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The effect of confirmation bias and social proof on belief polarization via Facebook's news feed.

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Abstract

The online media environment is changing from offline traditional news consumption to consuming news via online media characterized by an exploding amount of information and news source options. Concerns for fake news, echo chambers, filter bubbles and polarization have been raised due to this change. This thesis studies the underlying cognitive biases of belief polarization via the most used social media news site: Facebook. In order to measure the influence of confirmation bias and social proof bias on belief polarization, a new experimental design is introduced which includes a renewed indirect approach to measure polarization. The experiment replicates processes regarding the consumption of news via Facebook's news feed. The results indicate that the consumption of attitude-confirming news via Facebook contributes to belief polarization. In this case, the chosen attitude object is the legalization of XTC in the Netherlands, but the experimental design could be applied to any attitude object in every country. The unique design of the experiment enables the analysis of possible different weight attachments towards attitude-confirming (treatment 1) and attitude-disconfirming (treatment 2) news due to confirmation bias, while keeping the news content used within the two treatments fixed. The analysis shows that confirmation bias contributes to belief polarization via Facebook. The consumption of pro-legalization news has a significantly different effect when it confirms the reader's attitude than when it disconfirms the reader's attitude. However, for the against-legalization news no significant difference in effects has been found. Therefore, future research should investigate multiple news articles and attitude objects to make further claims about the different weight attachments to news caused by confirmation bias. Furthermore, OLS regressions demonstrate that for both people that agree and disagree with the legalization of XTC, the exposure to a confirming news article, compared to a disconfirming news article, causes their initial beliefs to polarize. Finally, the influence of social proof bias could not be tested as the coefficients analyzing the effect of the number of likes on a news post for this specific attitude object were influentially correlated. Although this is unfortunate, it is discovered that the perceived trust in the online news and the importance attached to the given attitude object could influence belief polarization online as well. Consequently, in addition to some valuable insights regarding belief polarization, an up-to-date research design is provided for future research regarding belief polarization, confirmation bias and social proof bias.

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1. Introduction

For a long time, the traditional news channels radio, television and newspaper have dominated the news supply. Nevertheless, non-traditional media channels are increasing in popularity and traditional news media is becoming outdated (NOS, 2016). The number of people that read newspapers daily decreases, while the amount of news consumed via social media channels increases (NOS, 2016; Reuters Institute for the Study of Journalism, 2018). In the Netherlands, 10.1 million people use social networking site Facebook of which 6.8 million people use Facebook daily (Statista, 2019). According to the RISJ (2019) Facebook is the most used social media site for news consumption in the Netherlands. An advantage of using social media to consume news is that news can be customized and personalized which solves information overload and media option abundance (Prior, 2007). However, some researchers mistrust the use of social media as a news source.

During the American presidential elections in 2016, commotion had been raised regarding the influence of social media and fake news on the outcome of the elections (Allcott & Gentzkow, 2017). As a result of a governmental awareness campaign about misinformation and social media news consumption in the Netherlands, the influence of fake news has diminished in the Netherlands (Reuters Institute for the Study of Journalism, 2019). Despite the effective war against fake news there are other concerns regarding consumption of news via the social networking site that supposedly challenge human rationality. Sunstein (2018) claims that social media news consumption is not only dangerous for democracy due to misinformation, but also because it creates information cocoons resulting in fragmentation, polarization and extremism. It has been feared that people are sensitive to belief polarization when consuming news via Facebook's news feed, which is the phenomenon that an individual's attitude towards a certain attitude subject will become more extreme in its initial direction after thoroughly considering and discussing evidence regarding the attitude subject (Abril, 2018; Miller et al. (1993); Lord, Ross & Lepper, 1979). More specifically, the main suggested cause for this is the abundance of personalization filters used by both the users themselves and the algorithm of Facebook, minimizing exposure to standpoints that challenge their existing beliefs (Zuiderveen et. al, 2016). This would especially become a larger concern as Facebook has announced recently that their news feed will become even more customizable by the user itself (Facebook, 2019).

This research will investigate whether the consumption of news via the Facebook's news feed causes users' beliefs to polarize when this exposure would be minimized. An experiment is conducted that replicates the processes that occur on Facebook's news feed which potentially contribute to belief polarization. Additionally, this study focuses on investigating two important potential cognitive drivers of belief polarization via Facebook's news feed. First, Nickerson (1998) discovered that people unconsciously have a natural tendency to search and interpret evidence in ways that are biased towards

their already existing beliefs, expectations or hypotheses, named confirmation bias. It is examined if this bias contributes to belief polarization via Facebook's news feed. Second, Cialdini (2006) wrote in his book that people are victim to one of six "weapons of influence", called social proof bias. This bias describes the phenomenon that human behaviour is influenced by opinions and actions of others. Therefore, this research analyses whether belief polarization is also affected by online social proof via Facebook's news feed in the form of number of likes received by a news post.

Therefore, both confirmation bias and social proof bias could potentially influence belief polarization via Facebook. Given that Dutch news consumption is shifting towards Facebook's social media news feed, it is valuable to research the specific influences of these biases which are able to threaten human rationality and possibly lead to online extremism and attitude polarization. Consequently, the aim of this paper is to elicit the effects of two major behavioural economic cognitive biases, confirmation bias and social proof bias, on belief polarization via the online news medium Facebook. More specifically, this research aims to answer the following main research question: How does the consumption of news via social networking platform Facebook contribute to belief (de)polarization in the Netherlands? In order to address the influence of the underlying cognitive biases on belief polarization this research question is specified into two additional research questions: What is the influence of confirmation bias on belief polarization via Facebook? What is the influence of social proof bias on belief polarization via Facebook?

The influence of social proof and confirmation bias on attitude polarization via Facebook's news feed has not been researched yet. Therefore, elements of prior works regarding confirmation bias, social proof bias and online polarization have been used to create an entirely up-to-date experimental design. In order to answer the research question, the paper has been constructed as follows. First, the literature background is discussed to provide existing insights on polarization, the online environment that makes polarization possible, confirmation bias and social proof bias. Second, the methodology is explained, offering a new research design to elicit the effects of attitude polarization, confirmation bias and social proof bias. Third, the results from the statistical analysis of the quantitative data are presented. Finally, the results are discussed in combination with the relevance, contributions, limitations and recommendations of the conducted research.

2. Literature review

2.1 Belief polarization on social media

2.1.1 Polarization

Abramowitz & Saunders (2008) evidenced that since the 1970's ideological polarization in the United States has increased significantly within the mass public. More recently, Abramowitz (2010) analysed decades of political survey information during American elections. The conclusion of this analysis was that people and political parties have become extremely polarized, which resulted in a disappearance of the political centre in America. Abramowitz (2010) suggests that the increasing polarized public in America is not a disaster because it is caused by more politically informed, engaged and interested voters. Nevertheless, Lord et al. (1979) discovered that people with strong attitudes towards any subject interpret the same empirical evidence in a biased way leading to a more extreme attitude towards the initial direction, coined as belief polarization or attitude polarization. More specifically, this phenomenon states that an individual's attitude towards a certain attitude subject will become more extreme after thoroughly considering or discussing the attitude subject (Abril, 2018; Miller et al. (1993); Lord et al. 1979). In contrast to the conclusion of Abramowitz (2010) that polarization was caused by an increase in educated choices by the population, this phenomenon suggests that polarization regarding any topic could be caused by irrational human behaviour.

2.1.2 Online media environment

Additionally, the rapidly changing online news environment itself has been blamed for causing polarization. Although it could be argued that the internet could make it easier to connect people and access information that support different viewpoints (Lee, Choi, Kim &Kim, 2014; Wojcieszak, & Rojas (2011), Sunstein (2017, p. 64) claims "that people with identifiable leanings are consulting sources, including websites, that match their predilections, and are avoiding sources that do not cater to those predilections". More specifically, multiple studies demonstrate that people self-select their surroundings both online and offline into so-called echo chambers, in which existing beliefs are reinforced due to the tendency of people to become part of a community with the same viewpoints (Sunstein, 2001; Colleoni, Rozza, & Arvidsson, 2014). Instead of traditional news sources which are being forced upon the user, online news can be selected by the user itself (Knobloch-Westerwick & Kleinman, 2012). However, Sunstein (2017) argues that due to the increasing amount of information and communication options on the internet, filtering of information is needed to avoid information overload. Sunstein (2001) argues that the rise of the world wide web makes it more accessible to be part of polarized communities. "The internet is making it possible for people to design their own highly individuated communications packages, filtering out troublesome issues and disfavoured voices" (Sunstein, 2002, p. 186).

Quattrociocchi, Scala, & Sunstein (2016) discovered that these polarized closed non-interacting communities do certainly exist on Facebook.

Furthermore, Zuiderzee et al. (2016) distinguish between the online 'self-selected personalization' in which individuals filter their own online exposure and online 'pre-selected personalization' in which an algorithm does that for them. Pariser (2011) coined this pre-selected personalization of online news with the term 'filter bubbles'. He suggests that both individuals and groups are isolated within information bubbles through non-transparent online algorithms powered by machine learning. In these filter bubbles, past user preferences influence the information that users will be exposed to in the future, based on search history. This could isolate people online in their own ideological bubble without being aware of it. "Personalization algorithms use our gender, age, location and online activity to guess the information-advertisements, news reports, social media posts, search results and almost anything else available online-that we want or are most likely to interact with" (Miller, 2016, p.2). Miller (2016) mentions two examples in his paper, which make use of these algorithms; Google's personalized search and Facebook's personalized news feed. Similarly, Flaxman, Goel & Rao (2016) found that articles accessed via social media or online search engines are causing higher ideological segregation than the articles that come straight from news sites.

2.1.3 The influence of Facebook's news feed

Bakshy, Messing & Adamic (2015) also worry about the fact that people are increasingly exposed to news, opinions and political information mediated through social media channels, such as Facebook. In contrast with sources of traditional news, this channel for news consumption has "no third-party filtering, fact-checking, or editorial judgment" (Bakshy et al., 2015, p.1). Moreover, the American electoral campaign has been misdoubted because of the influence of the Facebook algorithm and fake news on the election result (Allcott & Gentzkow, 2017). Bakshy et al. (2015) discovered by analysing millions of Facebook user's news interactions, that the largest cause of limiting exposure to ideological differentiated perspectives via Facebook lies within the personalizing choices that the individuals make themselves regarding their news feed. Therefore, exposure to cross-cutting information could become even more limited since Facebook has announced news plans for making the Facebook news feed even more suitable for personalization (Facebook, 2019). Sunstein (2001;2017) fears that consequently people will end up in "a limited argument pool" in which alternative viewpoints are voluntarily perfectly filtered out. An internet news environment like this could be disastrous for democracy as through discussion with similar minded sources and individuals, attitudes certain groups would become more extreme (Sunstein, 2002). Few researchers have addressed the problem of belief polarization within a social media news environment. While most of previous research regarding online polarization has been limited to the effects of filter bubbles and echo chambers on American political issues, this research focuses on the influence of consuming attitude-confirming news via Facebook's news feed. It would therefore be valuable to research whether belief polarization is caused, in this case meaning shifting

attitude regarding the subject towards a more extreme position, when attitude-confirmatory news is consumed via Facebook's news feed. Consequently, the following hypothesis has been derived:

H1: If attitude-confirmatory news regarding an attitude object is consumed via Facebook's news feed, initial attitude towards the subject shifts towards a more extreme position.

Zuiderveen et al. (2016) concluded in their research that there is no empirical evidence yet that we should worry about a social news environment as described by Sunstein (2001;2017), since the personalization of news is still in an emergent phase. Conclusions made within previous works regarding polarization occurring online contradict each other. Some researchers designate the pace of the rapidly changing media communication environment causing these studies to become outdated rather quickly (Zuiderveen et al., 2016; Wojcieszak, & Rojas, 2011). Since research is limited regarding the effect of disconfirming, this research aims to discover the influence of both attitude-disconfirming and attitude-confirming news consumption via Facebook's news feed. Provided that in this case news content is presented against the existing belief, it is expected that it has the opposite effect compared to the consumption of confirming news. Therefore, it is expected that the consumption of attitude disconfirming news has a depolarizing effect. In order to research whether depolarization occurs when disconfirming news is consumed via Facebook's news feed the following hypothesis is constructed:

H2: If attitude-contradictory news regarding an attitude object is consumed via Facebook's news feed, initial attitude towards the subject shifts towards a less extreme position.

2.2 Confirmation bias

As mentioned in the previous paragraph, people nowadays are prone to self-selection and pre-selection of online information and communities that are in line with their own existing beliefs. It has been argued that this cause of polarization nowadays is caused by this selective exposure (Garret, 2009) since exposure is limited to information that matches pre-existing beliefs. Consequently, polarized online groups would be formed causing beliefs to become more extreme. Del Vicaro (2016, p.5) confirms this development for Facebook: "Users tend to aggregate in communities of interest, which causes reinforcement and fosters confirmation bias, segregation, and polarization". Additionally, Quattrociocchi, Scala, & Sunstein (2016) proved that Facebook users tend to receive information that reinforces their existing beliefs and reject information that threatens these beliefs. This underlying cognitive bias is called confirmation bias. This describes the phenomenon that people unconsciously have a natural tendency to search and interpret evidence in ways that are biased towards their already existing beliefs, expectations or hypotheses (Nickerson, 1998). In general, "confirmation bias consists of favouring expectancy congruent information over incongruent information" (Oswald & Grosjean, 2004, p.93). Klayman (1995, p.29) concluded that "confirmation bias is not a unitary phenomenon, but

rather an emergent property of the complex system of processes underlying hypothesis development." More specifically, confirmation bias could challenge rational thinking in three different manners. First, people consistently seek and select information that confirms their existing beliefs and even try to avoid information that challenges these existing beliefs (Garret, 2009; Oswald & Grosjean, 2004; Knobloch-Westerwick, Johnson & Westerwick (2014); Nickerson, 1998). Second, confirmation bias could be expressed in selectively remembering information that matches personal beliefs, which could be due to a resistance to change. Third, it could cause people having a biased interpretation of information, in which they attribute less value to attitude-disconfirming information (Oswald & Grosjean, 2004) and give a greater weight to information that supports their existing beliefs (Nickerson, 1998). Therefore, this theory states that after an existing opinion has been confirmed, people become more strongly convinced of this opinion than before (Oswald & Grosjean, 2004).

Confirmation bias is a threat for human rationality, which could be an underlying cognitive origin of online belief polarization as well. Garret (2009) discovered that people select news that confirms their existing beliefs over news that challenges it. Additionally, Knobloch-Westerwick, Johnson & Westerwick (2014) and Knobloch-Westerwick et al. (2015) concluded that during past German and American elections, voters were prone to confirmation bias as well. However, the results for the two comparable studies conducted in Germany and the United States, indicate how media users from different countries react and select news. Therefore, it is worthy to research the effect of confirmation bias in the Netherlands. More importantly, prior studies on confirmation bias especially focus on this bias in its most simple definition. If H1 regarding the confirmation of an attitude is accepted, this would indicate the presence of a confirmation bias in its most simple definition. However, this research focuses on how confirmation bias could cause people to attribute different weights to identical evidence when it is either confirming or disconfirming one's existing beliefs. If people weigh attitude-confirming information more than attitude-disconfirming information, the effect of attitude-confirming news on attitude should be larger than the effect of attitude-disconfirming news on attitude. Therefore, in order to answer the second research question regarding the influence of confirmation bias on online attitude polarization, the following hypothesis has been derived:

H3: The consumption of attitude-confirming news via Facebook causes a larger attitude shift than the consumption of attitude-disconfirming news via Facebook.

