Trust in fake news, individual climate attitudes, and political preference

Bachelor thesis

Maud van den Esschert

Department of Psychology of Conflict, Risk and Safety,

University of Twente

dr. Margôt Kuttschreuter

June 29, 2020

Abstract

This research is centred around fake news perceptions on social media. It is placed in the context of political news reports, where politicians use social media to express their subjective opinions and statements. This is connected to the global issue of climate change. The spectrum of opinions within the climate change debate; its existence, harmfulness, and human responsibility, seem to be corresponding with political tendencies: right-wing politicians are usually anti-climate, whereas left-wing politicians express a more supportive attitude. It has been discussed whether right-wing identifiers are more easily influenced by disputed information when it complies with their ideologies. This study has investigated the psychological construct trust in disputed anti-climate Tweets by right-wing politicians, and its relation to individual climate attitudes, by means of an online questionnaire including all age-, gender-, and nationality groups above age 17. The determinant political preference was analysed as a possible moderator. The importance of demographic characteristics (such as age, gender, and nationality) for the main variables was tested. It has been found that trust and climate attitudes are correlated, but moderation by political opinion could not be confirmed. This study serves as a guideline for more detailed (e.g. focusing on one relationship specifically), or broader (e.g. taking more determinants as possible moderators/mediators) future research, and sheds light upon the perception of politically motivated fake news concerning the global issue of climate change.

Keywords: Fake news, disinformation, social media, trust, climate change, political preference

Introduction

The research conducted in this paper concerns fake news in relation to a global environmental and political issue, namely the climate change debate. Fake news is a phenomenon that has emerged together with frequent social media usage and the digitalization of news intake. The climate change problem is widely discussed in fake as well as accurate news online. In particular, claims about the debate are usually connected to political opinions or tendencies. Trust in conservative political leaders' fake claims online was measured along with personal attitudes towards climate change. It was investigated whether there is a correlation between these two variables and what this possible relationship entails. Additionally, political preference was measured against this relationship to detect possible moderation. The results of these analyses are of importance for a broader and deeper perspective on the public's perception of fake social media posts in the political and environmental spectrum.

It has become more and more common for the general public to use the internet, and in particular social media, as a major source of information, as so for news intake (Clayton et al., 2019). With the increasing contribution of online platforms to the public's news consumption, so grows the amount of so-called fake news. This term has been used rather frequently over the past years; in political situations as well as a term to warn and express and distrust. Therefore, it needs a clear and unambiguous definition: fake news can be considered "fabricated information that mimics news media content in form but not in organizational process or intent" (Lazer et al., 2018, p.1094). Thus, fake news will appear as similar or even identical to an original and accurate news report, but its content will be unreliable in some way.

When there is a distribution of incorrect information, this can be termed 'misinformation'. A news item can, however, also be intentionally fake or inaccurate; this is called 'disinformation', in which the primary goal is to mislead audiences (Lazer et al., 2018; Tandhoc, 2019). One could, for example, mislead an audience deliberately for political or manipulative reasons. This can be problematic in the sense that it can ruin people's or companies' reputation, cause crises in businesses, and have a strong influence on political behaviour and people's risk perceptions (Tandhoc, 2019).

Especially online social media platforms, like Facebook, Whatsapp, Instagram, and Twitter, seem to boost the frequency and spread of fake news (Caplan et al., 2018, as cited in Talwar, Dhir, Kaur, Zafar, & Alrasheedy, 2019). The risks of fake news on social media are

in their rapid spread, meaning that a wide range of users are exposed to the information simultaneously, that anyone can post, share and like whatever comes within their reach, and that there is little control or supervision by reliable authorities (Vosoughi, Roy, & Aral, 2018). It has also been proven that false news and rumour-related content spread faster than accurate news and, therefore, stay novel and create a chain-reaction of sharing (Vosoughi, Roy, & Aral, 2018; Shin et al., 2018, as cited in Talwar, Dhir, Kaur, Zafar, & Alrasheedy, 2019).

There are several personal and environmental aspects that can influence the vulnerability and likelihood of believing and trusting (fake) news. Multiple studies agree that people are more prone to believe news when it complies with their ideological identifications and values (An, Quercia, Cha, Gummadi, & Crowcroft, 2014, as cited in Mena, 2019). Additionally, Alcott and Gentzkow (2017, as cited in Lutzke, Drummond, Slovic, & Arvai, 2019) found that people who consume news that complies with their values are less motivated to critically reflect on the reliability of its content.

As for more personal determinants, one would believe a fake post quicker when he lacks knowledge about its content or topic (Visschers & Siegrist, 2018). Visschers and Siegrist (2018) also mentioned the importance of trust an individual has towards an authority or source. If he lacks methods/skills to evaluate risks, he relies on the authorities that are in a way responsible for (solving) the hazard. What is of importance here, is that these authorities have to be perceived as complying with the individual's values, moral judgement, and ideas. This is similar to the ideological identification aspect previously mentioned (Visschers, Siegrist, 2018).

A global environmental issue that is widely discussed on social media, a topic which falls victim to fake news regularly, is climate change (Cook, 2019; Lutzke, Drummond, Slovic, & Árvai, 2019). This is a broadly (politically) debated issue, and of high importance to the societal, environmental and economic consequences for the planet (Lutzke, Drummond, Slovic, & Arvai, 2019; McCright, 2010). The climate change debate usually has two sides opposing one another: supports and deniers (Cook, 2019). That is, people who believe climate change is problematic and should be stopped where possible, and people denying the danger, scope, or the existence of climate change. Climate change denial can have positive outcomes for parties who acquire advantage out of doing so (e.g. fossil fuel industries), but climate denial appears on personal individual levels as well (Cook, 2019).

Overall, there are five main themes/arguments that cover how climate change usually is denied: existence ('it is not real'), human responsibility ('it is not our fault'), danger ('it is

not a bad/harmful thing'), scientific reliability ('experts' claims are not reliable'), and solutions ('climate change measures will not be effective') (Cook, 2019).

Additional to the science denial and the humanitarian denial mentioned above, which address the scientific reliability and human agency/responsibility in climate change, there is also economical denial, crisis denial and political denial (Maslin, 2020). These forms of denial can all be supported by the fact that the parties/services who display this denial behaviour would experience negative economical/political/societal consequences when climate measures would be executed by their government (Cook, 2019; Maslin, 2020).

The climate change debate is highly politicized, meaning that supporting or denying usually relates to a certain political opinion. The more progressive political parties are usually supportive of climate change measures, whereas conservative (right-wing) parties show more climate- and science-denying behaviour (Cook, 2019). They have been doing this under three major themes: "emphasizing uncertainty, extolling the benefits of global warming, and warning against the economic risks of mitigation policies" (McCright & Dunlap, 2000, as cited in Cook 2019, p.283).

This is where fake news makes an appearance in the political debate concerning climate change. Conservative parties and other profiting industries (e.g. fossil fuel companies) have been publishing more misinformation concerning this topic (Cheung, 2020). This because it supports their (subjective) ideology/opinion, and by doing this they try to gain more supporters. Therefore, one could say that fake news and disinformation are used as a political strategy (Lazer et al., 2018; Cheung, 2020).

