https://www.theguardian.com/us-news/2019/oct/05/us-immigrants-will-be-denied-entry-if-they-cant-afford-health-care
- Trumbo, C. W. (2002). Information processing and risk perception: An adaptation of the heuristic-systematic model. *Journal of Communication*, 52(2), 367-382. Doi: 10.1111/j.1460-2466.2002.tb02550.x
- Tsfati, Y., & Cappella, J. N. (2003). Do people watch what they do not trust? Exploring the association between news media skepticism and exposure. *Communication Research*, 30(5), 504-529. Doi: 10.1177/0093650203253371

- Urschinger, K. (2019). Ex-AfD-lerin Franziska Schreiber: So verbreitet die AfD Fake News. SWR3.de. Retrieved from. ://www.swr3.de/aktuell/Ex-AfD-lerin-Franziska-Schreiber-So-verbreitet-die-AfD-Fake-News/-/id=4382120/did=4962902/9g650c/index.html
- Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Science*, 359(6380), 1146-1151. Doi: 10.1126/science.aap9559
- Winberg, O. (2017). Insult politics: Donald Trump, right-wing populism, and incendiary language. *European journal of American studies*, 12(12-2). Doi: 10.4000/ejas.12132

Appendices

Appendix A

Informed consent



Informed Consent

Dear participant, thank you very much for deciding to take part in my research. The study is done by Elisa Bockholt from the Faculty of Behavioral, Management and Social Sciences at the University of Twente in the context of Psychology of Conflict, Risk, and Safety (CRS). Please read the following information carefully.

The aim of this research is to investigate the relationship between people's character traits and their social media use in a political context. Completing the study will take approximately 10 minutes.

Please understand that your participation in this study is completely voluntary and you have the right to withdraw at any time, without having to give any reason. Your information will be treated strictly confidential and used only for research purposes. There are no known risks associated with this study.

In case of any further questions or ambiguities regarding the study, feel free to contact the researcher via this e-mail: e.bockholt@student.utwente.nl

I understand and consent that:

- 1. I am 18 years old or older.
- 2. I understand the content and participate in this study voluntarily.
- I have the right to withdraw from participation in this study at any time without any negative consequences and without having to give any reason.
- 4. My personal information will be anonymized in order to protect my privacy.
- 5. My data will be treated confidentially and only used for research purposes.
- 6. I agree that all my data can be evaluated and used for research.
- 7.1 have been given guarantee that this study has been reviewed and approved by the BMS Ethics Committee of the University of Twente.

In case you have questions regarding your rights as a research participant, wish to obtain more information, or want to share any concerns with someone other than the researcher, you can contact the Secretary of the Ethics Committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente via this e-mail: ethicscommittee-bms@utwente.nl

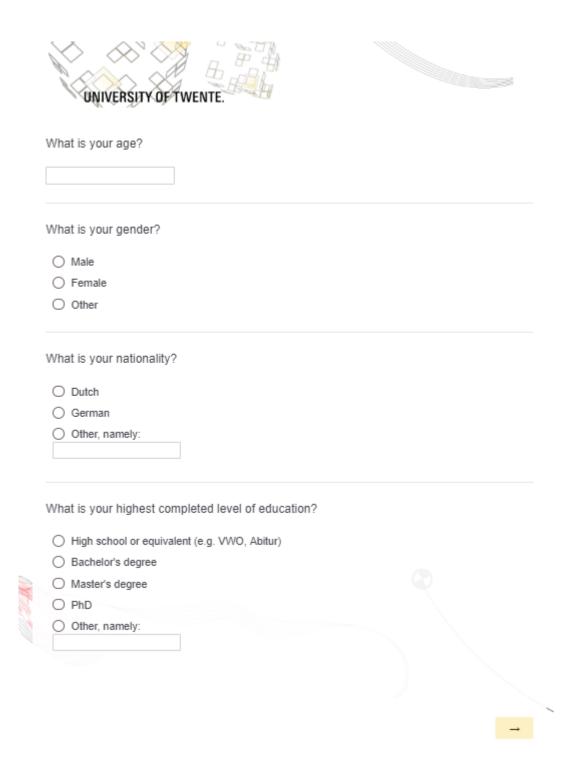


- O Yes, I do consent.
- O No, I do not consent.

Appendix B

Questionnaires

a. Demographics



b. Systematic and Heuristic Risk Information Processing



First, I would like to know more about the way you encounter political information in the media. Please read the following statements carefully and indicate to what extent you agree with them.