2.3 Facebook's social proof

As a result of the rapidly growing online information landscape, people tend to filter their information in order to prevent information overload (Sunstein, 2017). Whether information is perceived as credible via social media communication tools could depend on more factors than the credibility of the news source itself. Credibility of information on social media could be due to so-called social confirmation,

which means that the credibility could be dependent on actions and beliefs of other people (Metzger, Flanagin & Medders, 2010). When other people use, recommend or agree with a certain website, other people believe that this source is credible. "Although this heuristic works well for the most part in helping users find valid information, it is not perfect because it is subject to problems of crowd behaviour and may erroneously equate credibility with popularity" (Metzger et al., 2010, p. 23). Similarly, Sundar (2008) discovered that the bandwagon heuristic plays a role in the interpretation of news via social media, as news that is rated in certain ways by others influence the individual user in the same direction. This heuristic suggests that people tend to base their political choices on what is perceived as correct by most of the society or on what is the most dominant available choice at hand (Schmitt-Beck, 2015). Xu and Fu (2014) proved that this heuristic applies when people choose Hollywood movies. They showed that people tend to follow the crowd when they are uncertain about the quality of Hollywood movies, selecting their movies based on ratings of others and thereby selecting movies with high popularity ratings. Research on peer reactions on Facebook news shows that negative anonymous comments on the news post on Facebook decrease the persuasive effect of the news article (Winter, Brückner & Krämer, 2015). However, positive anonymous comments that confirmed the claims of the articles did not have a positive effect on the persuasive power of the article. Interestingly, no significant effect of number of likes on the persuasiveness of the article was found which contradicts the bandwagon theory. However, the number of likes used were rather low and were only variated as a high and low amount. In contrast, Phua & Ahn (2016) found that brand trust, brand attitude, brand involvement and purchase intentions are positively affected by the number of overall likes on the brand page. Related to the previous heuristic biases, Cialdini (2007) proposed one of his weapons of influence, named 'social proof', which means that people are influenced by other people's opinions. More specifically, people judge their behaviour to be correct based on the degree that other people behave the same way. The main strength and at the same time main weakness is that people value behaviour more when more people are doing it, especially when the situation is uncertain. Since social networking sites such as Facebook are more often based on popularity than on accuracy of information, this could be a problem. Since 'liking a post on Facebook' is an expression of agreement with the content of the article, this could be a form of social proof. In order to answer the third research question regarding the influence of social proof bias, in this case the number of likes of a Facebook news post, on online attitude polarization, the following hypothesis has been derived:

H4: The more likes an attitude-confirmatory news article post received on the Facebook news feed, the larger the polarizing effect caused by the consumption of this news.

As mentioned before, it has been proven in several cases that an increase in social proof, increases the effect of the message provided. Therefore, it is also hypothesized that the effect of consuming an

attitude-disconfirming news article via Facebook, increases its supposed depolarizing effect. Consequently, the following hypothesis has been constructed:

H5: The more likes an attitude-disconfirming news article post received on the Facebook news feed, the larger the depolarizing effect caused by the consumption of this news.

Finally, all five hypotheses and their relations have been summarized in figure 1. First, the figure shows that based on prior literature the consumption of attitude-confirming news is expected to cause an attitude to become more extreme (H1). Second, it is shown that the consumption of attitude-disconfirming news is expected to cause an attitude to shift to a less extreme position (H2). Third, the effect of attitude-confirming news is expected to be bigger than the attitude-disconfirming news (H3). Finally, it is displayed that the number of likes is expected to have a positive moderating effect on both the attitude shift caused by the consumption of attitude-confirming and attitude-disconfirming news (H4 & H5).

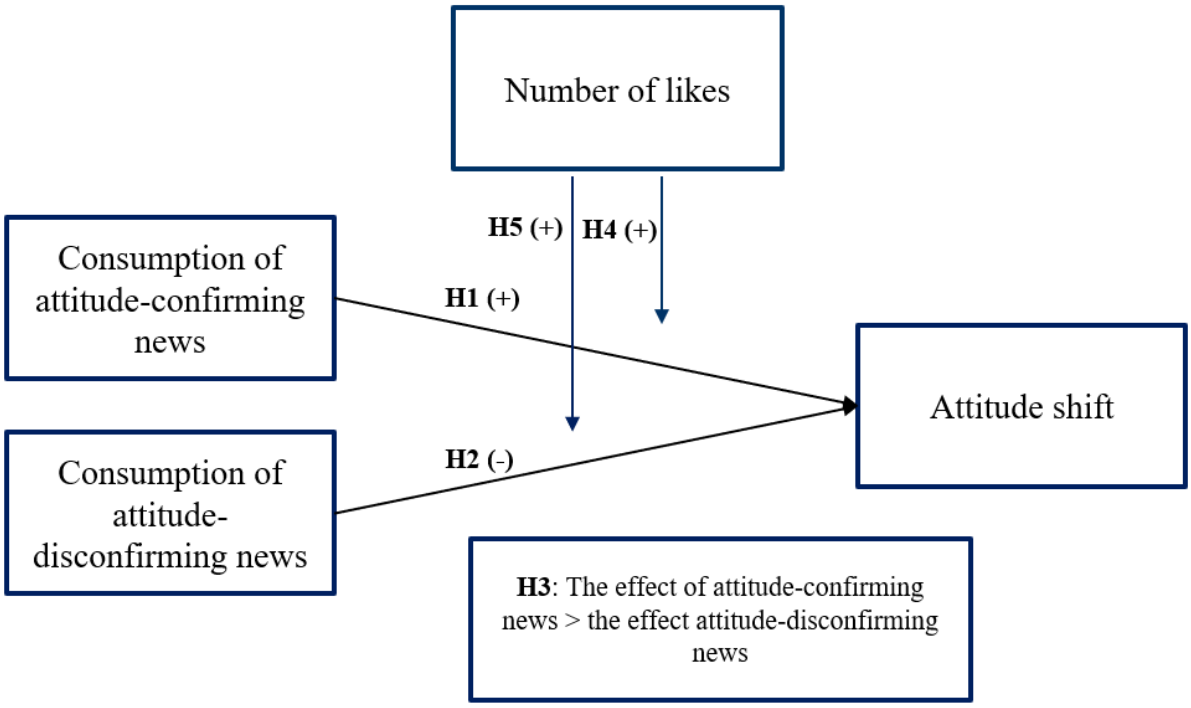

Figure 1. Conceptual framework

3. Methodology

3.1 Data collection

To answer the research question how the consumption of news via the social networking site Facebook contributes to belief polarization in the Netherlands, an empirical quantitative research has been conducted. The data were collected in the form of an online experiment using the data collection software Qualtrics. The acquired primary data was used to analyse the research question regarding the impact of consuming news via Facebook on belief polarization in the Netherlands. Furthermore, it is used to analyse the proposed underlying cognitive biases; confirmation bias and social proof bias. The sampling method that was used to collect this data, was a snowball sampling method. In other words, the Qualtrics survey has been distributed through direct and indirect acquaintances via social media. Since, the experiment is aimed to research online belief polarization, confirmation bias and social proof bias in a Dutch Facebook news environment, only Dutch participants were recruited. After the survey had been distributed for one full week, 260 people participated in the experiment. However, 232 respondents fully completed the survey and are therefore included in the analysis.

3.2 The attitude object

Although limited research had been conducted on the actual effect of consumption of confirmatory and contradictory news articles via Facebook's news feed Lord et al. (1979) studied attitude polarization in an offline setting. They researched the influence of interpreting additional confirming and disconfirming evidence regarding the death penalty. After the experiment the participants were directly asked to report their attitude change regarding death penalty. This experiment provided some both useful insights and clear shortcomings which have been used to create a base for researching attitude polarization, confirmation bias and social proof bias in the current Facebook news environment, simulated for the purpose of control within Qualtrics. Instead of researching the effect of attitude-confirming and attitude-disconfirming empirical findings on attitude polarization like Lord et al. (1979) did, this research will use actual attitude-confirming and attitude-disconfirming Facebook news posts and the corresponding news article posted by a Dutch news brand. Therefore, it was required to select a news topic that was represented by both a statement-confirming and statement-disconfirming Facebook post and corresponding article, preferably posted by the same news brand. For this reason the topic chosen to research online belief polarization, confirmation bias and social proof bias via Facebook in the Netherlands is the legalisation of the drug XTC in the Netherlands. It was necessary for the significance of this research that enough participants either agreed or disagreed with the legalisation of XTC. More specifically, the groups of participants should desirably be roughly the same size or at least big enough to make inferences about the two groups. It was expected that a diversely minded younger public would participate in the experiment, which increased the chances of satisfying this condition. Moreover, research institute Trimbos (2017) concluded from their National Health Survey that more than a quarter

of people from 20 to 24 years old had experience with XTC and one fifth of the people aged 25 to 29. Therefore, it was expected that both groups, agreeing and disagreeing with the legalization of XTC, would be represented sufficiently by the sample.

3.3 The selected news

Furthermore, it was preferable to select two articles from the same news source in order to reduce the role of news brand specific effects. Most news brands have a stand in a political discussion, which causes them to either select or frame news in a biased manner (Bennet, 2016). Therefore, many topics have been investigated to find a news brand that published both attitude-confirming and attitude-disconfirming articles regarding a topic. The Algemeen Dagblad (AD), a well-known Dutch news brand, published two articles that sufficiently satisfy these criteria. Moreover, the two articles took opposing stands regarding the War on Drugs in the Netherlands with a specific focus on the drug XTC and were both published on Facebook. Additionally, Reuters Institute for the Study of Journalism (2019) concluded in their digital media report that AD is the third most used online news brand and fourth most trusted news brand in the Netherlands. Therefore, using news articles from AD could give useful insights in the effects of news consumption via Facebook in the Netherlands. However, in order to compare the effects of the two contradicting articles article-specific characteristics should be controlled for as well. Although the statements made in the articles were either seemingly confirming or seemingly disconfirming, some minor article specifics could not be controlled for without changing the content of the articles. These article specifics were details like certain political parties making the claims regarding the legalisation of XTC, which could have a minor effect on the effectiveness of the claims depending on political party preference. However, both left-wing and right-wing parties were mentioned in both articles in favour of the content of that article preventing left-right wing preference bias towards the article. Although such small uncontrollable factors were inevitable, both articles satisfied the main specifications required for this research.

Therefore, the articles and corresponding Facebook articles, shown in appendix 1 and 2, have been included in this research. The first article (appendix 1) published on November 18th, by the AD (2018) provides a clear expression in favour of legalising XTC in the Netherlands. The article contains a statement given by a Dutch doctor stating that XTC is better for your health than alcohol. Additionally, the article provides claims from Dutch political parties proposing to regulate XTC production in order to stop the criminal activities involved with the production and reduce the corresponding drug waste. The main takeaway from this article would be that the War on Drugs is not the solution for the problem and therefore XTC should be legalized.

The second article (appendix 2), published December 17th, by the AD, 2018, states that several Dutch left and right-winged political parties do not agree with either regulating drugs production or legalizing the drug XTC. The article takes an opposite stand regarding the legalization of XTC compared to the

first article. In opposition to the first article, claims are made that XTC is bad for your health and that the only way to tackle the problem of drug-related criminality is to use more police force. The main takeaway from this article would be that the War on Drugs is the solution for the problem and that therefore XTC should remain illegal.

3.4 The experimental design

3.4.1 Introductory section

A simplified representation of the different parts included in the experimental design has been depicted in figure 2. The survey as shown in appendix 3 is comprised of four different parts; introduction, pre-experimental questions, the experiment and the post-experimental questions. In the introductory section the general rules of the experiment were explained. First, it was explained that participating in the experiment was completely voluntary and that the participants' results would be analysed completely confidentially and anonymously. Additionally, participants were offered an optional random lottery incentive of 20 euros as a reward for completing the survey. It was stated that in order to be eligible for the random lottery, an email address should be left at the end of the survey. They were assured that these would be treated confidentially as well and that the addresses would be deleted after the nomination of the winner.

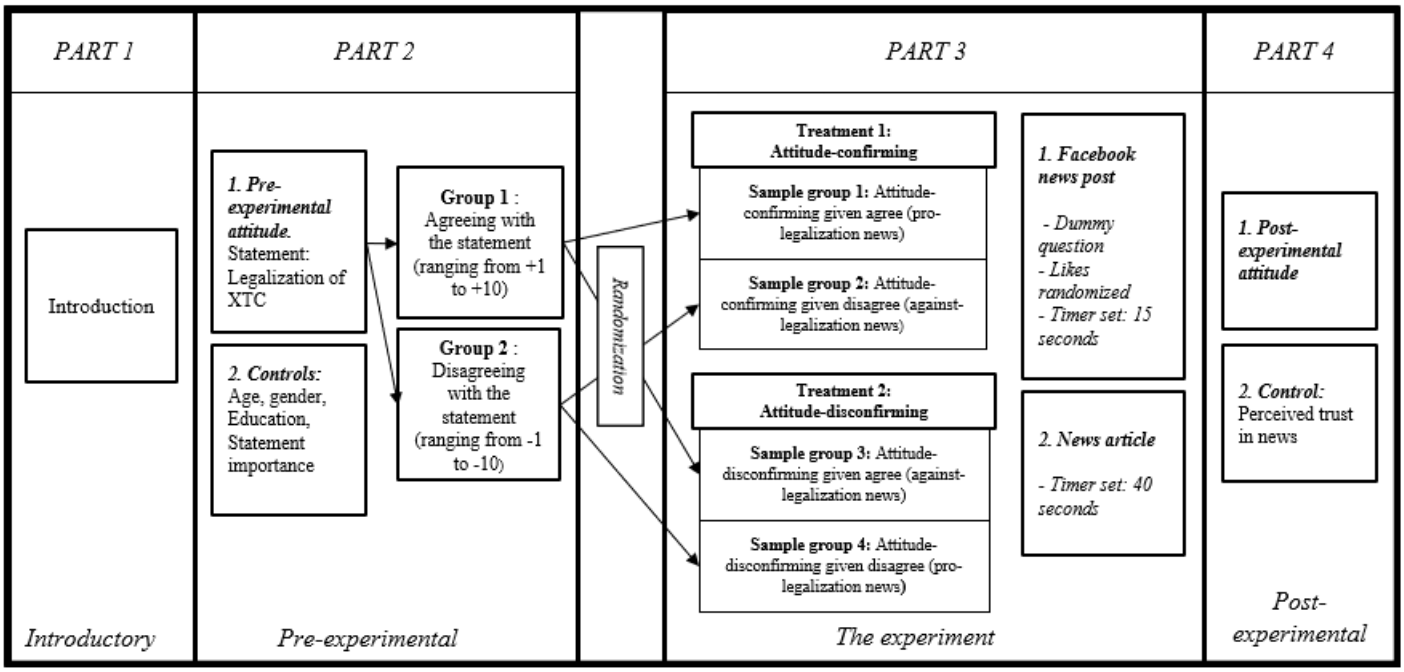

Figure 2. The experimental design

Afterwards, the topic was neutrally introduced to prevent any biases, stating that political experts in The Hague could not agree on the legalization of XTC (NU.nl, 2018). As mentioned before, attitude polarization occurs after people have intensively thought about the attitude object (Abril, 2018).

Therefore, to make sure that participants would think thoroughly about their attitude towards the topic, they were introduced to the topic in an early stage of the experiment. Simultaneously, in order to intrinsically motivate them to think about the topic the participants were instructed that they would have to state their attitude regarding this topic at a later point in the survey.

3.4.2 Pre-experimental questions

The survey continued with pre-experimental questions (figure 2), including demographic questions regarding age, education and gender. More specific, participants had to state their gender (male/female), their age (continuous variable) and their highest degree of schooling (High school, Vocational education, Bachelor of applied science, University, other). These variables have been used as demographic control variables, which will be discussed in more detail in paragraph 3.5. Subsequently, participants were asked to indicate on a 20-point Likert scale, ranging from -10 to +10, to what extent they agree with the statement: "The drug XTC should be legalized in the Netherlands". The large 20-point scale was chosen because people should have enough choice options in between the two extremes in order to research polarization. Garland (1991) discovered that the choice of inclusion or emission of a truly neutral point on the Likert scale depends on the size of the scale used and on the aim of the research. He discovered that for a research regarding controversial subjects, the neutral point should better be excluded. The reason for this is that people are prone to the social desirability bias, by which they try to answer questions in a socially desirable way. For controversial topics, people might choose the neutral as an easy way out or think this would be socially desirable, while they do have an opinion on the topic. Therefore, the neutral point in this research has been excluded. Additionally, including it would create a third group of participants with a neutral attitude which could be not be categorized when researching the influence of attitude-confirming and attitude-disconfirming news. Lastly, people are forced to think more intensively about the subject when they are obliged to choose a direction. This part of the experiment was ended with a question regarding the perceived importance of the subject, which was measured on a 7-point Likert scale.