Political leaders such as President Donald Trump and Dutch 'Forum voor Democratie' party leader Thierry Baudet have made multiple climate-denying claims on Twitter that were (completely) disputed or inaccurate. They misuse the issue of climate change for a political, rather than moral, reason (Cheung, 2020). It has been shown that these types of fake news have a polarizing effect on the general public's opinion, depending on their political identification: right-wing conservative supporters are highly affected by fake claims, whereas progressive liberals are barely affected (Cook, 2019). This is an additional effect to climate change opinions already being polarized in the first place, with left- and right-wing opinions usually standing opposite of one another (McRight & Dunlap, 2011, as cited in van der Linden, Leiserowitz, Rosenthal & Maibach, 2017).

Since it is discussed that personal ideology is possibly connected to believing fake news, and also that trust/support towards the source is of importance, it is relevant to provide more evidence in terms of these possible relationships. Personal determinants are important to

investigate since they apparently influence the public's perception and sharing behaviour concerning fake news. Additionally, it is relevant to connect the fake news problem to a global and widely discussed issue like climate change, since social media can reach large groups and can therefore affect them in their opinions. Also, it is important to consider the contribution of political influence in this discussion, since political strategies are more frequently exercised and expressed on social media in the form of disputed information.

Trust in conservative political leaders' (false) claims about climate change on social medium Twitter will be measured. It will be investigated whether this trust in fake news is correlated with an individual's attitudes towards climate change; being supportive or non-supportive/denying. It is also of importance to test whether the likelihood of sharing a false item is correlated with trusting it, since these two determinants are also likely to be related, and sharing behaviour is crucial in terms of fake news spread (Vosoughi, Roy, & Aral, 2018; Talwar, Dhir, Kaur, Zafar, & Alrasheedy, 2019).

Additionally, political preference needs to be investigated as a possible moderation factor. This might be of importance when considering the hypothesized relationships between trust, perceived fake news accuracy, and ideological values in the previously mentioned scientific literature. The expectation is then, based on the studied literature, that people who support these right-wing conservative leaders, are also more likely to trust their erroneous statements, and are more likely to display climate-denying behaviour (Visschers, Siegrist, 2018; Cook, 2019).

Therefore, Research question 1, following from this introduction is:

What is the relationship between an individual's trust in conservative leaders' false statements and his personal attitudes towards climate change? Additionally, does political preference play a role in this relationship?

To test this, there has to be a significant relationship between trust and climate attitudes in the first place. Therefore, one main hypothesis has been created, along with two additional hypotheses that aim to test whether political preference acts as a moderator. The visualized model of these hypotheses is displayed in Figure 1.

Main hypothesis

- H1: There is a negative linear relationship between trust in fake news regarding climate change and climate change attitude (The higher the trust in the disputed statements, the less supportive climate attitude)

Hypotheses for moderation

- H2: There is a negative linear relationship between political preference and belief in climate change (the more right-wing, the less supportive climate attitude)
- H3: There is a moderation effect for trust and political preference on climate attitude, which is strongest for right-wing identifiers (the more right-wing, the stronger the relationship between trust and support in climate change)

Besides trust and political preference in relation to climate change attitudes, it is also important to consider whether demographical determinants such as age, gender, or nationality, play any role in the degree/direction of these variables. It has, for example, been found in several studies that women appear more likely to have a left-oriented political opinion and a more climate-supporting attitude compared to men (Pratto & Stallworth, 1997; McCright, 2010). Also, nationality can influence the way people perceive certain political statements, since the political system is different for each county and can, therefore, lead to different political preferences, climate change opinions, and possibly trust in fake news (Rodden, 2010). However, there are no hypotheses designed for these effects, since the main focus of this research is fake news and climate change. These are additional factors that might be worth reviewing in the results and discussion. Therefore, a second research question is formulated which covers these possible relationships:

Research question 2: What is the role of demographic characteristics (such as age, gender, or nationality) in the frequency/direction of the main variables?

Figure 1.

A model visualizing the hypothesized relationships between the three main variables.
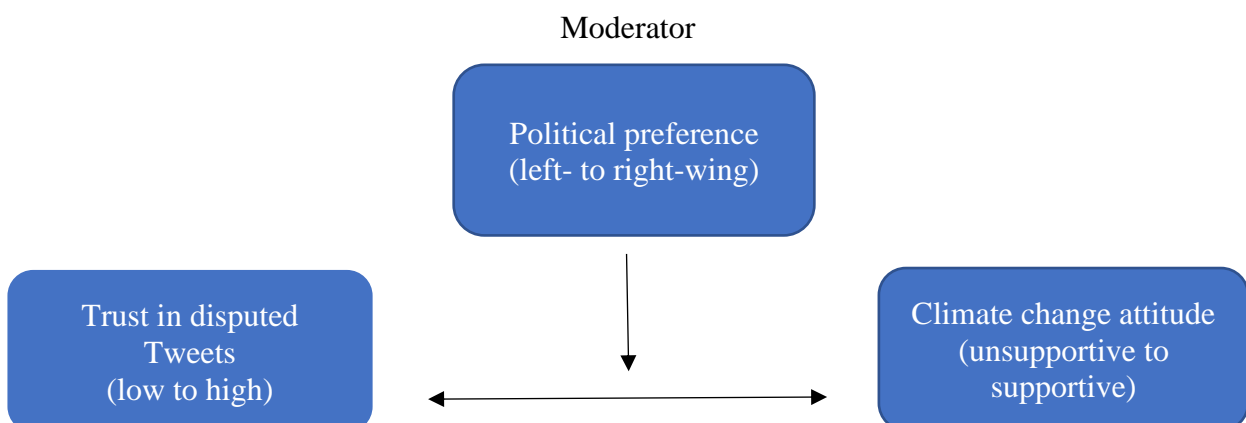
Methods

Participants

The criteria for participation were that participants had to be at least 18 years of age, and all gender identities, ages, occupations, and nationalities could participate. The participants were recruited via personal connections, social media posts, and snowball sample techniques (requesting participants to share the questionnaire with their associates/relatives/colleagues). Thus, this was a non-probability convenience sample, since participants were likely in some way related to or associated with the researcher.

In total, 160 participants filled in the questionnaire. There was one participant who reported an age of 17 and was deleted immediately. There were additional criteria under which more cases had to be filtered out. First, all incomplete data were deleted. Secondly, participants who did not tick the 'I agree' box in the informed consent part were deleted. Lastly, participants who took less than 3 minutes to complete their questionnaire were deleted, since this indicates the likelihood that not enough attention/time was paid to answer the questions truthfully and thoroughly. After filtering, the resulting number of participants was 124.

Participants were aged between 18-81 years old, with a median age of 48. The average age of the participants in years was 44.26 ($SD =18.62$), the frequency peaks for age seem to be around 20 and 50 years. Concerning gender identity: 59 participants were male, 65 were female and 0 reported identifying otherwise or non-binary. Concerning nationality, 113 participants were Dutch, 5 were German, 4 had another European nationality, and 2 had another non-European nationality. As for current occupation, 25 participants were students, 11 working students, 63 employed, 6 unemployed, and 19 retired.