	Strongly Disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree	
After I encounter information about a political topic, I am likely to stop and think about it.	0	0	0	0	0	0	0	
After thinking about a political topic, I have a broader understanding.	0	0	0	0	0	0	0	
There is far more information on a political topic than I personally need.	0	0	0	0	0	0	0	
If I need to act on a political matter, the more viewpoints I get, the better.	0	0	0	0	0	0	0	
When I see or hear information about a political topic, I rarely spend much time thinking about it.	0	0	0	0	0	0	0	
When I encounter information about a political topic, I focus on only a few key points.	0	0	0	0	0	0	0	\

It is important for me to interpret information about a political topic in a way that applies directly to my life.	0	0	0	0	0	0	0
If I need to act on a political matter, the advice of one expert is enough for me.	0	0	0	0	0	0	0
When I encounter information about a political topic, I read or listen to most of it, even though I may not agree with its perspective.	0	0	0	0	0	0	0
							7

c. Intellectual Openness



Now, I would like to know a bit more about you and your personality. Please read the following statements carefully and indicate to what extent they apply to you.

I prefer variety to routine.	
Strongly Disagree	
O Disagree	
Somewhat disagree	
Neither agree nor disagree	
Somewhat agree	
○ Agree	
Strongly agree	
I am not interested in theoretical discussions.	
O Strongly Disagree	
O Disagree	
○ Somewhat disagree	
Neither agree nor disagree	
O Somewhat agree	
○ Agree	
O Strongly agree	

l pre	efer to stick with things that I know.	
0	Strongly Disagree	
0	Disagree	
0	Somewhat disagree	
0	Neither agree nor disagree	
0	Somewhat agree	
0	Agree	
0	Strongly agree	
l am	n interested in many things.	
0	Strongly Disagree	
0	Disagree	
0	Somewhat disagree	
0	Neither agree nor disagree	
0	Somewhat agree	
0	Agree	
0	Strongly agree	
l rar	rely look for deeper meaning in things.	
0	Strongly Disagree	
0	Disagree	
0	Somewhat disagree	
0	Neither agree nor disagree	
0	Somewhat agree	
0	Agree	
0	Strongly agree	

I try to avoid complex people.	
Strongly Disagree	
○ Disagree	
○ Somewhat disagree	
Neither agree nor disagree	
○ Somewhat agree	
○ Agree	
Strongly agree	
I am open to change. Strongly Disagree Disagree Somewhat disagree Neither agree nor disagree Somewhat agree Somewhat agree Strongly agree	

d. General Trust in Journalists



Furthermore, I would like to know more about your general trust in media journalists. Once again, read the following statements carefully and indicate to what extent you agree with them.

l ca	n't trust journalists anymore.
0	Strongly Disagree
0	Disagree
0	Somewhat disagree
0	Neither agree nor disagree
0	Somewhat agree
0	Agree
0	Strongly agree
Mos	st journalists tell a lie when they can benefit from doing so.
0	Strongly Disagree
0	Disagree
0	Somewhat disagree
0	Neither agree nor disagree
0	Somewhat agree
0	Agree
0	Strongly agree

Mos	st journalists are too busy looking out for themselves	s to be helpful.
0	Strongly Disagree	
0	Disagree	
0	Somewhat disagree	
0	Neither agree nor disagree	
0	Somewhat agree	
0	Agree	
0	Strongly agree	
Mos	st journalists are basically honest.	
0	Strongly Disagree	
0	Disagree	
0	Somewhat disagree	
0	Neither agree nor disagree	
0	Somewhat agree	
0) Agree	
0	Strongly agree	
lf gi	iven a chance, most journalists would try to take adv	rantage of me.
0	Strongly Disagree	
0	Disagree	
0	Somewhat disagree	
0	Neither agree nor disagree	
0	Somewhat agree	
0	Agree	
0	Strongly agree	
		→

Appendix C

Stimulus Material and Credibility Scales

a. Stimulus 1: Real



In the following, a total of four different social media posts will be shown to you, originated from Facebook. After every post, you will be asked to fill in a short questionnaire related to the post you just have seen. Please make sure to fill in this questionnaire. Note that there is no time limit for reading the posts.



Hillary Clinton hands FBI her server: US presidential candidate Hillary Clinton has ordered her campaign team to hand over the controversial personal email server from her time as Secretary of State to the Department of Justice.

Clinton had come under criticism for using her private email account for professional messages during her tenure as Secretary of State. As the affair is increasingly becoming a burden in the election campaign, the turnaround at Clinton, which is the favorite for the top Democratic candidate for the 2016 presidential election, is now evident.

A US official familiar with the case said that Clinton's lawyer David Kendall had given three USB sticks to the FBI. This included highly sensitive information that, according to the FBI, could not have remained in the possession of the lawyer. The State Department had previously said it was okay for Kendall to keep the news in his Washington law office. Investigators had told Congress on Tuesday that Clinton had stored "Top Secret" information on its private server. So far, Clinton denied having sent sensitive data in the emails. According to her lawyer, Hillary Clinton wants to cooperate in the investigation.