3.4.3 The experimental structure

The experimental design in relation to the hypotheses based on prior literature is depicted in figure 2. As shown in this figure, depending whether participants agreed or disagreed with the statement, they were divided into two groups: people that were in favour of the legalization of XTC, group 1, and people that were against the legalization of XTC, group 2. Afterwards, both groups 1 and 2 were randomly and equally assigned into two different treatments, using the randomization tool built within Qualtrics (figure 2). As a result, both the statement-agreeing participants (group 1) and statement-disagreeing participants (group 2) were equally randomized into two treatments. In treatment 1, participants had to read attitude-confirming news, consisting of a Facebook news post and the corresponding news article, regarding their initial attitude towards the legalisation of XTC in the Netherlands. Conversely, in treatment 2, participants had to read attitude-disconfirming news, consisting of a Facebook news post and the

corresponding news article, regarding their initial attitude towards the legalisation of XTC in the Netherlands. Notice that depending on whether the participant agreed or disagreed with the statement, the 'confirming' or 'disconfirming' news article in both treatment 1 and 2 could be either pro-legalisation or against-legalisation (figure 2). This design is valuable as it makes it possible to compare the effects of both attitude-confirming and attitude-disconfirming news while keeping the news articles fixed.

After the question regarding the perceived importance of the statement, participants were instructed that a recent Facebook post regarding the legalisation of XTC in the Netherlands would be shown. They were instructed that they had to analyse the post extensively and answer a corresponding question. The Facebook news feed was recreated within Qualtrics in order to research the influence of Facebook's social proof bias. Therefore, the Facebook news posts were shown as they would naturally occur on someone's Facebook news feed (appendix 1&2). In order to research the effect of the number of likes that a Facebook post received on the attitude change caused by the consumption of this news, the number of likes of all Facebook posts were manipulated (appendix 3). Since Winter et al. (2015) found no significant effect of likes of a Facebook post on the persuasiveness of an article by using only a low number of 40 likes and high number of 500 likes, this indicates that the number of likes should be varied more in this research. Furthermore, humans intuitively perceive numbers logarithmically (Dehaene, Izard, Spelke & Pica, 2008). Therefore, in order to keep the change in perception of the number of likes constant between different treatments an exponentially increasing number is used within the experiment. Consequently, the number of likes of the Facebook news post has been randomized in four exponentially increasing amounts, namely 100, 1000, 10000 and a maximum of 25000 likes. The maximum number of likes of 25000 was chosen instead of 100000, because the maximum number of likes received on a news post by the AD is roughly 25000. The graphical design software Adobe Photoshop was used in order to adjust the number of likes of the two Facebook posts realistically into the required numbers. The number of comments and shares of the Facebook post were kept constant at respectively 388 comments and 129 shares. Furthermore, in February 2016 Facebook introduced five other emoticons for users to express attitude towards messages on Facebook's news feed besides the classical Facebook 'like' (Forbes, 2016). Besides, the three most expressed attitudes by users show under the news post itself. Therefore, it was needed to control for these three attitudes and therefore keep these constant as well in the used Facebook posts. Consequently, Adobe Photoshop was used to fix the attitudes towards the following three emoticons for all posts: Like, Love and Wow emoticon (appendix 1&2).

Qualtrics' timer function was used to prevent survey continuation for 15 seconds in order to motivate people to analyse the Facebook news post carefully and increase the chance that people also interpret the number of likes. Similarly, a question regarding the willingness to click the post and willingness to read the full corresponding news article when it would appear on the participant's own Facebook news feed was asked underneath the Facebook post. This question was also introduced in order to motivate

people to interpret the post as if it was on their own Facebook news feed. Corresponding to the Facebook post they were shown before the full news article followed, which normally would pop up when the Facebook post would have been clicked. It was explained to the participants that questions regarding the content of the article would follow reading it, to motivate them to read the article carefully. Additionally, this time the timer function was set on 40 seconds, estimated on an average reading speed of 238 words per minute for adults (Brysbaert, 2019). This timer was included for the purpose of motivating people to carefully consume the information provided in the article.

3.4.4 Post-experimental questions: the polarization measure

As mentioned, people were exposed to either a pro-legalisation or against-legalisation post during the experiment. This respectively confirmed the pre-experimental attitude of people in treatment 1 and contradicted the pre-experimental attitude of people in treatment 2 (figure 2). In order to see what the effect of each treatment was, attitude towards the statement was measured again after the experiment. This post-experimental attitude was measured on the same 20-point Likert scale ranging from -10 to +10 to what extent they agree with the statement: "The drug XTC should be legalized in the Netherlands." Different from Lord et al. (1979), which elicited attitude polarization by directly asking perceived attitude change, a new polarization measure is created calculating attitude change in terms of depolarization or polarization using the difference between the pre-experimental attitude and the post-experimental attitude regarding the statement. This prevents the results to be biased by the experimenter demand effect (Zizzo, 2009), which could arise when the participant is able to guess that it is expected that attitude must change. Lord et al. (1979) admitted that this could cause participants to report an attitude change biased towards what they perceive to be an appropriate response.

The created polarization measures whether an attitude becomes more extreme or less extreme due to the effects of the treatment. The formulas for the polarization measures are presented in figure 3. It can be concluded that there are different polarization measure formulas for statement-agreeing group 1 and statement-disagreeing group 2. In order to account for the negative Likert scale used to measure the disagreeing attitude regarding the legalisation of XTC, the difference between post- and pre-experimental attitude has been multiplied by -1.

Polarization measure given agree = Post-experimental attitude – pre-experimental attitude

*Polarization measure given disagree = (Post-experimental attitude – pre-experimental attitude) * -1*

Figure 3. Formula polarization measures

Consequently, both polarization measures indicate attitude polarization when the outcome is positive and attitude depolarization when the outcome is negative. In particular, when the attitude changes towards a more extreme position in the same direction as the participant stated beforehand, this will be

a polarizing attitude change. Whereas the attitude change towards a less extreme position or even when the attitude changes towards the other side of the spectrum will be a depolarizing attitude change. The graphical representation of the attitude polarization and depolarization is shown in figure 4. The left grey area marks the side of people that disagreed with statement (-1 to -10) and the white area marks the side of people that agreed with the statements (1 to 10). Although, the neutral point was excluded from the experiment itself, it was included in the polarization measure. The reason for this is that an attitude change from 1 to -1 and vice versa should be 2, while excluding the 0 would give a shift of 1. The two red arrows in figure 4 represent the situation in which pre-experimental attitude shifts with 3 points towards a more extreme post-experimental attitude, indicating an attitude polarizing effect. Notice that, although the two red arrows point in the opposite direction, they both indicate attitude polarization, which was the reason why the polarization measure given agree has been multiplied by -1 as explained before. In contrary, two blue arrows in figure 4 represent the situation in which pre-experimental attitude shifts with 3 points towards a less extreme post-experimental attitude, indicating an attitude depolarizing effect. Finally, the two green arrows in the middle represent the situation that pre-experimental agreeing and disagreeing attitude shift to the other side, respectively to a disagreeing and agreeing post-experimental attitude, indicating an attitude depolarizing effect as well.

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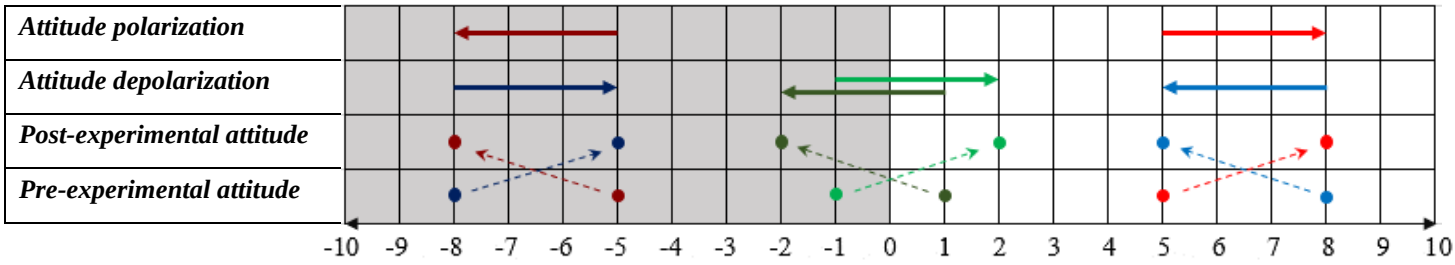

Figure 4. Polarization measure

As a final part of the experiment, it was accounted for that the degree that somebody trusts a certain news brand might fluctuate among participants and could have an influence on the attitude shift (Turcotte, 2015). Therefore, participants were asked to indicate to what extent they perceived the presented news as trustworthy on a 7-point Likert scale, ranging from 1 (completely untrustworthy) towards 7 (completely trustworthy). The use of the variables controlling for other factors that could influence attitude change besides the variables that are used to examine our research questions are explained in the next paragraph.

3.5 Control variables

Besides the possible polarization caused by the consumption of confirmatory news, previous work shows that other variables could have an influence on attitude change. It was already shown in figure 2 that five control variables have been proposed. First, attitude change could be influenced by the degree of importance people attach towards the attitude subject (Oswald & Grosjean, 2004). Similarly, Winter

et al. (2015) discovered that social influence via Facebook was also affected by the degree of personal relevance that participants attach to a subject. Therefore, importance attached to the attitude subject, was included as control variable in this research. Second, attitude change could also be influenced by the degree that the news was perceived as credible. Turcotte et al. (2015) concluded that credibility of news increases trust in information provided, which leads to an increased perceived value of this information. The perceived credibility of news could either depend on the perceived credibility of the news source or on credibility of the information used within the news article. Therefore, perceived credibility of the news is also included as control variable.

In addition to the influence of statement importance and credibility of news, three demographic controls have been used. Hendriks Vettehen (2004) concluded from his research in the Netherlands that age, gender and education influence political knowledge. The results indicated that the higher educated, the elderly and men had a significant higher political knowledge. Similarly, Verba, Burns & Schlozman (1997) concluded that overall women are less engaged in political issues. Mayer (2011) concluded that educational advancements enhanced political participation. Participants with less political knowledge or lower political engagement might be less familiar with the arguments of the opposition of their own conviction. As a result, attitude change might differ when being exposed to new information. Accordingly, Wood, Rhodes & Biek (1995) explained that people with more knowledge on a certain topic have stronger attitudes towards an attitude object. "Knowledgeable people with strong attitudes is careful, expert processors of news information, but their processing is biased to bolster and protect their favoured attitude position (Wood et al., 1995, p.283)". As certain characteristics could influence attitude change caused by the consumption of additional information regarding the subject, age, gender and education are used as controls.

Figure 5 represents a graphical overview of how of the experiment relates to the hypotheses based on prior literature. It is depicted how the pre-experimental, statement-agreeing group 1 and statement-disagreeing group 2, were randomized into treatment 1 or treatment 2. Treatment 1 included the consumption of attitude-confirming news via Facebook's news feed and treatment 2 included the consumption of attitude-disconfirming news via Facebook's news feed. The consumption of the different types of news by the two groups are the independent variables. The effect of this consumption on the dependent variable, the polarization measure, is captured in H1 and H2. The expected moderating effect of the number of likes is captured in H4 and H5. Furthermore, the expected larger effect of the consumption of attitude-confirming news than the effect of the consumption of attitude-disconfirming news (confirmation bias) is captured in H3. Notably, it is shown that this innovative experimental design creates the opportunity to compare the effects of an identical Facebook news articles when it confirms or disconfirms an attitude. Finally, it is shown that the variables Education, Age, Gender, Statement importance and Trust in news are used as control variables on the polarization measure.

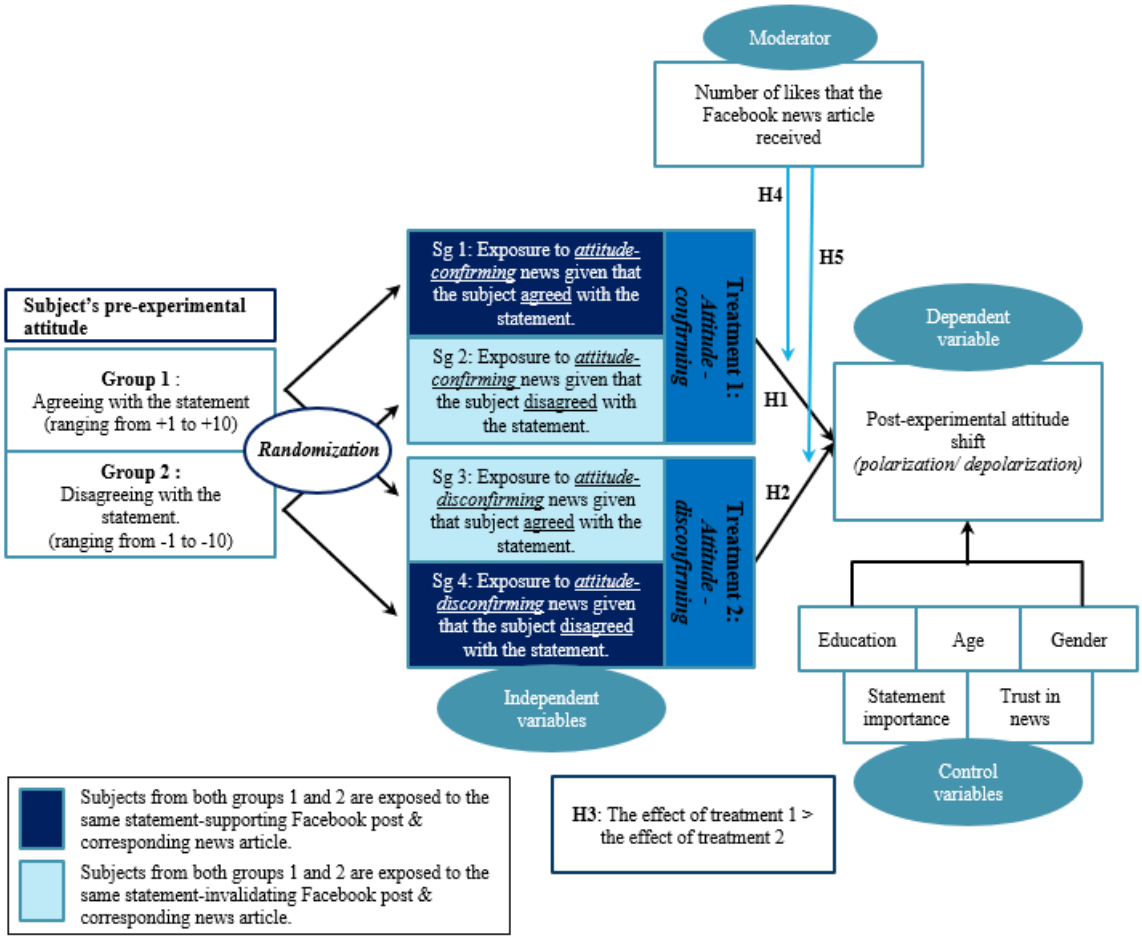

Figure 5. The conceptual framework in relation to the experiment

3.6 Restating the hypotheses

Because of using a new experimental design, it is needed to restate the hypotheses that were based on prior literature in terms of the experiment. One of the key values of the new design is that it creates the possibility to research the effect of both attitude-confirming and attitude-disconfirming news without changing the news article to confirm (treatment 1) or disconfirm (treatment 2) an attitude and still retain randomization of subjects. This makes it possible to research the weights attached to the same news article when it either randomly confirms or either disconfirms initial attitudes. While some researcher, such as Knobloch-Westerwick et al. (2014), used different attitude-consistent and attitude-discrepant evidence to see the effects of the roughly opposing articles, this design enables keeping the evidence identical. To make this possible, the research design had split the participants in two groups, people that agree and disagree with the given statement. Another reason for splitting the two groups will be explained in the next paragraph. This split also influences the hypotheses that were stated in the literature review section. Therefore, it is needed to restate the former hypotheses in terms of the agreeing and the disagreeing sample. Additionally, the hypotheses have been restated in the terms of the chosen attitude subject: the legalization of XTC. The main hypotheses including the corresponding new sub- hypotheses are shown in table 1.