Survey design

The main two variables are trust in fake climate change Tweets (ranging from low to high), and personal climate change attitude (ranging from pro/completely supportive to against/completely unsupportive). The moderation variable is personal political preference (ranging from left-wing to right-wing).

Materials

The research was done via an online questionnaire using the online programme Qualtrics. Participants needed a working internet connection and a mobile device like a laptop, computer, tablet, or smartphone, to participate.

Stimuli. For the stimuli that measure trust in the questionnaire, two screenshots were used from real-life Tweets launched on the platform Twitter. These Tweets were posted by USA President Donald Trump and Dutch right-wing politician Thierry Baudet, leader of the party 'Forum voor Democratie'. Both tweets contained claims that were either proven to be inaccurate by Miller (2019) or disputed with the intention to manipulate or to express a highly politicized opinion. Miller (2019) is a reporter for news platform CNN and stated that Greenpeace officials had disproved Trump's statements about one of their 'co-founders'. Trump mentioned that a co-founder of Greenpeace had agreed on the fact that climate change is 'fake science'. This was thus inaccurate information and therefore, this Tweet is not representable for objectively proven claims concerning climate change. Thierry Baudet's Tweet protested against Al Gore's pro-climate documentary "An inconvenient truth" and denied the harm and seriousness of climate change completely, thus this was a rather manipulative statement. The Tweet was written in Dutch and has been presented with an English translation in the questionnaire, since it was assumed not all participants were able to understand the Dutch language.

The usernames and profile pictures of the stimuli were cropped out in the questionnaire to prevent participants from having prejudiced opinions about the source of the Tweet. That is, one could, for example, be unsupportive in the climate change debate, but still hold a non-supporting or even negative view of either of these politicians and therefore have prejudiced views on their Tweets' trustworthiness. To objectively test whether trust in Tweets and climate attitudes are related, only the content of the Tweets was visible and not their source. It was later revealed to the participants who the sources of the Tweets were. The complete stimuli screenshots (including usernames and profile pictures) can be found in Appendix C (Figure 1 and 2).

Instruments. The questionnaire designed for this study consists of three main parts: one that measured trust in the Tweets, one that measured individual climate attitudes, and one that measured political preference. The first questions were for demographical purposes and

measured gender, age, occupation, and nationality. A full copy of the questionnaire can be found in Appendix B.

All items in the questionnaire, apart from the demographics and informed consent, have been assessed using a seven-point Likert scale to indicate the extent of agreement/applicability to a certain statement/behaviour. The answer options ranged from 'completely disagree' to 'completely agree'. Seven points were regarded best suitable since it provided a scale large enough to make distinctions between scores (average-scoring or high-/low-scoring), but small enough for participants to still make clear choices.

The first main variable to be measured is trust in the disputed Tweets. The items that measured trust have been designed based on approaches taken in previous studies that investigated trust, such as Bearth & Siegrist (2019) and Siegrist, Earlie, & Gutscher (2003). These concerned statements such as 'I trust….', 'I rely upon…' for which the answer options are Likert-scale based. In total, there were two stimuli pictures and 14 items that belonged to this category. The items that belonged to either of the stimuli pictures were identical, in which the only difference was the content of the screenshots. This is to ensure that trust was measured in an equal way for either of the politicians/statements. Examples of trust items are 'I trust this Tweet' or 'I think the Tweet's information is accurate'. The total number of items measuring trust is 5, these appear for each of the Tweets. For these 10 items, Cronbach's alpha was 0.96, corresponding with an 'excellent' consistency of the items.

An additional variable was made out of the last two items that were in the trust category, namely the likelihood of sharing the particular Tweet (4 in total, since these two items were displayed for both of the stimuli). This variable can give valuable information compared to the trust variable in the interpretation of results since trust and the likelihood of sharing seem to be correlated in literature. Cronbach's alpha was 0.88, indicating an excellent inter-item consistency and reliability.

The second main variable measures climate attitudes. The Climate change attitude survey by Christensen & Knezek (2015) has been used as the main source for reliable and valid test items. This questionnaire was officially assigned to middle-school-aged children (11-13 years); therefore, the items have been adjusted where needed/appropriate for this specific study. The items in the questionnaire aimed to cover all five aspects of climate change belief/denial mentioned by Cook (2019). That is, existence, human responsibility, harmfulness, scientific evidence, and effective measures. This contained statements such as 'I believe climate change is a real and actual phenomenon happening today' (category:

existence), to which participants had to indicate to what extent they agreed. Cronbach's alpha was 0.91 for these items, also corresponding with an 'excellent' internal consistency[1].

The last main variable to be measured in the questionnaire is political preference. This variable consisted of 4 items. Studies by Kroh (2007), have been used to design fitting test items. Participants could indicate on a Likert-scale ranging from left to right which political direction they identified with most. Words like 'conservative' and 'progressive' were eventually left out since these might be too suggestive of judgement. Additional to the items measuring political preference specifically, there were 3 items in the questionnaire that measured political behaviour more broadly, such as trust in leaders in general 'I believe readers who are representing my political preference' and political activism 'I engage in political activism (e.g. protests, school/work strikes etc)'. However, due to the insignificance of these items, they were not used for further analysis. For the 4 items that measured political preference, Cronbach's alpha was 0.95, indicating an 'excellent' internal consistency[2].

Procedure

Before starting the questionnaire, an informed consent form was presented which the participants were asked to thoroughly read and agree to in order to proceed with the study. This form can be found in Appendix A. Participants were informed about the goal and duration of the study, about their right to withdraw at any given moment and their right to express questions/remarks to the researcher. Then, they were asked to observe and read the two Tweets carefully, after which the trust questions were displayed. After that, the climate change attitudes were measured, followed by the political preference items. After the last question, participants were exposed to a debriefing statement which made them aware that the Tweets they had been exposed to contained disputed/manipulative content and are not representable of objective claims. They were advised to consult reliable news sources (such as scientifically proven articles) when informing themselves further about climate change, and the goal of the study was repeated. They were thanked for their participation and were instructed to end the study. The data analysis was executed using the digital statistics programme SPSS, which was installed on a laptop.

---

[1] It showed that alpha would increase to 0.916 if one item were to be deleted, but since this is such a minor difference, it was left in

[2] It showed that if one item were to be deleted, Cronbach's alpha would increase to 0.963. However, since this is a rather small difference and there were few items measuring political preference, it was left in for analysis.

Data analysis

      Testing the main hypothesis. Descriptive statistics and frequency tables were run to acquire a broad overview of the data. To test H1, the Pearson correlation test and linear regression analysis were done for the variables trust and climate attitude. It was tested whether there is a correlation, what its strength is, and whether the outcome is significant by ($p < .05$) (one-tailed). All main correlations were tested one-tailed because the distributions in the main variables are not following a standard normal curve with two even tails. The regression analysis was used to check for the explanation of variance between the variables. This is then the base for testing the moderation effect in hypotheses H2 & H3.