I think the content of this Facebook post can be described as being:

	Strongly Disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree	
Accurate	0	0	0	0	0	0	0	
Authentic	0	0	0	0	0	0	0	
Believable	0	0	0	0	0	0	0	

b. Stimulus 2: Fake



Illegal immigrants killed 10,150 Americans in 2018:

According to a report by the U.S. Immigration and Customs Enforcement (ICE) for the fiscal year 2018, just over 10,000 illegal immigrants were convicted of homicide. The killers responsible for putting thousands of American citizens to death were invariably all on the criminal records of people arrested by ICE for being in the country illegally. In comparison, ICE reported an incomparable low number for mass shootings (194) in the same year. The government reported in 2017 already a high number of homicides of Americans committed by immigrants with Hispanic backgrounds. Islamic "citizens", in particular, seem to be characterized by violence and lust for murder since they appear strikingly often in the record of murders with foreign backgrounds.

To stop the killers and prevent this catastrophe in the upcoming year and in order to save America we appeal to finally focus more on the lawfully right deportation of illegal immigrants. Share to spread awareness!

€9 741	333 Comments 160 Shares
Like	⇔ Share

I think the content of this Facebook post can be described a	as being:
--	-----------

	Strongly Disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree	
Accurate	0	0	0	0	0	0	0	
Authentic	0	0	0	0	0	0	0	
Believable	0	0	0	0	0	0	0	
							→	

c. Stimulus 3: Real



Illegal immigrant convicted of voter fraud for voting multiple times for Hillary Clinton: The 37-year-old Mexican national and illegal immigrant Rosa Maria Ortega was convicted of illegally voting five times for Clinton on 8 February 2017.

The accused ridiculously claimed in court that she was confused by voter registration forms and thought that she had the right to vote. The immigrant was found guilty of voter fraud and sentenced by a jury earlier and seems to be the head of a conspiracy to undermine democracy, a mastermind who schemed to pervert the rightful outcome of elections.

Rosa Ortega denies she made a mistake but insists she just wanted people to hear her voice. "That's all it is, a human mistake and they just want to make a big deal out of it, bring me to the news and it's just unfair what they did. Very unfair," Ortega claimed, craving for the judges' pity.

Ortega will be deported to Mexico after serving eight years in prison. For Clinton, this finally means the end of her career.

However, millions of undocumented immigrants voted illegally in past U.S. elections - when is this going to stop?

** 2.081				817 Comments 335 S					
<u>∩</u> Like			⇔ Share						
I think the content of this Facebook post can be described as being:									
	Strongly Disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree		
Accurate	0	0	0	0	0	0	0		
Authentic	0	0	0	0	0	0	0		
Believable	0	0	0	0	0	0	0		

d. Stimulus 4: Fake

→ \



US immigrants will be denied entry if they can't afford health care: White House says too many non-citizens taking advantage of the country's 'generous public health programs.

Immigrants applying for US visas will be denied entry into the country unless they can prove they can afford health care within 30 days of entering or can't pay for it themselves, according to a proclamation signed by President Trump. The new rule, which comes into force on 3 November, will be applied to people seeking immigrant visas, not those in the US already. It does not apply to those seeking asylum, refugees or children, but it would apply to the spouses and parents of US citizens. That could have an impact on families who are trying to bring their parents to the US.

The required insurance can be purchased individually or provided by an employer, and it can be short-term coverage or catastrophic. Medicaid for the poor doesn't apply and an immigrant will not be able to obtain a visa if using the Affordable Care Act's subsidies when buying insurance. Those subsidies are paid for by the federal government.

The White House said in a statement that too many non-citizens were taking advantage of the country's "generous public health programs", and that immigrants contribute to the problem of "uncompensated health care costs".

€ 😠 983					201 Comments 87 Shares			
<u>n</u> Like								
I think the cont	tent of this Fa	cebook po	st can be de	escribed as	being:			
	Strongly Disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree	
Accurate	0	0	0	0	0	0	0	
Authentic	0	0	0	0	0	0	0	
Believable	0	0	0	0	0	0	0	
							_	

Debriefing



Debriefing

Thank you very much for taking your time to fill in the questionnaire!

It is now my duty to inform you that the true aim of this study was disguised. In fact, the questionnaire was constructed to measure how people's intellectual openness, general trust in media journalists, and different information processing styles influence their fake news detection ability in the context of ideological polarization. Thus, two of the four Facebook posts that were presented to you earlier ('The American Conservative', and 'Fox News') contained fabricated news.

This truth was withheld from you throughout the study in order to prevent any priming effects and to have you focus on how authentic and believable the information seems to you personally instead of looking for indications if the Facebook posts are fake or real.

Now that this information has been given to you, it is your right to have another opportunity to withdraw from this study and the informed consent you have agreed to beforehand. You don't have to give any specific reason for this. In case you decide to withdraw, your data will not be recorded or used by the researcher or any other person. If you decide to still give consent to the study, your data will be used by the researcher for research purposes only in a strictly confidential and anonymized way, in accordance to the informed consent you have agreed to beforehand.

In case of any further questions regarding the (disguise of the) study, you can contact the researcher via this e-mail: e.bockholt@student.utwente.nl

I would like to thank you for your participation, time, and honesty.

I understand and consent that:

- my data can be used by the researcher.
- my data can NOT be used by the researcher.