Table 1. The restated hypotheses

Hypothesis 1 If attitude-confirming news regarding an attitude object is consumed via Facebook's news feed, initial attitude towards the subject shifts towards a more extreme position.	***H1a:*** Given that participants agree with the statement regarding the legalization of XTC in the Netherlands, consuming additional attitude-confirming news via Facebook's news feed shifts their initial agreeing pre-experimental attitude towards a more extreme post-experimental agreeing attitude.
	H1b: Given that participants disagree with the statement regarding the legalization of XTC in the Netherlands, consuming additional attitude-confirming news via Facebook's news feed shifts their initial agreeing pre-experimental attitude towards a more extreme post-experimental disagreeing attitude.
Hypothesis 2: If attitude-disconfirming news regarding an attitude object is consumed via Facebook's news feed, initial attitude towards the subject shifts towards a less extreme position.	***H2a:*** Given that participants agree with the statement regarding the legalization of XTC in the Netherlands, consuming additional attitude-disconfirming news via Facebook's news feed shifts their initial agreeing pre-experimental attitude towards a less extreme post-experimental agreeing attitude.
	H2b: Given that participants disagree with the statement regarding the legalization of XTC in the Netherlands, consuming additional attitude-disconfirming news via Facebook's news feed shifts their initial disagreeing pre-experimental attitude towards a less extreme post-experimental disagreeing attitude.
Hypothesis 3: The consumption of attitude-confirming news via Facebook's news feed causes a larger attitude shift than the consumption of attitude-disconfirming news via Facebook's news feed.	***H3a:*** The consumption of identical 'pro-legalization' news via Facebook's news feed, causes a larger attitude shift when this news confirms a legalization-proponent's pre-experimental attitude, than when this identical news disconfirms a statement-opponent's pre-experimental attitude.
	H3b: The consumption of identical 'against-legalization' news via Facebook's news feed, causes a larger attitude shift when this news confirms a legalization-opponent's attitude, than when this identical news disconfirms a statement-proponent's attitude.
Hypothesis 4: The more likes an attitude-confirming news article post received on the Facebook news feed, the larger the polarizing effect caused by the consumption of this news.	***H4a:*** Given that participants agree with the statement, when the number of likes of the attitude-confirming Facebook news post increases, the polarization measure increases.
	H4b: Given that participants disagree with the statement, when the number of likes of the attitude-confirming Facebook news post increases, the polarization measure increases.
Hypothesis 5: The more likes an attitude-disconfirming news article post received on the Facebook news feed, the larger the depolarizing effect caused by the consumption of this news.	***H5a:*** Given that participants agree with the statement, when the number of likes of the attitude-disconfirming Facebook news post increases, the polarization measure decreases.
	H5b: Given that participants disagree with the statement, when the number of likes of the attitude-disconfirming Facebook news post increases, the polarization measure decreases.

3.7 Statistical analysis methods

In order to analyse the collected data and test the hypotheses mentioned in table 1, statistical software package STATA 15 MP was used. First, it is important to mention that both parametric and non-parametric tests were used. Deciding whether it was feasible to use parametric tests for testing a hypothesis, several assumptions have been evaluated. First, the responses have been collected in the form of Likert scale questions which is ordinal data while it is recommended using interval data for parametric tests. However, Allen & Seaman (2007) suggest that this Likert scale can be interpreted and analysed as interval data. Second, the observations should be independent which is sufficiently satisfied in the experiment. Third, it is expected that the survey population might not be normally distributed which indicates a required use of non-parametric tests. Nevertheless, it could be argued that the sample size (n=232) is large enough to assume the sample to be normally distributed. Finally, the variances of the different groups analysed should be expected to be equal.

Therefore, it would be only admissible to use parametric tests for testing hypothesis 1 (H1) and hypothesis 2 (H2) as two paired samples are compared in a within-subject design. Since it is still controversial whether a Likert scale can be interpreted as interval data, the non-parametric equivalents for testing these hypotheses are used as well. Additionally, an advantage of using nonparametric tests in this research is that they cause outliers to be less impactful which could be useful as large measurement scales have been used (Whitley & Ball, 2002; Siegel, 1956). The advantage of using a parametric test as well to test H1 and H2 is that these tests have more statistical power.

In order to answer the research question how the consumption of news via Facebook contributes to belief polarization in the Netherlands, it was tested whether the consumption of attitude-confirming news caused belief polarization. The sample was divided in four different samples: Sample group 1 (Sg 1), 'Confirming Agree', sample group 2 (sg 2) 'Confirming Disagree', sample group 3 (sg 3) 'Disconfirming Agree', sample group 4 (sg 4) 'Disconfirming Disagree' (figure 2&5). A within-subject design regarding the difference in pre- and post-experimental attitude within sample group 1 and 2 aims at answering H1a and H1b respectively. Similarly, a within-subject design regarding the difference in pre- and post-experimental attitude of sample group 3 and sample group 4 aimed at answering H2a and H2b respectively. Since in this case normal distribution was assumed as a result of the sample sizes, each nonparametric Wilcoxon signed-rank test was complemented with a parametric paired sample t-test for each of the four sample groups. For the agreeing groups, the post-experimental attitudes were compared with the pre-experimental attitudes of the same participants in order to analyse the effect of attitude-confirming treatment 1 and attitude-disconfirming treatment 2. Conversely, in order to account for the minus signs of the disagreeing sample, the post-experimental attitudes were compared with the pre-experimental attitudes. In order words, the minus sign was reversed in order to obtain the same polarization measure for both the agreeing and the disagreeing groups.

Although it was admissible to test H1 and H2 with a parametric test, this does not hold for hypothesis 3 (H3). For H3, normal distribution could not be assumed due to relatively small sample sizes in addition to the unequal sample size of the two samples that are being compared, which could lead to unequal variances (Rusticus & Lovato, 2014). Therefore, in order to test H3a and H3b regarding the influence of confirmation bias on belief polarization, two nonparametric Mann-Whitney U tests were performed. As previously mentioned, the research design included a division of participants in two groups, namely people that agree and disagree with the given statement. One of the reasons, as mentioned before, was to make it possible to compare the effect of the consumption of an identical news article. Therefore, by comparing sample group 1 with sample group 4 and sample group 2 with sample group 3, the effect of consuming an attitude-confirming and attitude-disconfirming news article can be compared by keeping the article fixed. Consequently, it could be researched by comparing these groups whether people attach different weights to confirming news than to disconfirming news.

Another reason for the split of the statistical analysis between the two groups was to make it possible to perform ordinary least squares method without violating the zero-conditional mean. This assumption would be violated because people that agree and people that disagree with certain political issues might have different unobserved characteristics which cannot be accounted for (Huff & Tingley, 2015). More specifically, the dummy 'agree' could be correlated with other unobserved factors that are part of error term, which violates the zero conditional mean assumption. When this dummy variable agree would correlate with the error term, the strict exogeneity assumption fails invalidating the reliability of the research. Since it is not possible to influence and randomize whether people agree or disagree with a certain attitude object, it was necessary to split the analysis of the two groups. Consequently, two different multiple regression models using the estimation Ordinary Least Squared (OLS) were performed: One for the group that agreed with the statement and another for the group that disagreed with the statement. These two regressions were used to make inferences about the influence of the number of likes on the attitude change caused by the consumption of confirming and disconfirming news articles, represented respectively by hypothesis 4 (H4) and hypothesis 5 (H5). Similarly, in order to overcome the limitations of a possible non-normal distribution and the relatively big impact of potential outliers on the results robust regressions were performed. By using a robust regression, a result outlier has less impact on the result which causes results to be more reliable (Rousseeuw & Leroy, 2015). As mentioned before, the two contradicting articles used in this research were distributed by the same news brand and the article specific differences were limited. Consequently, comparing the effect of treatment 1 with the effect of treatment 2 without having a control group is enough to make inferences regarding the effect of the logged number of likes on the attitude shift.

In the experiment, the first three numbers of likes used for the Facebook news posts, were exponentially increasing from 100, 1000 to 10000 in addition to a maximum number of likes of 25000. The reason for choosing these numbers was that people interpret these exponentially increasing numbers,

logarithmically which makes them perceive the difference between the actual numbers of likes to be linear. As the 'actual numbers of likes' are still reported as exponentially increasing numbers in the dataset it is needed to log these actual number of likes to convert them into the linear increasing 'perceived number of likes' within the dataset. The equations for the OLS regression are shown in figure 6. In order to test H4a and H4b regarding the moderating effect of the logged number of likes on the attitude change caused by the consumption of attitude-confirming news via Facebook, the coefficient of β_3_Confirming*Log(likes) has been analysed in both regressions. Similarly, in order to test H5a and H5b regarding the moderating effect of the logged number of likes on the attitude change caused by the consumption of attitude-disconfirming news via Facebook, β1_Confirming*Log(likes) was also analysed.

Attitude_shift_given_agree = $\beta_0 + \beta_1\_Confirming + \beta_2\_Log(likes) + \beta_3\_Confirming*Log(likes) + \beta_4\_Age + \beta_5\_Gender + \beta_6\_Education + \beta_7\_StatementImportance + \beta_8\_TrustNews + \mu$

Attitude_shift_given_disagree = $\beta_0 + \beta_1\_Confirming + \beta_2\_Log(Likes) + \beta_3\_Confirming*Log(likes) + \beta_4\_Age + \beta_5\_Gender + \beta_6\_Education + \beta_7\_StatementImportance + \beta_8\_TrustNews + \mu$

Figure 6. OLS regression equations

4. Results

4.1 Descriptive statistics

First, the demographic statistics are discussed regarding the participants. In total 280 participants started the survey of which 232 completed the whole experiment. Consequently, the dropout rate is 17.14% which is relatively low. Most dropouts already quit the survey in the introduction phase of the survey. Table 2 summarizes the relevant descriptive statistics for both the agreeing and disagreeing samples. The table reveals that the remaining 232 respondents consist of 143 men and 89 women. Cumulatively the respondents from an age of 18-30 constituted approximately 84% of the sample. Additionally, 169 of the respondents had a university degree, 40 respondents had a bachelor's in applied science and the residual 23 respondents were divided over the three other education categories. As the other categories lack a sufficiently large sample size, it is not possible to make inferences about the categories of Education and is excluded from the research as control variable. Nevertheless, it is expected that the split between agreeing and disagreeing participants, partly accounts for unobserved characteristics like education. Additionally, table 2 shows that 145 (62.5%) respondents agreed with the statement that XTC must be legalized in the Netherlands and 87 (37.5%) respondents disagreed with this statement. Out of the 87 respondents that disagreed with the statement, 44 respondents were shown the pro-legalization article, which contradicted their attitude. The residual 43 respondents that disagreed with the statement were shown the against-legalization article, which confirmed their attitude. Similarly, table 2 reveals that out of the 145 respondents that agreed with the statement, 73 were shown the against-legalization article, which contradicted their attitude. The residual 72 respondents were shown the pro-legalization article, which confirmed their attitude. Consequently, the pro XTC legalization article had been randomly shown to 116 respondents and the article against the XTC legalization had also been shown to 116 respondents. Finally, table 2 shows us that the four different numbers of likes attached to the corresponding Facebook articles had also been roughly equally distributed over the respondents. More specifically, the 100 likes Facebook post had been shown to 62 participants, 1000 likes to 59 participants, 10000 likes to 57 participants, 25000 likes to 54 participants.

Table 2. Descriptive statistics regarding gender, the distribution of the different news articles and the different number of likes the Facebook post received

Variable	Type	N (Agree)	N (Disagree)	N (Total)
Gender	Men	97	46	143
	Women	48	41	89
		145	87	232
Article	Pro	72	44	116
	Against	73	43	116
		145	87	232
Number of likes	100	38	24	62
	1000	38	21	59
	10000	36	21	57
	25000	33	21	54
		145	87	232

Table 3 includes the summarized mean statistics of both the group that agreed with the statement and the group that disagreed with the statement. It shows that the age of the respondents is relatively low, with a mean age of 27 years. Furthermore, on a Likert scale from 1 to 7, the mean Trust in the news that was presented is 4.67 which is quite high. This trust score is also used as control variable in the regression. A similar Likert scale was used to measure the willingness of participants to click on the corresponding news article if the same Facebook post would appear on their own Facebook news feed. As explained before this was intended to be a dummy question regarding the Facebook news post. Nevertheless, the total sample mean is 4.88 which is rather high, meaning that the Facebook posts were sufficiently relevant. Finally, it is worthwhile noticing that people agreeing with the legalization of XTC in the Netherlands before the experiment are younger, attach more importance to the statement, trust the presented news more and have a higher willingness to click the Facebook news post when it would appear on their own Facebook news feed, than people that disagree with the statement (table 3). Therefore, it can be concluded that it was needed to divide the regressions in these two groups to account for other unobserved characteristics that could cause a correlation between independent variables.

Table 3. Summary statistics regarding age, perceived importance of the statement and the perceived credibility of the news

Variable	Mean (Agree)	Mean (Disagree)	Mean (Total)
Age	25.75	29.72	27.24
Statement importance (1-7)	5.14	3.9	4.68
Trust in news (1-7)	4.86	4.34	4.67
Willingness to click (1-7)	5.92	3.14	4.88

Furthermore, the histogram regarding the pre-experimental attitude towards the legalization of XTC in the Netherlands is shown in figure 7. It can be deduced that the pre-experimental attitude regarding the subject was already polarized towards the extremes, especially for the 'agree' region. This means that for this attitude subject, there is more room for depolarization than for polarization during the experiment.