      Testing moderation. A Pearson correlation and regression analysis were done between political preference and climate attitude to test H2. The correlation was expected to be negative linear. To test H3, a new moderator variable was computed from the centralized values of trust and political preference (multiplied by one another). This was executed in a regression analysis together with the two main variables. It was tested to what extent the combination of trust and political preference is responsible for the outcome in climate attitudes. This moderation had to be significant by ($p < .05$). Specifically, moderation among right-wing identifiers was expected to be highest.

      Testing research question 2. To test for possible significant differences in gender, an independent samples t-test was run. For the variables age, nationality, and occupation, a one-way ANOVA test was done, since these independent variables had more than two categories. These were also tested on significant differences to find out whether they play a role in the frequency/degree of the main variables.

<div align="center">

Results

</div>

Descriptive statistics & frequencies, first impressions of data

After filtering and computing the collected data into workable variables, frequency tables and descriptive statistics were run. The three main variables were also plotted in a histogram to get a visual impression of the distribution of answers. Tables of descriptive statistics and

inter-variable correlations are displayed below in Table 1 and 2. The corresponding histograms have been added to Appendix D.

It can be seen that for trust, the average score was 1.88 (SD = 1.14) on a Likert scale of 1-7, indicating that the large majority reported low trust in the presented tweets (see Table 1). Over one-third of participants (35%) mentioned not trusting the tweets at all. In the variable 'likelihood of sharing', the same effect is detected, but even stronger than in trust (M = 1.48 (SD = .90) and 61% of participants reported not being likely at all to share or like the posts. In both of these variables, the histograms are right-skewed (see figure 1 and 2 in Appendix D). Thus, trust is rather low, and the likelihood of sharing is even lower.

The variable climate attitudes had an average score of 5.85 (SD = .89), a left-skewed curve is seen in its histogram (figure 3 in Appendix D). The first interpretation thus indicates that the majority of participants has a rather positive and supporting attitude towards climate change.

The average score for political preference was 3.49 (SD = 1.29), indicating a nearly perfectly-centred mean on the scale of 1-7, corresponding with a middle-centred political preference. This mean, however, does not give a representational impression of the distribution of the actual answers, since the histogram of political preference looks more diverse, but this can be logically explained. This is because when it concerns political opinions, tendencies usually are not normally distributed or following a certain curve and are dependent on a wide range of factors (Rodden, 2010)**.** Also, the standard deviation is the highest for political preference (SD = 1.29), meaning that this variable has the most diversity. In the histogram (figure 4 Appendix D) are three main peaks at 2.0, 3.0 and 5.0, still indicating a majority of left-oriented participants.

A correlational analysis between the three main variables and the likelihood of sharing variable also showed there are significant moderate to strong correlations between all variables (see Table 2). It especially shows that trust in the Tweets is strongly positively correlated with the likelihood to like and share them, with a value of r = .89, p < .001. Political preference and trust, however, seemed only to be weakly positively correlated with a coefficient of r = .214, p < .001 (one-tailed). This is an important finding since this unexpected weak correlation can have consequences for the hypothesized moderation and interpretation of further results.

Table 1.

Descriptive statistics on the main variables

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Standard Deviation
Trust in Tweets	124	1.00	6.10	1.87	1.14
Likelihood of sharing	124	1.00	6.00	1.48	.91
Climate attitude	124	2.50	7.00	5.84	.89
Political preference	124	1.25	7.00	3.49	1.29

Table 2.

Inter-item correlations of the main variables

Correlations		Climate attitude	Political preference	Trust in fake news	Likelihood of sharing
Climate attitude	Pearson Correlation	1	-.47	-.64	-.59
	Sig. (1-tailed)		.000	.000	.000
	N	124	124	124	124
Political preference	Pearson Correlation	-.47	1	.214	.23
	Sig. (1-tailed)	.000		.009	.005
	N	124	124	124	124
Trust in fake news	Pearson Correlation	-.64	.21	1	.89
	Sig. (1-tailed)	.000	.009		.000
	N	124	124	124	124
Likelihoodof sharing	Pearson Correlation	-.59	.23	.89	1
	Sig. (1-tailed)	.000	.005	.000	
	N	124	124	124	124

Testing the first hypothesis

The Pearson correlation test between the two main variables showed a significant correlation of $r = -.64$, $p < .001$ (one-tailed). This can be interpreted as a rather strong

negative linear correlation between trust and climate attitudes. Thus, the higher the trust in the Tweets, the more negative and less supportive the climate attitudes. When interpreting the scatterplot in Appendix D (figure 5), the negative linear correlation is visually confirmed. It is visible that the majority of dots is in the left top, being low in trust and high in climate attitude.

When reviewing the simple linear regression between trust and climate attitudes, trust was a significant predictor ($F = 86.16$, $p < .001$) and the adjusted R-squared value was $R^2 = .41$ (see Table 3). This means that there is a moderate rate of explanation of variance between these variables (41% of the variance in climate attitudes can be explained by trust and the other way around). Based on the correlational analysis and the regression analysis, H1: 'There is a negative linear relationship between trust in fake news regarding climate change and climate change attitude (The higher the trust in the disputed statements, the less supportive climate attitude)' can thus be accepted.

Table 3.
Model summary of regression analysis between trust and climate attitude

		Model Summary		
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.64[a]	.41	.41	.69

a. Predictors: Trustinfakenews

Testing moderation

To test H2, A correlational and linear regression analysis were done on political preference and climate attitude. The Pearson correlation showed that political preference and climate attitude are moderately correlated by $r = -.47$, $p < .001$ (one-tailed). This indicated that, as expected, there is a significant negative linear relationship. This is, however, a weaker effect than the correlation between trust and climate attitudes. The scatterplot for this correlation can be found in Appendix D. When reviewing the regression tables (Table 4), the adjusted R-square value was $R^2 = .22$ meaning that political preference explains 22% of variance in climate attitudes and that it is a significant predictor ($F = 35.00$, $p < .001$) (see Table 4)

From these analyses, hypothesis 2: 'There is a negative linear relationship between political preference and belief in climate change (the more right-wing, the less supportive climate attitude)' can thus be accepted.

Table 4.

Model summary of regression analysis between political preference and climate attitude

		Model Summary		
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.47[a]	.22	.22	.79

a. Predictors: (Constant), Politicalpreference

For testing the actual moderation effect and H3, a new moderator variable was made. This was again run in a linear regression analysis together with the centralized values of trust and political preference separately, and climate attitude as the dependent variable. The model was significant in the ANOVA table (see Table 5) and showed that the R-squared value had increased to $R^2 = .53$, $F= 68.59$ $p < .001$, meaning that these variables together explained 53% of the variance in climate attitudes. However, it showed that, when analysed with and without moderation variable, the model with the moderator (Model 2 in Table 6) had an R-square change value of $R^2 = .04$, $F = 52.98$, $p < .001$, meaning that the moderator variable explained an additional 4% of the variance in climate attitudes. This is a rather small contribution to the strength of the main relationship. The moderator variable in itself accounted for 14% of the variance in climate attitude when analysed alone in a regression ($R^2 = .14$). This is thus not a higher contribution than that of political preference and trust independently. When exploratory scatterplots grouped by political preference were run, there were no apparent visible differences in slopes and thus the strength of the relationship.