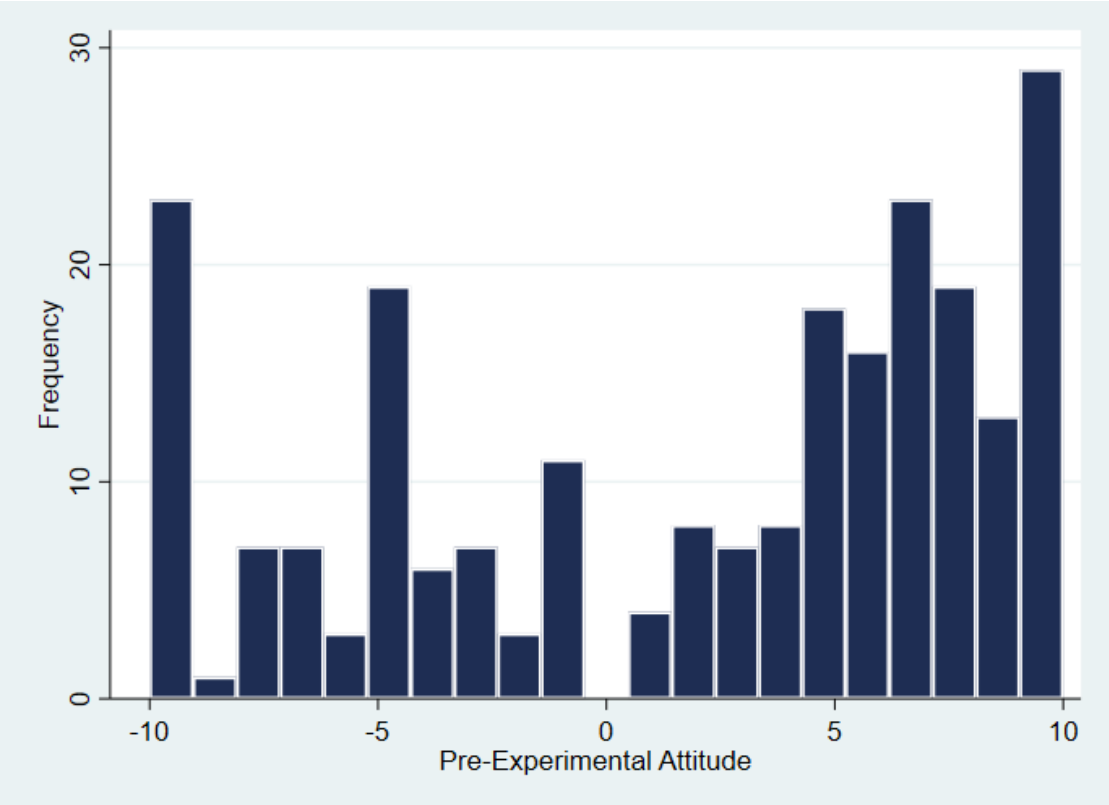

Figure 7. Histogram regarding the pre-experimental attitude of the total sample (n=232)

4.2 (De)Polarization

4.2.1 Confirmation of attitude

H1 is the foundation in answering the main research question regarding how news consumption via social networking platform Facebook contributes to belief polarization in the Netherlands. H1 was restated in H1a and H1b to combine the prior reviewed literature with the new experimental design:

H1a: *Given that participants agree with the statement regarding the legalization of XTC in the Netherlands, consuming additional attitude-confirming news via Facebook's news feed shifts their initial agreeing pre-experimental attitude towards a more extreme post-experimental agreeing attitude.*

H1b: *Given that participants disagree with the statement regarding the legalization of XTC in the Netherlands, consuming additional attitude-confirming news via Facebook's news feed shifts their initial agreeing pre-experimental attitude towards a more extreme post-experimental disagreeing attitude.*

As shown in table 4, two Wilcoxon signed-rank tests were performed to test H1a and H1b. The first Wilcoxon signed-rank test regarding H1a, investigates whether consuming additional attitude-confirming news causes a difference between pre- and post-experimental attitudes of the statement-agreeing subjects, sample group 1. The test suggests that the null hypothesis of equal medians of the pre- and post- experimental attitude can be rejected at a 10% significance level (p=0.058). Therefore, the pre- and post-experimental attitude differ significantly within sample group 1. Additionally, in order to test whether this difference is a consequence of polarization or depolarization, the results of the corresponding parametric paired samples t-test, which are shown in table 5, are interpreted as well. This test has more statistical power and therefore it can be deduced that the mean of the post-experimental attitude increased by 0.278 points on the attitude scale, compared to the pre-experimental attitude. This result is significant at a 10% significance level (p=0.083). Therefore, the null hypothesis can be rejected that the true mean difference is equal to zero. Consequently, this means that the consumption of a confirming news article by subjects that agreed with the statement, causes post-experimental attitude to become more extremely agreeing, compared to the pre-experimental agreeing attitude, which supports H1a.

To test H1b the same tests have been conducted as for H1a with a reversed post- pre-experimental comparison to account for the minus sign of the disagreeing group's attitude. Accordingly, it is shown in Table 4 and 5 that 'Posttest' and 'Pretest' are reversed for sample group 2 and sample group 4. Table 4 shows that for the Wilcoxon signed-rank test regarding sample group 2, the null hypothesis of equal medians of the pre- and post- experimental attitude can be rejected at a 10% significance level (p=0.060). Therefore, the difference between pre- and post-experimental attitude within sample group 2 is significant. In order to gain more insights regarding the corresponding direction of the suggested attitude

shift, it can be deduced from the corresponding paired sample t-test in table 5 that the mean of the post-experimental attitude changed by 0.44 to a more extreme disagreeing attitude, compared to the pre-experimental attitude. The corresponding p=0.059, indicates that this result is significant at a 10% significance level. Therefore, the null hypothesis can be rejected that the true mean difference is equal to zero. Consequently, this means that the consumption of a confirming news article by subjects that disagreed with the statement, causes post-experimental attitude to become more extremely disagreeing, compared to the pre-experimental disagreeing attitude, which supports H1b.

Table 4. Wilcoxon signed-rank tests regarding H1a, H1b, H2a & H2b respectively

Wilcoxon Signed-Rank test	**Sign**	**N**	**Sum Ranks**	**Expected**	**Adjusted Variance**	**Z**	**P-Value**
Posttest-Pretest	Positive	24	1296	981	27585.38	1.9	0.0575
Sample group 1:	Negative	12	665.5	981			
'Confirming Agree'	Zero	36	66	666			
	All	72	2628	2628			
Pretest-Posttest	Positive	15	491	346.5	5894.13	1.882	0.0598
Sample group 2:	Negative	6	202	346,5			
'Confirming Disagree'	Zero	22	253	253			
	All	43	946	946			
Posttest-Pretest	Positive	6	302.5	920	27074.5	-3.753	0.0002
Sample group 3:	Negative	26	1537.5	920			
'Disconfirming Agree '	Zero	41	861	861			
	All	73	2701	2701			
Pretest-Posttest	Positive	7	164.5	456	7166.25	-3.443	0.0006
Sample group 4:	Negative	25	747.5	456			
'Disconfirming Disagree'	Zero	12	78	78			
	All	44	990	990			

Table 5. Paired sample t-tests regarding H1a, H1b, H2a & H2b respectively

Paired sample t-test	Variable	N	Mean	t	P-value
Sample group 1: 'Confirming Agree'	Posttest	72	7.03	1.403	Pr(T > t) = 0.0825
	Pretest	72	6.75		
	Difference	72	0.278		
Sample group 2: 'Confirming Disagree'	Pretest	43	-5.86	1.595	Pr(T > t) = 0.0591
	Posttest	43	-6.3		
	Difference	43	0.4419		
Sample group 3: 'Disconfirming Agree'	Posttest	73	5.84	-3.782	Pr(T < t) = 0.0002
	Pretest	73	6.75		
	Difference	73	-0.918		
Sample group 4: 'Disconfirming Disagree'	Pretest	44	-6.07	-3.8743	Pr(T < t) = 0.0002
	Posttest	44	-3.7		
	Difference	44	-2.36		

4.2.2 Disconfirmation of attitude

Similarly to H1, the second hypothesis also aims at answering the main research question regarding how news consumption via social networking platform Facebook contributes to belief (de)polarization in the Netherlands. However, H2 aims at the researching the effect of disconfirming existing beliefs instead of confirming them. H2 was restated in H2a and H2b to combine the prior reviewed literature with the new experimental design:

H2a: *Given that participants agree with the statement regarding the legalization of XTC in the Netherlands, consuming additional attitude-disconfirming news via Facebook's news feed shifts their initial agreeing pre-experimental attitude towards a less extreme post-experimental agreeing attitude.*

H2b: *Given that participants disagree with the statement regarding the legalization of XTC in the Netherlands, consuming additional attitude-disconfirming news via Facebook's news feed shifts their initial disagreeing pre-experimental attitude towards a less extreme post-experimental disagreeing attitude.*

In order to examine whether disconfirming of attitude causes depolarization, the pre- and post-experimental attitudes of sample groups 3 and 4 have been analysed. As shown in table 4, two Wilcoxon signed-rank tests were performed to test H2a and H2b. The first Wilcoxon signed-rank test regarding H2a, investigates whether consuming additional attitude-disconfirming news causes a difference between pre- and post-experimental attitudes of the statement-agreeing subjects, sample group 3. It can

be deduced that the null hypothesis of equal medians of the pre- and post- experimental attitude can be rejected. Accordingly, the difference between pre- and post-experimental attitude of sample group 3 is significant at a 1% significance level (p=0.000). Additionally, in order to test whether this difference is a consequence of polarization or depolarization, the results of the corresponding parametric paired samples t-test, which are shown in table 5, are interpreted as well. From this test results, it can be deduced that the mean of the post-experimental attitude decreased by 0.92 points on the attitude scale, compared to the pre-experimental attitude. This result is significant at a 1% significance level (p=0.000). Therefore, the null hypothesis can be rejected that the true mean difference is equal to zero. Consequently, this means that the consumption of a disconfirming news article by subjects that agreed with the statement, causes post-experimental attitude to become less extremely agreeing, compared to the pre-experimental agreeing attitude, which supports H2a.

Likewise, the same tests have been used to test H2b but with a reversed post- pre-experimental comparison to account for the minus sign of the disagreeing group's attitude. Table 4 shows that for the Wilcoxon signed-rank test regarding sample group 4, the null hypothesis of equal medians of the pre- and post- experimental attitude can be rejected at a 1% significance level (p=0.000). Therefore, the difference between pre- and post-experimental attitude of sample group 4 is significant. In order to gain more insights regarding the corresponding direction of the suggested attitude shift, it can be deduced from the corresponding paired sample t-test in table 5 that the mean of the post-experimental attitude changed by 2.36 to a less extreme disagreeing attitude, compared to the pre-experimental attitude. This result is significant at a 1% significance level (p=0.000). Therefore, the null hypothesis can be rejected that the true mean difference is equal to zero. Consequently, this means that the consumption of a disconfirming news article by subjects that disagreed with the statement, causes post-experimental attitude to become less extremely disagreeing, compared to the pre-experimental disagreeing attitude, which supports H2b.

4.3 Confirmation bias

To build further onto the foundation of answering the research question regarding how news consumption via social networking platform Facebook contributes to belief (de)polarization, the effect of the first cognitive bias is analysed, namely confirmation bias. Therefore, H3 aims at answering the second research question regarding the influence of confirmation bias on belief polarization via Facebook. H3 was restated in H3a and H3b to combine the prior reviewed literature with the new experimental design:

H3a*: The consumption of identical 'pro-legalization' news via Facebook's news feed, causes a larger attitude shift when this news confirms a legalization-proponent's pre-experimental attitude, than when this identical news disconfirms a statement-opponent's pre-experimental attitude.*

H3b: *The consumption of identical 'against-legalization' news via Facebook's news feed, causes a larger attitude shift when this news confirms a legalization-opponent's attitude, than when this identical news disconfirms a statement-proponent's attitude.*

In order to analyse H3a, whether identical pro-legalization Facebook news causes a larger attitude shift when it confirms subjects' attitude than when it disconfirms subjects' attitude, the attitude change between pre- and post-experimental attitude of sample group 1 and sample group 4 have been compared. As mentioned, the attitude change of disagreeing sample groups 3 and 4 should be reversed in order to align the direction of attitude change with agreeing sample groups 1 and 2. Therefore, the attitude change of the subjects in sample 3 and 4 are multiplied with -1. Table 6 shows the results of the Mann-Whitney U test in which the null hypothesis of equal means regarding attitude change, after consuming identical pro-legalization new article, in sample group 1 and sample group 4 is tested. The p=0.002, which means that this null hypothesis of equal means can be rejected. This implies that there is a difference between the attitude change caused by consuming the same pro-legalization article of sample group 1 and sample group 4. This is significant at a 1% significance level. In other words, this means that the consumption of identical pro-legalization news causes a significantly different attitude change when it confirms an initial attitude and when it disconfirms an initial attitude. Although this effect is significant, it has already been discussed that it is not possible to analyse the data with an equivalent parametric test. Consequently, although the results indicate a difference in the effect on both sample groups, H3a is neither supported nor invalidated regarding the direction of the difference in attitude change.

Similarly, the results of the comparison of the attitude change between sample group 2 and sample group 3, which both consumed an identical against-legalization article is presented in table 6 also. The table displays that p=0.56, which means that the null hypothesis of equal means cannot be rejected. Therefore, the difference in attitude change between sample group 2 and sample group 3 is not significant at a 10% significance level. Consequently, this means that the consumption of identical against-legalization news does not cause a significantly different attitude change when it confirms an initial attitude and when it disconfirms an initial attitude, which invalidates H3b.

Table 6. Mann-Whitney U Test regarding H3a and H3b

Mann-Whitney U Test	Artikel	Confirming	N	Rank Sum	Expected	Adjusted Variance	Z	P-value
Disagree	Pro-legalization	0	44	3093.5	2574	28599.27	3.072	0.0021
Agree		1	72	3692.5	4212			
		Combined	116	6786	6786			
Agree	Against-legalization	0	73	4364.5	4270.5	25572.56	0.588	0.5566
Disagree		1	43	2421.5	2515.5			
		Combined	116	6786	6786			

4.4 The influence of social proof

4.4.1 The influence of log(likes) on statement-agreeing attitude

In order to answer the last research question regarding the influence of social proof bias, in this case the logged number of likes received by a Facebook post, on belief polarization, two ordinary least squares regressions have been conducted. The first OLS regression was conducted regarding the participants that agreed with the legalization of XTC. To split the analysis for the participants that agreed and disagreed with the statement H4 and H5 were restated in four hypotheses H4a, H4b, H5a and H5b. To research the effect of the log(likes) on the statement-agreeing participants' attitude change caused by the consumption of both attitude-confirming and attitude-disconfirming news the following hypotheses have been tested respectively:

H4a: *Given that participants agree with the statement, when the number of likes of the attitude-confirming Facebook news post increases, the polarization measure increases.*

H5a: *Given that participants agree with the statement, when the number of likes of the attitude-disconfirming Facebook news post increases, the polarization measure decreases.*

Table 7 shows the results of the OLS regression regarding the agreeing sample group. A Cook-Weisberg test for heteroskedasticity was performed on the regression including the control variables to check for equal variances. The null hypothesis of equal variance could be rejected at a 1% significance level (p=0.000), implying that the robust option should be included in the regression. First, the linear regression for the statement-agreeing has been performed without control variables and without log(number of likes) as shown in the first column of table 7. Second, a multiple linear regression has been performed including the control variables Age, Male, Trust in News and Statement importance as shown in the second column. To check the usefulness of the control variables, the R-squared values are compared with and without the four control variables. Table 7 shows that the R-squared increases from 0.092 to 0.174 when the controls are included, which means that the explained variability in the regression increases from 9.2% to 17.4%. Additionally, an F-test has been performed in order to test the joint significance of the four control variables. For this regression, the F-test's null hypothesis that the control variables jointly have no effect on the attitude shift can be rejected at a 1% significance level (p=0.010). Consequently, the control variables have been included in the regression. Finally, the variable Log(likes) and the interaction variable Confirming*Log(likes) have been included in the regression. However, the third column of table 7 shows that including these variables causes the value of the coefficient Confirming and the constant to change significantly, while increasing the corresponding standard deviations extremely as well. Therefore, a Variance Inflation Factor test was conducted for the OLS regression in order to test if the variance was increased due to multicollinearity between coefficients. Table 8 shows that the VIF's for the coefficients of Confirming*Log(likes) and Confirming are 14.44 and 13.83 respectively. When the VIF of a coefficient is higher than 10, this indicates that

(multi)collinearity is high (Neter, Kutner, Nachtsheim & Wasserman, 1996). It is inevitable that these interaction terms are correlated as they are partly based on identical numbers. However, in this case the correlation affects the results extremely, causing the standard deviation of the coefficient Confirming to increase notably. Although both the number of likes and the confirming and disconfirming news articles were completely randomized in the experiment, by chance the collinearity between the two coefficients destroys validity of the results regarding these two variables. Nevertheless, the variable of log(likes) can still be interpreted. The coefficient of log(likes) shows that a 1% increase in the number of likes, increases the polarization measure by 0.0018 attitude points, ceteris paribus. This result is not significant at a 10% significance level. Although this result indicates that number of likes for both treatments together have no significant effect on the polarization measure, it does not answer H4a and H5a regarding the individual moderation effect of confirming and disconfirming news on attitude for the agreeing group.

In order to draw conclusions about the variable Confirming, the variables Log(likes) and Confirming*Log(likes) were excluded from the regression to solve the collinearity. Accordingly, the regression presented in the second column of table 7 provides the opportunity to gain insights from the variables Confirming, Age, Male, TrustNews and StatementImportance. It can be deduced from this regression result that the coefficient of Confirming is 0.975. This means that reading attitude-confirming news rather than attitude-disconfirming news, the polarization measure increases by 0.975 attitude points, shifting attitude to a more extreme position, ceteris paribus. This effect is significant at a 1% significance level. Additionally, the tables show that for the control variables only the coefficient TrustNews is significant. The coefficient of trust score is 0.356, which means that when trust in the news increases by 1 trust point, the polarization measure increases by 0.356 attitude points, shifting attitude towards a more extreme position, ceteris paribus. This effect is significant at a 1% significance level.

Table 7. The OLS regression regarding the polarization measure in the statement-agreeing group

Group 1: Agreeing	*(Without control & Log(likes))*	*(Controls included)*	*(Log(likes) included)*
VARIABLES	Polarization measure	Polarization measure	Polarization measure
Confirming	1.196***	0.975***	2.595**
	(0.313)	(0.298)	(1.311)
Log(likes)			0.182
			(0.129)
Confirming*Log(likes)			-0.212
			(0.155)
Age		-0.049	-0.047*
		(0.030)	(0.027)
Male		0.376	0.366
		(0.388)	(0.377)
TrustNews		0.356***	0.356***
		(0.130)	(0.130)
StatementImportance		-0.115	-0.096
		(0.108))	(0.114)
Constant	-0.918	-0.930	-2.469
	(0.243)	(1.100)	(1.649)
Observations	145	145	145
R-squared	0.092	0.174	0.194
F-test		(0.010)	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8. The Variance Inflation Factors of the OLS regression regarding the statement-agreeing group

Variable	VIF
Confirming*Log(likes)	14.84
Confirming	13.83
Log(likes)	2.03
StatementImportance	1.06
TrustNews	1.05
Age	1.05
Male	1.03

4.4.2 The influence of log(likes) on statement-disagreeing attitude

The second OLS regression was conducted regarding the participants that disagreed with the legalization of XTC. To research the effect of the log(likes) on the statement-disagreeing participants' attitude

change caused by the consumption of both attitude-confirming and attitude-disconfirming news the following hypotheses have been tested respectively:

H4b: *Given that participants disagree with the statement, when the number of likes of the attitude-confirming Facebook news post increases, the polarization measure increases.*

H5b: *Given that participants disagree with the statement, when the number of likes of the attitude-disconfirming Facebook news post increases, the polarization measure decreases.*

A similar approach has been used to test the fit of the control variables for this regression. Table 9 shows that the R-squared increases from 0.169 to 0.306 which means that the explained variability in the regression increases from 16.9% to 30.6%. Additionally, an F- test has been performed in order to test the joint significance of the four control variables. For this regression, the F-test's null hypothesis that the control variables jointly have no effect on the attitude shift can be rejected at a 5% significance level (p=0.015). Consequently, the control variables are included in this regression as well. Finally, the variable Log(likes) and the interaction variable Confirming*Log(likes) have been included in the regression. However, as shown in the third column of table 9 including these terms, changes the value of the coefficient Confirming and the constant while increasing their standard deviations extremely. Therefore, a Variance Inflation Factor test was conducted for the OLS regression in order to test if the variance was increased due to multicollinearity between coefficients. Table 10 shows that the VIF's for the coefficients of Confirming*Log(likes) and Confirming are 14.64 and 13.79 respectively. This collinearity between the two coefficients destroys validity of the results regarding these two variables. Nevertheless, the variable of log(likes) can still be interpreted. The coefficient of log(likes) shows that a 1% increase in the number of likes, decreases the polarization measure by 0.001 attitude points, ceteris paribus. This result is not significant at a 10% significance level. Although this result indicates that number of likes for both treatments together have no significant effect on the polarization measure, it does not answer H4b and H5b regarding the individual moderation effect of confirming and disconfirming news on attitude for the disagreeing group.

In order to draw conclusions about the variable Confirming, the variables Log(likes) and Confirming*Log(likes) were excluded from the regression to solve the collinearity. Accordingly, the regression presented in the second column of table 9 provides the opportunity to gain insights from the variables Confirming, Age, Male, TrustNews and StatementImportance. It can be deduced from this regression result that the coefficient of Confirming is 3.128. This means that reading an attitude-confirming news rather than an attitude-disconfirming news, increases the polarization measure by 3.128 attitude points, shifting attitude towards a more extreme position, ceteris paribus. This effect is significant at a 1% significance level. Additionally, the tables show that for the control variables only the coefficient StatementImportance is significant. The coefficient of the statement importance is -0.447,

which means that if the statement importance increases by 1 point, the polarization measure decreases by 0.447 attitude points, shifting attitude toward a less extreme position, ceteris paribus. This result is statistically significant at a 5% significance level.

Table 9. The OLS regression regarding the polarization measure in the statement-disagreeing group

Group 2: Disagreeing	*(Without control & Log(likes))*	*(Controls included)*	*(Log(likes) included)*
VARIABLES	Polarization measure	Polarization measure	Polarization measure
Confirming	2.805***	3.128***	1.637
	(0.675)	(0.665)	(2.604)
Log(likes)			-0.095
			(0.262)
Confirming*Log(likes)			0.194
			(0.315)
Age		-0.045	-0.046
		(0.031)	(0.031)
Male		1.010	1.011
		(0.668)	(0.665)
TrustNews		-0.348	-0.323
		(0.274)	(0.284)
StatementImportance		-0.447**	-0.440**
		(0.179)	(0.189)
Constant	-2.363***	1.530	2.151
	(0.475)	(1.860)	(2.331)
Observations	87	87	87
R-squared	0.169	0.306	0.310
F-test		(0.015)	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10. ***The Variance Inflation Factors of the OLS regression regarding the statement-disagreeing group***

Variable	VIF
Confirming*Log(likes)	14.64
Confirming	13.79
Log(likes)	2.08
Male	1.10
StatementImportance	1.08
TrustNews	1.06
Age	1.05

5. Discussion

According to the RISJ (2019), Facebook is the most used social media networking site for news consumption. The change from traditional offline news consumption towards the non-traditional online news consumption encounters some advantages and some dangers. The advantage is that more customization and personalization of information is possible, which could overcome information overload (Sunstein, 2017). However, the perils of filter bubbles, echo chambers, fake news and political polarization have been emphasized by many researchers (Pariser, 2011; Sunstein, 2001; Allcott & Gentzkow, 2017; Abramowitz , 2010). Sunstein (2001;2002;2017) worried that people end up in limited arguments pools in which their attitudes are constantly confirmed, enforced and even more worrying, causing attitude polarization and endangering democracy.

Based on this concern, this research collected experimental data regarding online belief polarization via Facebook. An innovative new experimental research design was created to research influence of confirmation bias and social proof bias via Facebook's news feed on belief polarization. A Facebook news feed environment was recreated within Qualtrics. Different from Lord et al. (1979), a new polarization measure was introduced, indirectly measuring belief polarization in a Facebook news environment using news articles one of the most popular Dutch news brands. This method represents a valuable alternative to the direct measurement of belief polarization in an offline environment as Lord et al. (1979) proposed. Additionally, the sample (n=232) was split in two groups: people that pre-experimentally agreed with the legalization of XTC and people that pre-experimentally disagreed with the legalization of XTC. This enriched the research by measuring the effects of attitude-confirming and attitude-disconfirming news without changing the news content for both treatments while retaining randomization of subjects. This way of measuring possible attached weight-differences due to confirmation bias had never been executed before.

Furthermore, the descriptive results showed that participants pre-experimentally agreeing with the legalization of XTC in the Netherlands are younger, attach more importance to the statement, trust the presented news more and have a higher willingness to click the Facebook news post when it would appear on their own Facebook news feed, than people pre-experimentally disagreeing with the statement. Therefore, it was correct to split the analysis of social proof into two different regressions to avoid violating the zero-conditional mean. Interestingly, 62.5% of the sample is in favour of the legalization of XTC and 37.5% is against the legalization of XTC in the Netherlands which is a large majority.

In order to answer the research question regarding how the consumption of news via Facebook's news feed contributes to belief polarization, the effects of the consumption of both attitude-confirming and attitude-disconfirming news were studied. The results indicated that the consumption of a confirming

news article by both subjects that either pre-experimentally agreed or disagreed with the statement, caused post-experimental attitude to become more extreme compared to the pre-experimental attitude. This supported both H1a and H1b which leads to acceptance of the general H1 that belief polarization is caused by the consumption of attitude-confirming news via Facebook's news feed. This result differs from the research of Abril (2018) who concluded that the consumption of partisan news does not influence attitude polarization. Additionally, the results displayed that the consumption of a disconfirming news article by both subjects that agreed and disagreed with the statement, caused post-experimental attitude to become less extreme, compared to the pre-experimental attitude, which supports H2a and H2b. Consequently, H2 regarding belief depolarization caused by the consumption of attitude-disconfirming news via Facebook's news feed is supported. In summary, consumption of either attitude-confirming and attitude-disconfirming news caused attitude to polarize and to depolarize respectively. With the knowledge that on one hand the algorithm of Facebook pre-selects information that confirms existing beliefs, named filter bubbles (Pariser, 2011) and on the other hand people self-select into echo chambers via Facebook which also cause exposure to attitude-confirming content (Colleoni et al., 2014), this result is concerning. Furthermore, Garret (2009) found that people consistently select online news articles that confirm their attitudes. As a result, nowadays many factors cause people to mostly consume news confirming their existing attitude instead of challenging it. Since Facebook has announced new plans for making the Facebook news feed even more suitable for personalization (Facebook, 2019). This is worrying, because the consumption of one additional attitude-confirming Facebook post and news article had a significant polarizing effect on attitude, causing beliefs to become more extreme. Therefore, this research gives some key insights in the changing online news environment. Online news users should be aware that it remains important to challenge their existing views by self-selecting attitude-disconfirming news as well via their Facebook news feed. Additionally, it would be healthy for both individuals and society to consult other news sources to broaden their existing horizons and to prevent polarization and extremity to prevail.

The polarization caused by the consumption of attitude-confirming news article is also an indication of confirmation bias which partly answers the research question regarding the influence of confirmation bias on belief polarization via Facebook. However, Oswald & Grosjean (2004) found that confirmation bias holds a more complex structure than researched before. Therefore, this research contributed to prior works by creating a new experimental design to investigate differences in weight attached towards confirming and disconfirming news consumed via Facebook's news feed while using the same the news in both attitude-confirming treatment 1 and attitude-disconfirming treatment 2. The results indicated that the effect of consuming an identical pro-legalization article on attitude change, differed significantly when it confirms an attitude and when it disconfirms an attitude. In other words, the consumption of the article when it confirmed and when it disconfirmed an attitude had a significant different influence on attitude change between pre- and post-experimental attitude. However, H3a regarding the expected

larger effect of pro-legalization effect when it confirmed an attitude than when it disconfirmed one could either not be accepted or rejected, because the non-parametric test used does not give insights in the direction of the difference in medians. In contrast, the consumption of identical against-legalization news did not cause a significantly different attitude change when confirming an initial attitude rather than when it disconfirmed an initial attitude, which invalidates H3b. Consequently, H3 that the consumption of attitude-confirming news via Facebook's news feed causes a larger attitude shift than the consumption of attitude-disconfirming news via Facebook's news feed could neither be completely rejected or completely accepted. However, this new research design could be used to research confirmation bias regarding any attitude object, creating opportunities for future researchers. Additionally, the conducted OLS regressions for both the agreeing and the disagreeing group show some valuable insights regarding the influence of confirmation bias on belief polarization via Facebook's news feed as well. The coefficient of 'Confirming' for the statement-agreeing OLS regression demonstrated that reading attitude-confirming news rather than attitude-disconfirming news, increases the polarization measure by 0.98 attitude points, shifting attitude to a more extreme position. Similarly, the regression for the statement-disagreeing group showed that reading attitude-confirming news rather than attitude-disconfirming news, increases the polarization measure by 3.13 attitude points, shifting attitude towards a more extreme position. Both regression results indicate that the confirmation bias contributes to attitude polarization via Facebook's news feed. Interestingly, the experiment corroborates that people are prone to confirmation bias when consuming information via Facebook's social news feed as well.

Unfortunately, the last part of the research question regarding the influence of social proof on belief polarization via Facebook's news feed could not be answered due to a surprisingly influential collinearity between the coefficients of Confirming and the interaction variable Confirming*log(likes). Although the results show that the effect of the number of likes was not significant for attitude-confirming and attitude-disconfirming news together, individual effects could not be deduced from this variable. Nevertheless, the experimental design researching this weapon of influence proposed by Cialdini (2007) online, is still valuable for future research when using a larger sample size or multiple attitude objects. Additionally, the regressions give some other valuable insights when variable Confirming*log(likes) was excluded. For the agreeing group, the perceived trust in the news had a significant effect on the polarization measure. When the trust in the presented news increased the polarization measure also increased, which means that people are more sensitive to polarization when trust is higher. This finding is in line with the study from Turcotte et al. (2015) which concluded that credibility of news increases trust in information provided, which leads to an increased perceived value of this information. For the disagreeing group, the importance of the statement was the only control variable with a significant effect on the polarization measure. When the statement importance increased, the polarization measure decreased, which means that a higher attached importance to the statement

decreased polarization. This is in accordance with the claim of Oswald & Grosjean (2004) that attitude change could be influenced by the degree of importance people attach to the attitude subject, possibly due to a higher resistance to change.

In summary, it can be concluded that confirmation bias plays a role in belief polarization via Facebook's news feed in the sense that reading attitude-confirming news rather than reading attitude-disconfirming news causes beliefs to polarize. Furthermore, the effects of reading pro-legalization news were significantly different when it confirmed an attitude than when it disconfirmed an attitude, which is possibly caused by confirmation bias as well. However, more research is needed to make conclusions regarding the difference in weight attachments. Finally, it was discovered that the number of likes did not have a significant influence on polarization when the effect of the logged number of likes was tested for the consumption of attitude-confirming and attitude-disconfirming news simultaneously. Nevertheless, conclusions regarding the individual effects for attitude-confirming and attitude-disconfirming news could not be made. All things considered, it was discovered that the consumption of news via Facebook's news feed causes belief polarization because confirmation bias holds online as well. As attitude-disconfirming news exposure is minimized by both Facebook's algorithm and the Facebook users themselves, consuming news via Facebook could cause belief extremity leading to the disappearance of the moderate voice of society.

6. Limitations and recommendations

Despite the valuable insights provided by this research in the belief polarization caused by the consumption of news via Facebook's news feed, this research has some limitations. First, the pre-experimental attitude towards the chosen attitude object, the legalization of XTC, showed that for both the agreeing and disagreeing group extremity already existed. Therefore, this caused that there was more room for depolarization than for polarization in this research. Future research should include multiple attitude objects to research and use attitude objects for which participants do not have extreme pre-experimental attitudes already. This would lead to an unbiased research of belief polarization and confirmation bias when using the proposed new experimental design. Second, a convenience sampling method was used to collect data in combination with a relatively small sample size. It would increase the power of the tests significantly when a larger sample size would be used in addition to using true interval scales. Consequently, parametric tests could be used within the proposed experimental design in order to research confirmation bias. Increasing sample size and using multiple attitude objects would also solve the collinearity which arose in the OLS regression between the coefficients Confirming and Confirming*Log(likes). As a result, it would be possible to research the influence of social proof bias on belief polarization via Facebook's news feed. Additionally, the influence of other Facebook characteristics possibly inducing social proof could be added to the research, such as the nature of

Facebook comments given by peers. Third, the Facebook environment was recreated via Qualtrics. Although this can give some value-adding insights, it would be better to find a way to use Facebook data for future research. Another option would be to make the recreated Facebook environment more interactive, giving participants the option to choose news themselves to make inferences about news consumption behaviour. Furthermore, it would be interesting to investigate belief polarization using different news sources, news media or even using other information than news. Finally, as the new research design is not limited to the Netherlands, it could be used to research belief polarization, confirmation bias and social proof in other countries as well.