From these tests, it appears that political preference is in fact (weakly) related to trust and the level of climate attitudes, but not necessarily that it acts as a significant moderator to the main relationship. Therefore, hypothesis 3: 'H3: There is a moderation effect for trust and political preference on climate attitude, which is strongest for right-wing identifiers (the more right-wing, the stronger the relationship between trust and belief in climate change)' has to be rejected.

Table 5.

ANOVA table of regression analyses with and without moderator

				ANOVA[a]		
Model		Sum of Squares	Degrees of freedom	Mean Square	F	Sig.
1	Regression	52.25	2	26.12	68.59	.000[b]
	Residual	46.08	121	.38		
	Total	98.33	123			
2	Regression	56.03	3	18.68	52.98	.000[c]
	Residual	42.30	120	.35		
	Total	98.33	123			

    a. Dependent Variable: Climate attitude

    b. Predictors: Political preference & Trust

    c. Predictors: Political preference, Trust, & Moderator

Table 6.

Model summary on regression analysis with and without moderator

					Change Statistics	
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Sig. F Change
1	.73[a]	.53	.52	.62	.53	.000
2	.76[b]	.57	.56	.59	.04	.001

a. Predictors: Political preference & Trust

b. Predictors: Political preference, Trust, & Moderator

Second research question: Demographical differences

       To acquire more insight into the data that belongs to the second research question: 'Do demographic factors (age, gender, nationality, and occupation) play a role in the level/frequency of the individual variables or in the strength of the observed relationship?', frequency tables and histograms have been run, grouped by these demographic variables, to

observe possible differences between groups. Additionally, to test for significant differences, an independent samples t-test and several one-way ANOVA tests have been run.

The first demographic to be explored is gender. The independent samples t-test grouped by gender revealed that there was a significant difference between males and females for both the variables climate attitude $t(49.99) = -2.99$, $p < .05$ (two-tailed), and political preference $t(122) = 2.28$, $p < .05$ (two-tailed). The independent samples t-test table indicating significance can be found in Appendix E (Table 1). These significant differences indicate that females overall have a more positive and supportive climate attitude compared to males, and that more females reported a left-winged political preference (see Table 7). In the descriptive table, males seem to place more trust in the disputed Tweets and appear more likely to share them as well. However, since these findings are not significant, they cannot be confirmed.

Table 7.

Group statistics of the independent sample t-test on gender.

	Group Statistics				
	Gender	N	Mean	Standard Deviation	Standard Error Mean
Trust in fake news	Male	59	2.01	1.32	.17
	Female	65	1.75	.95	.12
Likelihood of sharing	Male	59	1.61	1.08	.14
	Female	65	1.36	.69	.09
Climate attitude	Male	59	5.60	1.05	.14
	Female	65	6.07	.65	.08
Political preference	Male	59	3.77	1.34	.17
	Female	65	3.25	1.21	.15

For the demographic variables age, nationality, and occupation, one-way ANOVA tests were run to look for significant differences in the main variables, grouped by these demographics. However, no significant difference was found for any of the variables between age groups, nationalities, or occupations ($p < .05$). Therefore, the tables are not included in the results but can be found in Appendix E. Also, the descriptive tables of these determinants did not show great visible variety or differences in means.

Out of these exploratory analyses, Research question 2: 'What is the role of demographic characteristics (such as age, gender, or nationality) in the frequency/direction of the main variables?' can now be answered. Apart from gender, demographics such as age, occupation, and nationality do not seem to make significant differences in the mean scores and frequencies of the main variables. The differences in gender indicate that females are more likely to be left-wing and more climate supportive compared to males. This confirms what was expected in the introduction.

Discussion

Relevance and aim of the study

This research highlights the relationships between psychological constructs such as trust, and personal opinions and preferences, namely political preference and climate change attitude. Therefore, it is a topical study in the sense that it measures society as it develops in the present time and is applicable to the contemporary climate change/political debates, protests, and the growing occurrence of fake news on the internet.

The main aim of this study was to investigate fake news on social media, this was related to the climate change debate. It was hypothesized that the level of trust in false anti-climate statements and climate attitudes were correlated and that overall, a higher degree of trust would correspond to a more negative climate attitude. Additional to that, the variable political preference was included, which was expected to have a moderation effect on the main relationship in case of a right-wing orientation: the correlation between trust and anti-climate attitudes was expected to be stronger for right-wing identifiers. Additional to these main hypotheses, exploratory analyses were done on the importance and involvement of demographic characteristics in these variables.

Interpretation of results

In the results, H1 and H2 were accepted and H3 was rejected. When interpreting these results, the acceptance of H1 implicates that the more someone trusts the disputed Tweets, and regards them as believable, the more likely he is to be unsupportive of the climate problem and to display possible denial behaviour. When interpreted the other way around: the less someone trusts these Tweets, the higher the chance of an accepting and supportive climate attitude. This confirms the predictions in the introduction that a higher trust in a

climate-aversive Tweet would correspond with a personal negative view on climate change as well (Visschers, Siegrist, 2018; Cook, 2019). However, since causation cannot be fully confirmed, it is unsure whether this more positive/negative climate attitude was either a reaction to the (dis)trust in the Tweets, or whether these attitudes were already present in the participant.

The acceptance of H2 implies that political preference is related to climate change attitudes as well, meaning that a more right-oriented preference is associated with a larger likelihood to be unsupportive of climate change. However, this relationship was weaker than the main relationship. Hence it can be said that political preference is a weaker 'predictor' of climate change attitudes. This is a bit contradicting to the statements in previous literature like Cook (2019), which mentioned that political orientation and climate change behaviour usually are strongly related one another. These results could indicate a shift towards a more climate supportive society overall (regardless of political preference), but this cannot be confirmed.

The rejection of H3 implies that political preference appears not to be a significant moderator in the relationship between trust and attitudes. It indicates that the relation between high trust and negative climate attitudes is not necessarily stronger for right-oriented participants. This is also contradicting to the statements in literature, claiming that right-wing voters are usually more prone to be influenced in their attitudes by (erroneous) posts on social media (Cook, 2019).

A remarkable finding that ought to be mentioned when putting these findings into a larger perspective and to discuss generalizability, is that trust in the disputed Tweets was exceptionally low for all participants, regardless of political opinion or climate attitudes. Additional to that, climate attitudes were overall regarded as positive and supportive, this might conflict with what was expected in the introduction, which predicted a more diverse range of climate opinions. However, since sources such as McRight and Dunlap (2011, as cited in van der Linden), and Leiserowitz, Rosenthal and Maibach (2017) have stated that climate attitudes are usually polarized, with little grey space between supportive and unsupportive, the results of this study might represent a majority of climate supporters in that sense. As previously mentioned, it might also indicate that the general public is becoming more climate-aware and supportive overall. The political preference variable showed the most diversity and this variable seems to be more independent of the other two since it does not hold strong relationships to them. This explains the fact that H2 found a weak positive correlation and that H3 was rejected completely.

Generalizability & limitations

As for generalizability of the results, the sample of participants had a good diversity concerning age, occupation, and there was a nearly even distribution of gender identification (59 male and 65 female). These make the results useful for generalizing and interpreting them for the larger population. Since there was no specific target group, however, a sample of 124 participants is still rather small. Also, although diversity in nationality was aimed to be reached, the vast majority of participants was Dutch. This is explainable since the (convenience) sample of participants was likely to be related to the researcher.

The interpretation of findings allows for the study's limitations as well as strengths to be mentioned. The first main limitation of this research is that the reason that trust was so low in all participants, regardless of other variables, may be accounted for by other reasons than mere instinctive distrust. Although usernames and profile pictures were cropped out of the Tweets, to prevent recognition and therefore a prejudiced opinion, it is possible that people have recognized their content nevertheless. Since Trump and Baudet are widely (negatively) discussed politicians in media as well as verified news platforms, there is a possibility that participants had an automatic distrust response. Besides that, the statements in the Tweets are rather harsh, portraying an absolute negative and unsupportive attitude towards climate change. Therefore, the content of the Tweets might have been too 'extreme', in that sense, causing people who are right-oriented to distrust them regardless of their political preference, contrary to the study's predictions. An improvement for this limitation would be to search and design the stimuli material more detailed with regard to participants' responses during the questionnaire.

A short addition to this limitation is that two politicians from different countries have been chosen. The reason that Thierry Baudet was chosen along with Trump, was because he is a rather famous politician who makes harsh climate denial claims which are similar to those of Trump. Participants might have reacted differently depending on whether or not they recognized these statements. For example, a Dutch participant might react differently to Baudet's Dutch Tweet than a non-native Dutch speaker, and the same effect could emerge for Trump. For the sake of consistency, a future study is suggested to only focus on Tweets in one and the same language, so either both Dutch or both English/American, to prevent possible confusion and keep the design a coherent whole.

The second main limitation concerns the sample of participants. Remarkably, a majority of participants identifies with a left-wing orientation. However, the hypothesized relationships involving moderation mainly focused on the effects on right-wing oriented people. Therefore,

the sample lacks enough right-wing identifiers to make conclusions about moderation, which is possibly why H3 was rejected. In the future, one could aim to specifically recruit more right-wing identifiers for a study investigating fake news' effects on right-oriented people.

The third limitation of the study is that it lacks diversity in nationalities. This is not a large problem per se, but since it was aimed to look for differences between countries in research question 2, which could not be found (yet), it is convenient to have an even distribution of the participating nationalities. Since Rodden (2010) has found that factors like political preferences and opinions are highly dependent on an individual's nationality, living environment and socio-economic conditions, it is a limitation that there was minimal diversity in nationality. However, since this research was executed in the Netherlands, logically, the majority of participants is Dutch. Nevertheless, this limitation still ought to be mentioned. In the future, the study could focus specifically on one country (e.g. only Dutch participants or design the study for another target nationality such as the United States) or could try to recruit more European nationalities.

Additional to nationality, although there was an even distribution between male/female, none of the participants reported identifying as a 'non-binary or other' gender. It is questionable whether the results and observed relationships would have been different if participants of this group had been involved.

When reviewing the flow and proceedings of the questionnaire itself, it showed that most participants who did not complete the questionnaire and thus were deleted from the dataset, withdrew at questions 6 and 29. These are the moments in which the first and the second Tweet were presented. This could be out of boredom, lack of motivation, or any other kind of aversion to the activity of examining the Tweets. The fact that most participants withdrew at these points in the questionnaire highlights the importance of survey flow and presentation in future studies, to keep the sample as large as possible with the smallest chance of withdrawal.

Strengths and implications

This research also has its strengths and contributions to existing literature. The first strength is that, apart from nationality, there is a wide range in diversity of demographical characteristics. Since there was no target group it was aimed to have as much diversity in the sample as possible, which has thus been accomplished.

The next strength is that this study is a good addition to and confirmation of existing literature. It investigates relationships that have already been studied but adds more detail since its focus was on the psychological construct trust in social media posts in particular.

Therefore, this is not a mere study of fake news but of a specific politicized category of fake news. It has also found results that contradict literature, for example, the rejected hypothesized moderation between political preference and climate attitudes. This sheds light on the possibility that indeed, only the extremely conservative right-wing (possibly even populist) identifiers seem to be influenced by disinformation (and not the left-wing, middle, or moderately right identifiers). Also, it is confirmed that women are more likely to have supportive attitudes towards climate change and are more likely to have left-wing preferences compared to men, corresponding to earlier findings in literature (Pratto & Stallworth, 1997; McCright, 2010).

Moreover, this research confirms a general low trust level in disputed posts on social media, which is in a sense a good thing, since social media platforms like Facebook and Twitter have been aiming to take more precautions and measures to prevent the occurrence and spread of misinformation/disinformation. Furthermore, it has been found that trust and likelihood to share content are strongly related to one another and that a low trust level corresponds to an even lower likelihood of sharing (and therefore continuing the ongoing chain of disinformation). The finding that these Tweets are not trusted and are not likely to be shared seems to be an improvement towards honest and transparent (political) news reports on social media.

This study highlights the importance of the relatedness of these three variables for future research and suggests that more research could and should be done on how political news reports affect and influence the general public's perceptions on the risks and concerns of climate change. It might be of importance to further investigate possible differences between groups such as country/nation, and especially how this differs for people with more extreme left or right ideologies. It is also relevant to further investigate if there are any other possible moderation factors to climate attitudes other than political ideology. The determinant political activism emerged in the methods as a possibly important factor, but this was not worked out into detail due to insignificance. Nevertheless, it is a determinant that could be considered to be measured more detailed. Also, the likelihood of sharing and wider social media behaviour are relevant for studies that investigate online fake news perception. Future studies should include these determinants to achieve a broader understanding of the political influence on fake news' perception, intake, and effect on social media.

Conclusion

It has been discovered in this study that trust in fake news, climate change and political opinion, hold relationships to one another. Low trust in the selected tweets sheds light on the importance of personal conditions and details under which fake news is believed or trusted. Also, trust in fake news seems to be highly dependent on its content and the conditions under which it is published. Its relationship towards climate change attitudes is ought to be studied in more detail in order to make actual claims about possible causation, or whether there are moderation variables other than political opinion. This study is a representative of (online) political psychological research and can be used as a guideline and reference for more detailed future scientific work concerning political perceptions.