References

Abramowitz, A. I., & Saunders, K. L. (2008). Is Polarization a Myth? The Journal of Politics, 70(2), 542–555.

Abramowitz, A. I. (2010). The disappearing center: Engaged citizens, polarization, and American democracy. Yale University Press.

Abril, E. P. (2018). Subduing attitude polarization?: How partisan news may not affect attitude polarization for online publics. Politics and the life sciences, 37(1), 68-77.

AD (2018). Coalitiepartijen zien geen gat in plan om xtc uit criminaliteit te halen. Retrieved, June 10, from, https://www.ad.nl/politiek/coalitiepartijen-zien-geen-gat-in-plan-om-xtc-uit-criminaliteit-te-halen~a7e2fb41/

AD (2018). Nijmeegse arts: Maak van xtc legale partydrug. Retrieved, June 10, from: https://www.ad.nl/binnenland/nijmeegse-arts-maak-van-xtc-legale-partydrug~a52b7691/

Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. Journal of economic perspectives, 31(2), 211-36.

Allen, I. E., & Seaman, C. A. (2007). Likert scales and data analyses. Quality progress, 40(7), 64-65.

Bakshy, E., Messing, S., & Adamic, L. A. (2015). Exposure to ideologically diverse news and opinion on Facebook. Science, 348(6239), 1130-1132.

Bennett, W. L. (2016). News: The politics of illusion. University of Chicago Press.

Brysbaert, M. (2019). How many words do we read per minute? A review and meta-analysis of reading rate.

Centraal Bureau voor de Statistiek (2019, February 12). Vertrouwen in Europa en politiek stijgt. Retrieved, May 22, 2019, from: https://www.cbs.nl/nl-nl/nieuws/2019/11/vertrouwen-in-europa-en-politiek-stijgt

Cialdini, R. B., & Cialdini, R. B. (2007). Influence: The psychology of persuasion (pp. 173-174). New York: Collins.

Colleoni, E., Rozza, A., & Arvidsson, A. (2014). Echo Chamber or Public Sphere? Predicting Political Orientation and Measuring Political Homophily in Twitter Using Big Data. Journal of Communication, 64(2),

Dehaene, S., Izard, V., Spelke, E., & Pica, P. (2008). Log or Linear? Distinct Intuitions of the Number Scale in Western and Amazonian Indigene Cultures. Science, 320(5880), 1217–1220. doi:10.1126/science.1156540

Del Vicario, M., Bessi, A., Zollo, F., Petroni, F., Scala, A., Caldarelli, G., ... & Quattrociocchi, W. (2016). The spreading of misinformation online. Proceedings of the National Academy of Sciences, 113(3), 554-559.

Flaxman, S., Goel, S., & Rao, J. M. (2016). Filter Bubbles, Echo Chambers, and Online News Consumption. Public Opinion Quarterly, 80(S1), 298–320.

Forbes (2019). Facebook Confirms Emoji 'Reactions' Affects Your News Feed. Retrieved, May 19, 2019, from: https://www.forbes.com/sites/amitchowdhry/2017/03/02/facebook-confirms-emoji-reactions-affects-your-news-feed

Garland, R. (1991). The mid-point on a rating scale: Is it desirable. Marketing bulletin, 2(1), 66-70.

Garrett, R. K. (2009). Echo chambers online?: Politically motivated selective exposure among Internet news users. Journal of Computer-Mediated Communication, 14(2), 265–285.

Gentzkow, M., & Shapiro, J. M. (2011). Ideological segregation online and offline. The Quarterly Journal of Economics, 126(4), 1799-1839.

Hendriks Vettehen, P. G. J. (2004). Political Knowledge and Media Use in the Netherlands. European Sociological Review, 20(5), 415–424.

Huff, C., & Tingley, D. (2015). "Who are these people?" Evaluating the demographic characteristics and political preferences of MTurk survey respondents. Research & Politics, 2(3), 053168015604648.

Klayman, J. (1995). Varieties of Confirmation Bias. Psychology of Learning and Motivation, 385–418.

Knobloch-Westerwick, S., & Kleinman, S. B. (2012). Preelection selective exposure: Confirmation bias versus informational utility. Communication Research, 39(2), 170-193.

Knobloch-Westerwick, S., Johnson, B. K., & Westerwick, A. (2014). Confirmation bias in online searches: Impacts of selective exposure before an election on political attitude strength and shifts. Journal of Computer-Mediated Communication, 20(2), 171-187.

Knobloch-Westerwick, S., Mothes, C., Johnson, B. K., Westerwick, A., & Donsbach, W. (2015). Political online information searching in Germany and the United States: Confirmation bias, source credibility, and attitude impacts. Journal of Communication, 65(3), 489-511.

Lee, J. K., Choi, J., Kim, C., & Kim, Y. (2014). Social Media, Network Heterogeneity, and Opinion Polarization. Journal of Communication, 64(4), 702–722.

Lord, C. G., Ross, L., & Lepper, M. R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. Journal of personality and social psychology, 37(11), 2098.

Mayer, A. K. (2011). Does education increase political participation?. The Journal of Politics, 73(3), 633-645.

Metzger, M. J., Flanagin, A. J., & Medders, R. B. (2010). Social and heuristic approaches to credibility evaluation online. Journal of communication, 60(3), 413-439.

Miller, A. G., McHoskey, J. W., Bane, C. M., & Dowd, T. G. (1993). The attitude polarization phenomenon: Role of response measure, attitude extremity, and behavioral consequences of reported attitude change. Journal of Personality and Social Psychology, 64(4), 561.

Miller, A. C. (2016). Confronting Confirmation. Social Education, 80(5), 276-279.

Min, S. J., & Wohn, D. Y. (2018). All the news that you don't like: Cross-cutting exposure and political participation in the age of social media. Computers in Human Behavior, 83, 24–31.

Neter, J., Kutner, M. H., Nachtsheim, C. J., & Wasserman, W. (1996). Applied linear statistical models (Vol. 4, p. 318). Chicago: Irwin.

Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. Review of general psychology, 2(2), 175-220.

NOS (2019, Januari 26). 640.000 Nederlanders gestopt met Facebook. Retrieved, May 10, 2019, from:

https://nos.nl/artikel/2269096-640-000-nederlanders-gestopt-met-facebook.html

NOS (2016, September 18). 640.000 Nederlanders gestopt met Facebook. Retrieved, May 15, 2019, from: https://nos.nl/nieuwsuur/artikel/2133025-ik-volg-via-sociale-media-nieuws-dat-ik-vertrouw.html

Nu.nl. (2019). Politiek verdeeld over onderzoek naar legalisatie xtc. Retrieved, June 20, 2019: https://www.nu.nl/politiek/5518898/politiek-verdeeld-onderzoek-legalisatie-xtc.html

Oswald, M. E., & Grosjean, S. (2004). Confirmation bias. Cognitive illusions: A handbook on fallacies and biases in thinking, judgement and memory, 79.

Pariser, E. (2011). The filter bubble: What the Internet is hiding from you. Penguin UK.

Pohl, R., & Pohl, R. F. (Eds.). (2004). Cognitive illusions: A handbook on fallacies and biases in thinking, judgement and memory. Psychology Press.

Phua, J., & Ahn, S. J. (2016). Explicating the 'like' on Facebook brand pages: The effect of intensity of Facebook use, number of overall 'likes', and number of friends' 'likes' on consumers' brand outcomes. Journal of Marketing Communications, 22(5), 544-559.

Prior, M. (2007). Post-broadcast democracy: How media choice increases inequality in political involvement and polarizes elections. Cambridge University Press.

Quattrociocchi, W., Scala, A., & Sunstein, C. R. (2016). Echo chambers on Facebook. Available at SSRN 2795110.

Reuters Institute for the study of Journalism (2018). Digital News Report 2018. Retrieved on May 15, 2019 from : https://reutersinstitute.politics.ox.ac.uk/sites/default/files/digital-news-report-2018.pdf

Reuters Institute for the study of Journalism (2019). Digital News Report 2019. Retrieved on June 10, 2019 from : http://www.digitalnewsreport.org/

Rousseeuw, P. J., & Leroy, A. M. (2005). Robust regression and outlier detection (Vol. 589). John wiley & sons.

Rusticus, S. A., & Lovato, C. Y. (2014). Impact of sample size and variability on the power and type I error rates of equivalence tests: A simulation study. Practical Assessment, Research & Evaluation, 19(11), 1-10.

Schmitt-Beck, R. (2015). Bandwagon effect. The international encyclopaedia of political communication, 1-5.

Sethuraman, R. (2019, March 31). Why Am I Seeing This? We Have an Answer for You. Retrieved, May 5, 2019, from: https://newsroom.fb.com/news/2019/03/why-am-i-seeing-this/

Siegel, S., & Castellan, N. J. (1956). Nonparametric statistics for the behavioral sciences (Vol. 7). New York: McGraw-hill.

Statista (2019, May 13). Number of individuals using the leading social media platforms in the Netherlands in 2019, by social network (in million users). Retrieved, April, 25, 2019 from: https://www.statista.com/statistics/579626/social-media-penetration-in-the-netherlands-by-social-network/

Sundar, S. S. (2008). The MAIN model: A heuristic approach to understanding technology effects on credibility. Digital media, youth, and credibility, 73100.

Sunstein, C. R. (2001). republic.com. Princeton, NJ: Princeton University Press

Sunstein, C. R. (2002). The law of group polarization. Journal of political philosophy, 10(2), 175-195.

Sunstein, C. (2017). #Republic: Divided Democracy in the Age of Social Media. Princeton; Oxford: Princeton University Press. Retrieved from: http://www.jstor.org.eur.idm.oclc.org/stable/j.ctv8xnhtd

Sunstein, C. R. (2018, January 22). Is Social Media Good Or Bad for Democracy? Retrieved on June 2, 2019 from: https://newsroom.fb.com/news/2018/01/sunstein-democracy/

Tesser, A., & Conlee, M. C. (1975). Some effects of time and thought on attitude polarization. Journal of Personality and Social Psychology, 31(2), 262–270.

Trimbos (2019). Trimbos.nl Jaarbericht Nationale Drug Monitor 2018. Retrieved, April, 20, 2019 from: https://www.trimbos.nl/aanbod/webwinkel/product/af1643-jaarbericht-nationale-drug-monitor-2018

Turcotte, J., York, C., Irving, J., Scholl, R. M., & Pingree, R. J. (2015). News Recommendations from Social Media Opinion Leaders: Effects on Media Trust and Information Seeking. Journal of Computer-Mediated Communication, 20(5), 520–535

Verba, S., Burns, N., & Schlozman, K. L. (1997). Knowing and caring about politics: Gender and political engagement. The journal of politics, 59(4), 1051-1072.

Van der Veer, N., Boekee, S., Hoekstra, H. (2019, January 26). Nationale Social Media Onderzoek 2019. Retrieved, May 30, 2019, from: https://www.newcom.nl/socialmedia2019

Wennekers, A., Haan,de, J., (2017, June 22). Nederlanders en nieuws. Retrieved May 20, 2019, from https://www.scp.nl/Publicaties/Alle_publicaties/Publicaties_2017/Nederlanders_en_nieuws

Whitley, E., & Ball, J. (2002). Statistics review 6: Nonparametric methods. Critical care, 6(6), 509.

Winter, S., Brückner, C., & Krämer, N. C. (2015). They Came, They Liked, They Commented: Social Influence on Facebook News Channels. Cyberpsychology, Behavior, and Social Networking, 18(8), 431–436.

Wojcieszak, M., & Rojas, H. (2011). Correlates of party, ideology and issue based extremity in an era of egocentric publics. The International Journal of Press/Politics, 16(4), 488-507.

Wood, W., Rhodes, N., & Biek, M. (1995). Working knowledge and attitude strength: An information-processing analysis. Attitude strength: Antecedents and consequences, 4, 189-202.

Xu, X., & Fu, W. W. (2014). Aggregate Bandwagon Effects of Popularity Information on Audiences' Movie Selections. Journal of Media Economics, 27(4), 215–233.

Zizzo, D. J. (2010). Experimenter demand effects in economic experiments. Experimental Economics, 13(1), 75-98.

Zuiderveen Borgesius, F., Trilling, D., Möller, J., Bodó, B., De Vreese, C. H., & Helberger, N. (2016). Should we worry about filter bubbles? Internet Policy Review. Journal on Internet Regulation, 5(1).

Appendices

Appendix 1: News article and Facebook post 'pro-legalization'

Binnenland Buitenland Politiek Economie Gezond Bizar Wetenschap Auto Tech Wonen Reizen

Nijmeegse arts: Maak van xtc legale partydrug

Legaliseer xtc. Dat bepleit Kees Kramers, internist-klinisch farmacoloog van het Radboudumc in Nijmegen. Legale pillen leiden volgens hem tot minder criminaliteit en minder dumpen van gevaarlijk chemisch drugsafval.

Lars Barendregt en Henk van Gelder 12-10-18, 07:39 **Laatste update:** 11:10

Kramers, tevens hoogleraar medicatieveiligheid, heeft liever dat zijn studerende kinderen af en toe een xtc-pil nemen dan dat zij dagelijks alcohol drinken.

Dat zegt hij niet omdat xtc ongevaarlijk is, maar omdat alcohol een veel groter probleem vormt. ,,Overmatig alcoholgebruik brengt schade toe aan organen als de lever en alvleesklier, en veroorzaakt (dodelijke) ongevallen. Waar alcohol op de lange termijn voor ernstige hersenschade kan zorgen, is dat bij xtc minder duidelijk.''

Anders dan alcohol heeft xtc geen sterke verslavende werking, stelt Kramers. ,,Xtc doet iets met je zenuwen. Bij een tweede keer heb je er minder effect van. Een zware gebruiker gebruikt xtc ongeveer twee keer per week en vaak stopt die er na een jaartje of vijf ook wel mee.''

Risico's

Uit cijfers van het Trimbos-instituut uit 2016 blijkt dat 18 procent van de uitgaanders tussen de 15 en 35 jaar ooit wel eens een pil heeft geslikt, 46 procent van hen deed dat in het afgelopen jaar nog. Er zijn risico's, waarschuwt het Trimbos. Xtc kan op de korte termijn hoge lichaamstemperaturen teweeg brengen die dodelijk kunnen zijn. Ook watervergiftiging is een mogelijk gevaar: xtc wekt hevige dorst op en kan plassen moeilijk maken.

"We weten dat de 'war on drugs' niet de oplossing is. Misschien is dit het juiste moment om het gesprek over gereguleerde xtc weer op te starten. Zodat we regels kunnen stellen aan productie en verkoop"

Antoon Kanis, Statenlid D66

D66 wil net als wiet ook xtc legaliseren, stelt Gelders Statenlid Antoon Kanis. ,,De problemen met synthetische drugs worden steeds groter. We weten dat de 'war on drugs' niet de oplossing is. Misschien is dit het juiste moment om het gesprek over gereguleerde xtc weer op te starten. Zodat we regels kunnen stellen aan productie en verkoop. Zo halen we het uit de criminaliteit, bieden we de ruim 800.000 Nederlanders die af en toe een pil gebruiken een veilig product en voorkomen we onveilige situaties in onze woonwijken en natuurgebieden.''


Zoeken
AD.nl
12 oktober 2018 ·
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AD.NL
Nijmeegse arts: Maak van xtc legale partydrug
1 d.
388 opmerkingen 129 keer gedeeld
Leuk
Opmerking
Delen

Appendix 2: News article and Facebook post 'against-legalization'

Binnenland Buitenland Politiek Economie Gezond Bizar Wetenschap Auto Tech Wonen Reizen

Coalitiepartijen zien geen gat in plan om xtc uit criminaliteit te halen

Coalitiepartijen VVD, CDA en ChristenUnie zien niks in het plan van GroenLinks om een politieke discussie aan te zwengelen over de regulering van xtc. GroenLinks-Kamerlid Kathalijne Buitenweg vindt dat de overheid op termijn vergunningen moet verstrekken voor de productie van de drug.

Hanneke Keultjes 17-12-18, 12:29 ***Laatste update:*** 13:32

„Zo doe je net alsof het Smarties zijn in plaats van drugs. Het is gewoon gevaarlijk spul'', zegt VVD-Kamerlid Antoinette Laan. Ze stelt 'blij te zijn' dat GroenLinks 'meedenkt'. „Maar dit is geen begaanbare weg. Wij willen extra politie-inzet.''

Het CDA vindt dat de discussie over legalisering van xtc helemaal niet 'aangezwengeld' hoeft te worden. „Ik heb me hierin natuurlijk ook verdiept en xtc is gevaarlijk en schadelijk, op korte en lange termijn'', stelt CDA-Kamerlid Madeleine van Toorenburg. „Legalisering zal het niet veiliger maken, hooguit het gebruik nog verder normaliseren.''

Ook de ChristenUnie ziet niks in het plan. „We moeten criminaliteit niet belonen door xtc legaal te maken, we moeten het hard bestraffen'', aldus Kamerlid Stieneke van der Graaf. „We moeten alle drugsgerelateerde criminaliteit met wortel en tak uitroeien.''

> "We moeten criminaliteit niet belonen door xtc legaal te maken, we moeten het hard bestraffen"
> Stieneke van der Graaf, Kamerlid ChristenUnie

Voor D66 is regulering van xtc wél 'een stip op de horizon'. „Voor nu is het gewoonweg onmogelijk die wens in te vullen'', zegt D66-Kamerlid Vera Bergkamp, die er op wijst dat daarvoor geen meerderheid is in het parlement en haar partij 'de enige progressieve partij is in dit kabinet'. „Dat weet GroenLinks ook.''


Zoeken
AD.nl
17 december 2018 ·
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AD.NL
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10 d.
388 opmerkingen 129 keer gedeeld
Leuk
Opmerking
Delen

Appendix 3: Questionnaire

Introduction

Hallo!

Bedankt voor uw deelname aan deze korte enquête! Ik waardeer uw hulp ten zeerste. Het invullen van de enquête zal ongeveer 5 minuten van uw tijd in beslag nemen.

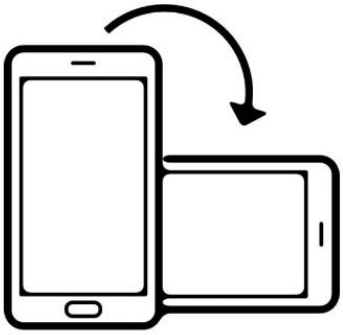
Daarnaast maakt u door het afronden van de enquête kans op een geldbedrag van 20 euro. Hiervoor is het noodzakelijk dat u op het einde van de enquête uw e-mailadres achterlaat. Dit e-mailadres wordt alleen gebruikt om contact op te nemen met de winnaar. Hierna worden alle e-mailadressen verwijderd en worden uw antwoorden volledig anoniem geanalyseerd. Het delen van uw e-mailadres is niet verplicht.

Bij voorbaat dank voor uw tijd!

Indien u vragen heeft, kunt u contact opnemen met mij via het volgende e-mailadres: lwpvandenbosch@student.eur.nl

Met vriendelijke groeten, Luuk

LET OP: Indien u deze enquête maakt op uw telefoon (i.p.v. op uw desktop) is het aan te bevelen uw telefoon(scherm) horizontaal te draaien. Dit maakt het makkelijker om de vragen te beantwoorden en de tekst te lezen.



"Deskundigen krijgen in politiek Den Haag niet de handen op elkaar voor legalisatie van XTC." (NU.nl, 2018).

Zoals u misschien heeft vernomen, is er veel discussie over het legaliseren van XTC in Nederland. Later zal in deze enquête uw mening worden gevraagd over de legalisatie van de drug XTC.

Demographic Questions

Wat is uw geslacht?

- ○ Man
- ○ Vrouw

Wat is uw leeftijd?

Wat is uw hoogst genoten opleiding?

- ○ Middelbare school
- ○ Middelbaar beroepsonderwijs (MBO)
- ○ Hoger beroepsonderwijs (HBO)

- Wetenschappelijk Onderwijs (Bachelor/Master)
- Anders

Statement Pre-Experimental Questions

In hoeverre bent u het eens met de volgende stelling? (-10 = helemaal oneens, +10 = helemaal eens)

XTC moet gelegaliseerd worden in Nederland.

	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	
Helemaal mee oneens	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Helemaal mee eens

In hoeverre bent u het eens met de volgende stelling?

Het legaliseren van XTC in Nederland is een belangrijk onderwerp.

	Sterk oneens	Oneens	Enigszins oneens	Neutraal	Enigszins eens	Eens	Sterk eens
Het is een belangrijk onderwerp	○	○	○	○	○	○	○

Introduction Facebook Article Group: Agree_Confirming

U krijgt nu een Facebook bericht te zien, geplaatst door het Algemeen Dagblad (AD.nl) over de legalisatie van XTC. Lees dit bericht goed door en beantwoord de bijbehorende vraag, alstublieft. Bij het Facebook bericht zal de 'volgende' knop pas na 15 seconden verschijnen. Klik op 'volgende' om verder te gaan naar het Facebook artikel.

Introduction Facebook Article Group: Agree_Disconfirming

U krijgt nu een Facebook bericht te zien, geplaatst door het Algemeen Dagblad (AD.nl) over de legalisatie van XTC. Lees dit bericht goed door en beantwoord de bijbehorende vraag, alstublieft. Bij het Facebook bericht zal de 'volgende' knop pas na 15 seconden verschijnen. Klik op 'volgende' om verder te gaan naar het Facebook artikel.

Facebook Article Pro XTC Legalization: 100 Likes

In hoeverre bent u het eens met de volgende stelling?

Indien dit bericht voorbij komt in mijn Facebook nieuwsoverzicht, ben ik geneigd om het bijhorende artikel van het AD te lezen.

	Sterk oneens	Oneens	Enigszins oneens	Neutraal	Enigszins eens	Eens	Sterk eens
Ik zou geneigd zijn het bijbehorende artikel te lezen.	○	○	○	○	○	○	○

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Facebook Article Pro XTC Legalization: 1000 Likes

In hoeverre bent u het eens met de volgende stelling?

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Ik zou geneigd zijn het bijbehorende artikel te lezen.	○	○	○	○	○	○	○

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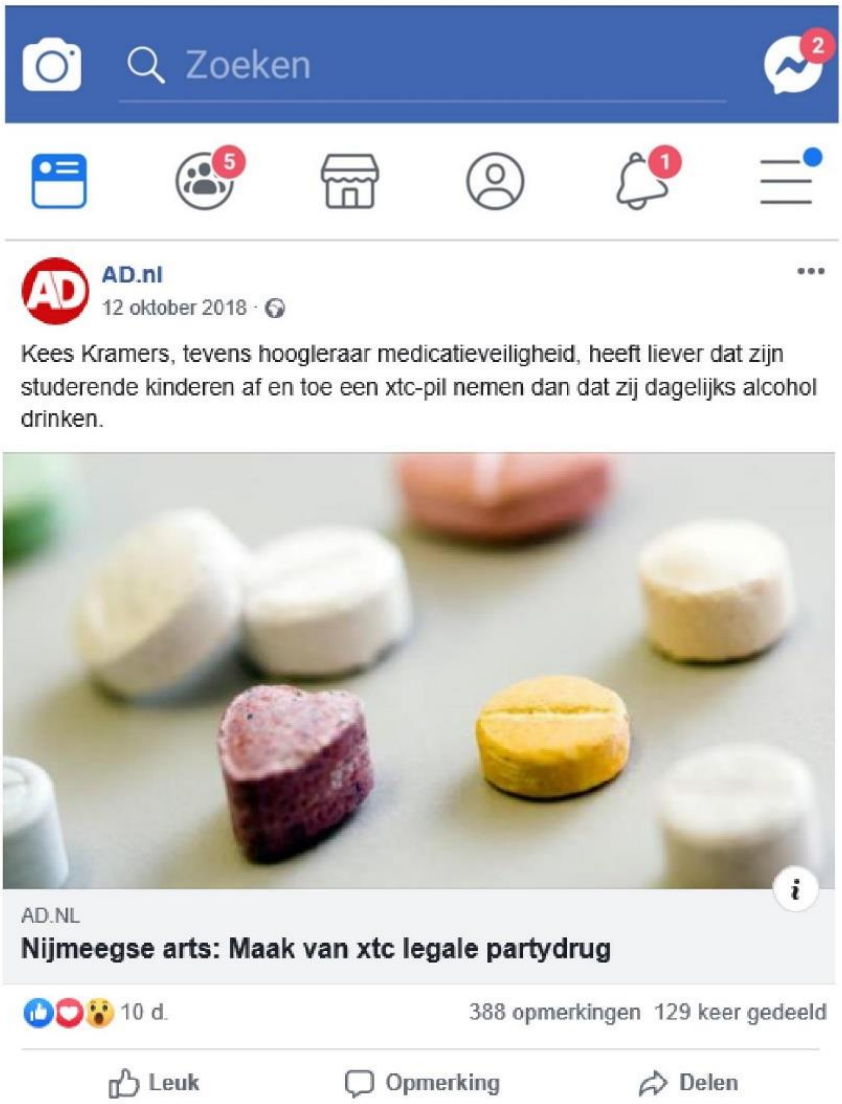
Facebook Article Pro XTC Legalization: 10000 Likes



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Facebook Article Pro XTC Legalization: 25000 Likes

In hoeverre bent u het eens met de volgende stelling?

Indien dit bericht voorbij komt in mijn Facebook nieuwsoverzicht, ben ik geneigd om het bijhorende artikel van het AD te lezen.

	Sterk oneens	Oneens	Enigszins oneens	Neutraal	Enigszins eens	Eens	Sterk eens
Ik zou geneigd zijn het bijbehorende artikel te lezen.	○	○	○	○	○	○	○

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Introduction News Article Algemeen Dagblad

Nu krijgt u het bijbehorende artikel te zien van de Facebook post die u net heeft gezien. Leest u alstublieft het artikel over de legalisatie van XTC uit het Algemeen Dagblad (2018) grondig door. Gebaseerd op de gemiddelde leestijd van het artikel zult u pas na 40 seconden verder kunnen klikken naar de bijbehorende vragen. Klik op 'volgende' om naar het artikel te gaan.

Article Pro XTC Legalization

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Facebook Article Against XTC Legalization: 100 Likes

In hoeverre bent u het eens met de volgende stelling?

Indien dit bericht voorbij komt in mijn Facebook nieuwsoverzicht, ben ik geneigd om het bijhorende artikel van het AD te lezen.

	Sterk oneens	Oneens	Enigszins oneens	Neutraal	Enigszins eens	Eens	Sterk eens
Ik zou geneigd zijn het bijbehorende artikel te lezen.	○	○	○	○	○	○	○

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Facebook Article Against XTC Legalization: 1000 Likes

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Facebook Article Against XTC Legalization: 10000 Likes

In hoeverre bent u het eens met de volgende stelling?

Indien dit bericht voorbij komt in mijn Facebook nieuwsoverzicht, ben ik geneigd om het bijhorende artikel van het AD te lezen.

	Sterk oneens	Oneens	Enigszins oneens	Neutraal	Enigszins eens	Eens	Sterk eens
Ik zou geneigd zijn het bijbehorende artikel te lezen.	○	○	○	○	○	○	○

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Facebook Article Against XTC Legalization: 25000 Likes

In hoeverre bent u het eens met de volgende stelling?

Indien dit bericht voorbij komt in mijn Facebook nieuwsoverzicht, ben ik geneigd om het bijhorende artikel van het AD te lezen.

	Sterk oneens	Oneens	Enigszins oneens	Neutraal	Enigszins eens	Eens	Sterk eens
Ik zou geneigd zijn het bijbehorende artikel te lezen.	○	○	○	○	○	○	○

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Article Against XTC Legalization

Binnenland Buitenland Politiek Economie Gezond Bizar Wetenschap Auto Tech Wonen Reizen

Coalitiepartijen zien geen gat in plan om xtc uit criminaliteit te halen

Coalitiepartijen VVD, CDA en ChristenUnie zien niks in het plan van GroenLinks om een politieke discussie aan te zwengelen over de regulering van xtc. GroenLinks-Kamerlid Kathalijne Buitenweg vindt dat de overheid op termijn vergunningen moet verstrekken voor de productie van de drug.

Hanneke Keultjes 17-12-18, 12:29 Laatste update: 13:32

„Zo doe je net alsof het Smarties zijn in plaats van drugs. Het is gewoon gevaarlijk spul", zegt VVD-Kamerlid Antoinette Laan. Ze stelt 'blij te zijn' dat GroenLinks 'meedenkt'. „Maar dit is geen begaanbare weg. Wij willen extra politie-inzet."

Het CDA vindt dat de discussie over legalisering van xtc helemaal niet 'aangezwengeld' hoeft te worden. „Ik heb me hierin natuurlijk ook verdiept en xtc is gevaarlijk en schadelijk, op korte en lange termijn", stelt CDA-Kamerlid Madeleine van Toorenburg. „Legalisering zal het niet veiliger maken, hooguit het gebruik nog verder normaliseren."

Ook de ChristenUnie ziet niks in het plan. „We moeten criminaliteit niet belonen door xtc legaal te maken, we moeten het hard bestraffen", aldus Kamerlid Stieneke van der Graaf. „We moeten alle drugsgerelateerde criminaliteit met wortel en tak uitroeien."

"We moeten criminaliteit niet belonen door xtc legaal te maken, we moeten het hard bestraffen"

Stieneke van der Graaf, Kamerlid ChristenUnie

Voor D66 is regulering van xtc wél 'een stip op de horizon'. „Voor nu is het gewoonweg onmogelijk die wens in te vullen", zegt D66-Kamerlid Vera Bergkamp, die er op wijst dat daarvoor geen meerderheid is in het parlement en haar partij 'de enige progressieve partij is in dit kabinet'. „Dat weet GroenLinks ook."

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Introduction Facebook Article Group: Disagree_Confirming

U krijgt nu een Facebook bericht te zien, geplaatst door het Algemeen Dagblad (AD.nl) over de legalisatie van XTC. Lees dit bericht goed door en beantwoord de bijbehorende vraag, alstublieft. Bij het Facebook bericht zal de 'volgende' knop pas na 15 seconden verschijnen. Klik op 'volgende' om verder te gaan naar het Facebook artikel.

Introduction Facebook Article Group: Disagree_Disconfirming

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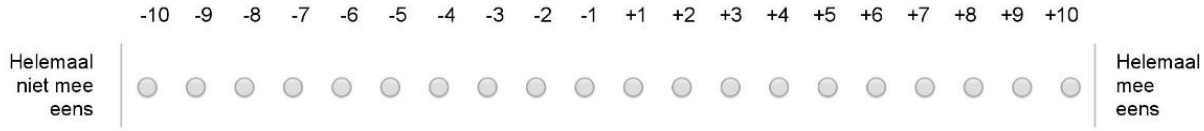
Post-Experimental Questions

Na het lezen van dit artikel uit het Algemeen Dagblad (2018) over de legalisatie van XTC in Nederland: In hoeverre bent u het eens met de volgende stelling? (-10 = helemaal oneens, +10 = helemaal eens)

XTC moet gelegaliseerd worden in Nederland.



In hoeverre vond u het getoonde nieuws betrouwbaar? (1= Volledig onbetrouwbaar, 7 = Volledig betrouwbaar)

Dankuwel voor het participeren in deze enquête. Indien u kans wilt maken op de 20 euro dan kunt u hier uw e-mailadres achterlaten. Nogmaals, uw e-mail zal uitsluitend gebruikt worden voor het contacteren van de winnaar en alle adressen worden daarna verwijderd.