References

Cheung, H. (2020, January 23rd). What does Trump actually believe on climate change? *BBC News.* Retrieved from https://www.bbc.com/news/world-us-canada-51213003

Christensen, R., & Knezek, G. (2015) The climate attitude survey: measuring middle school student beliefs and intentions to enact positive environmental change. *International journal of environmental & science education, 10*(5). 773-788. https://doi.org/10.12973/ijese.2015.276a

Clayton, K., Blair, S., Busam, J. A., Forstner, S., Glance, J., Green, G., Kawata, A., Kovvuri, A., Martin, J., Morgan, E., Sandhu, M., Sang, R., Scholz-Bright, R., Welch, A. T., Wolff, A. G., Zhou, A., & Nyhan, B. (2019). Real Solutions for Fake News? Measuring the Effectiveness of General Warnings and Fact-Check Tags in Reducing Belief in False Stories on Social Media. *Political behaviour, 42*(2). https://doi.org/10.1007/s11109-019-09533-0

Cook, J. (2019). Understanding and countering misinformation about climate change. *Handbook of research on deception, fake news, and misinformation online* (281-306). Hershey, PA: IGI-Global

Kroh, M. (2007). Measuring left-right political orientation: the choice of response format. *Public opinion quarterly, 71*(2). https://doi.org/10.1093/poq/nfm009

Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., . . . Zittrain, J. L. (2018). The science of fake news: Addressing fake news requires a multidisciplinary effort. *Science, 359*(6380), 1094-1096. https://doi.org/10.1126/science.aao2998

van der Linden, S., Leiserowitz, A., Rosenthal, S., & Maibach, E. (2017). Inoculating the public against misinformation about climate change. *Global challenges,1*. https://doi.org/10.1002/gch2.201600008

Lutzke, L., Drummond, C., Slovic, P., & Árvai, J., (2019). Priming critical thinking: simple interventions limit the influence of fake news about climate change on Facebook. *Global environmental change, 58.* https://doi.org/10.1016/j.gloenvcha.2019.101964

Maslin, M. (2020, February 12th). The five pillars of climate change denial. *The Conversation US*. Retrieved from https://www.snopes.com/news/2020/02/12/the-five-pillars-of-   climate-change-denial/

McCright, A, M. (2010). The effects of gender on climate change knowledge and concern in the American public. *Population and environment, 32.* 66-87. https://doi.org/10.1007/s11111-010-0113-1

Mena, P. (2019). Cleaning up social media: the effect of warning labels on likelihood of sharing false news on Facebook. *Policy & internet, 11*(4). https://doi.org/10.1002/poi3.214

Miller, B. (2019, March 12th). Trump tweets climate change skeptic in latest denial of science. *CNN.* Retrieved from https://edition.cnn.com/2019/03/12/us/trump-climate-change-tweet-patrick-moore/index.html

Pratto, F., & Stallworth, L. M. (1997). The gender gap: Differences in political attitudes and social domination orientation. *British journal of social psychology, 36.* 49-68. https://doi.org/ 10.1111/j.2044-8309.1997.tb01118.x

Rodden, J. (2010). The geographic distribution of political preferences. *Annual review of political science, 13* (321-340) https://doi.org/10.1146/annurev.polisci.12.031607.092945

Siegrist, M., Earle, T. C., & Gutscher, H. (2003). Test of a trust and confidence model in the applied context of electromagnetic field (EMF) risks. *Risk analysis, 23*(4). https://doi.org/0272- 4332/03/1200-0705$22.00/1

Talwar, S., Dhir, A., Kaur, P., Zafar, N., & Alrasheedy, M. (2019). Why do people share fake news? Associations between the dark side of social media and fake news sharing behaviour. *Journal of retailing and consumer services, 51.* 72-82. https://doi.org/10.1016/j.jretconser.2019.05.026

Tandoc Jr., E. C. (2019). The facts of fake news: A research review. *Sociology Compass, 13*(9), e12724. https://doi.org/10.1111/soc4.12724

Visschers, V. H. M., & Siegrist, M. (2018). Differences in risk perception between hazards and between individuals In M. Raue, E. Lermer, & Streicher, B (Ed). *Psychological perspectives on risk and risk analysis.* (pp. 63-80). Cham, Switzerland: Springer.

Vosoughi, S., Roy, D., & Aral, S. (2018). The spread of true and false news online. *Social science, 359.* 1146-1151. https://doi.org/10.1126/science.aap9559

Appendices

Appendix A – Informed consent

Informed consent

This research is conducted for academical purposes only and is absolutely voluntary. This means that you have the right to withdraw from the study at any given moment. The questionnaire is anonymous. All information given will not be traceable to a specific participant. This study concerns social media items related to the global climate change debate.

This questionnaire consists of pictures you are asked to observe as well as general questions. This will take approximately 10-15 minutes to complete. Please answer all the questions to the best of your ability and as honestly as possible. Mind that there are no right or wrong answers.

By clicking on the **I agree** button and proceeding to the next page, you agree that you have read the above information and that you give your consent for the use of your answers in this research

Appendix B – Questionnaire

Demographics

First, you will be asked some demographical questions

What is your gender?

- Man

- Woman

- Other/non-binary

What is your age?

[Fill in]

What is your nationality?

- Dutch

- German

- Other European

- Other non-European

What is your current occupation?

- Student

- Working student

- Working/employed

- Currently unemployed

- Retired

Two Tweets concerning climate change statements will be shown to you now. Please, observe and read these posts thoroughly before proceeding with the questions.

The first tweet is a response to someone talking about the documentary by former vice-president and presidential candidate of the USA Al Gore, which was pro-climate change. The tweet is in Dutch.

Translation:

"Ofcourse not, Al Gore's film is absolute nonsense. There is no increase in extreme weather conditions. Global warming is way lower than has always been predicted. More CO2 has an amazingly positive effect on plantgrowth. Smog in India has nothing to do with CO2. Etc."

> Welnee, die film van Gore slaat echt werkelijk helemaal nergens op. Er is geen toename in extreme weersomstandigheden. Het klimaat warmt veel minder op dan altijd voorspeld. Meer CO2 heeft geweldig positief effect op plantengroei. Smog in India heeft niets met CO2 te maken. Etc.

Please, indicate to what extent you agree with the following statements

I think this Tweet speaks the truth
1. Completely disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Completely agree

I think the Tweet's information is accurate
1. Completely disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Completely agree

I trust this Tweet
1. Completely disagree
2. Disagree
3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I believe this Tweet

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

The Tweet is reliable in its content

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I would be likely to give this Tweet a like

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I would be likely to share this Tweet on my own profile

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

The next Tweet also concerns statements on climate change. Please observe the picture and then indicate to what extent you agree with the statements.

Patrick Moore, co-founder of Greenpeace: "The whole climate crisis is not only Fake News, it's Fake Science. There is no climate crisis, there's weather and climate all around the world, and in fact carbon dioxide is the main building block of all life." @foxandfriends Wow!

♡ 100K   1:29 PM - Mar 12, 2019   ⓘ

💬 63.1K people are talking about this   ＞

Please, indicate to what extent you agree with the following statements

I think this Tweet speaks the truth

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I think the Tweet's information is accurate

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I trust this Tweet

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I believe this Tweet

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

The Tweet is reliable in its content

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I would be likely to give this Tweet a like

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I would be likely to share this Tweet on my own profile

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

Now, you will be asked some questions regarding your personal opinion on global climate change. Please, indicate to what extent the following statements apply to you

I believe that climate change is an actual and real phenomenon happening today

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I believe that human activities are (partly) responsible for global climate change

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I am concerned about global climate change

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I believe that climate change has harmful consequences for the world's environment and society

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

Climate change has a negative effect on our lives

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

I believe global climate change can impact future generations

1. Completely disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Completely agree

I believe there is scientific evidence for global climate change

1. Completely disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Completely agree

I believe that large political measures (such as the 2015 Paris Agreement) are effective in tackling climate change

1. Completely disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Completely agree

The actions of individuals can make a positive difference in global climate change

1. Completely disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree

6. Agree

7. Completely agree

Knowing about environmental problems is important to me

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

Please, indicate the answer that most applies to you

Over all, my political preference/tendency can best be described as

1. Completely left-wing

2. Left-wing

3. Somewhat left from the centre

4. Neither left-wing nor right-wing / in the centre

5. Somewhat right from the centre

6. Right-wing

7. Completely right-wing

My general opinions comply most with parties that are

1. Strongly left-wing

2. Left-wing

3. Somewhat left-wing

4. Neither left-wing nor right-wing / in the centre

5. Somewhat right-wing

6. Right-wing

7. Strongly right-wing

When I go out to vote, I usually vote for parties that are

1. Strongly left-wing
2. Left-wing
3. Somewat left-wing
4. Neither left-wing nor right-wing / in the centre
5. Somewhat right-wing
6. Right-wing
7. Strongly right-wing

When it concerns national/global issues, I feel like my political opinion complies with actions/statements that are

1. Strongly left-wing
2. Left-wing
3. Somewhat left-wing
4. Not left nor right/in the centre
5. Somewhat right-wing
6. Right-wing
7. Strongly right-wing

I engage in political activism (e.g. protests, school/work strikes etc)

1. Completely disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree
6. Agree
7. Completely agree

I regard the statements of leaders who represent my preferred political party as trustworthy

1. Completely disagree
2. Disagree
3. Somewhat disagree
4. Neither agree nor disagree
5. Somewhat agree

6. Agree

7. Completely agree

I trust the leaders who are representing my political preference

1. Completely disagree

2. Disagree

3. Somewhat disagree

4. Neither agree nor disagree

5. Somewhat agree

6. Agree

7. Completely agree

Debriefing/closing statement

This study intended to measure trust in right-wing climate statements, in relation to personal climate change attitudes, to see whether these factors are related. Political preference/behaviour was measured to test whether this is of influence on the main two variables.

The two tweet screenshots that have been displayed to you were posted by president Trump of the United States and by right-wing Dutch politician Thierry Baudet. Please mind that these two tweets have either been proven to be inaccurate or disputed and are highly politically-loaded/subjective. For trustworthy information regarding climate change, it is best to consult scientifically proven sources.

If you have any questions or remarks concerning the study, you can contact Maud van den Esschert (student)

By clicking on the arrow right-below, you send in your results.

Thank you for your participation. This is the end of the questionnaire.

Appendix C – Stimuli pictures

Figure 1.

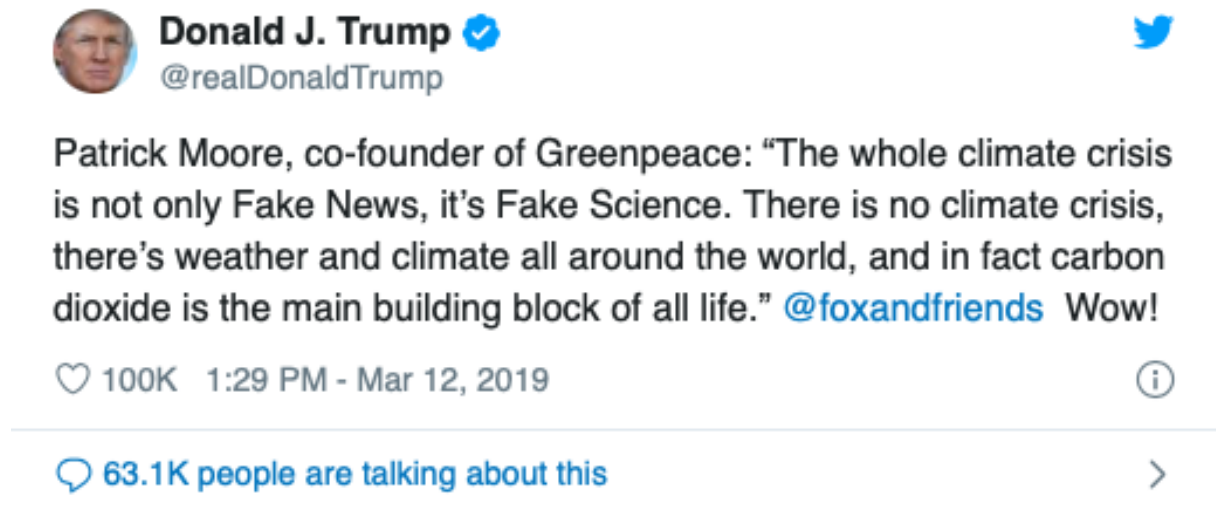*Screenshot of Donald Trump's tweet about climate change*

Figure 2.

Screenshot of Thierry Baudet's tweet about climate change.

Appendix D – Figures

Figure 1.
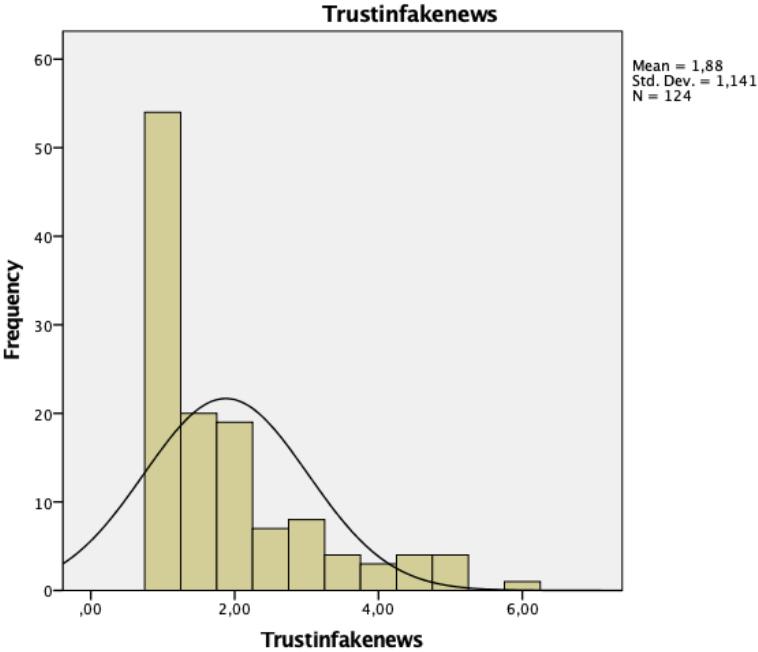
Histogram on frequencies in the variable trust.

Figure 2.
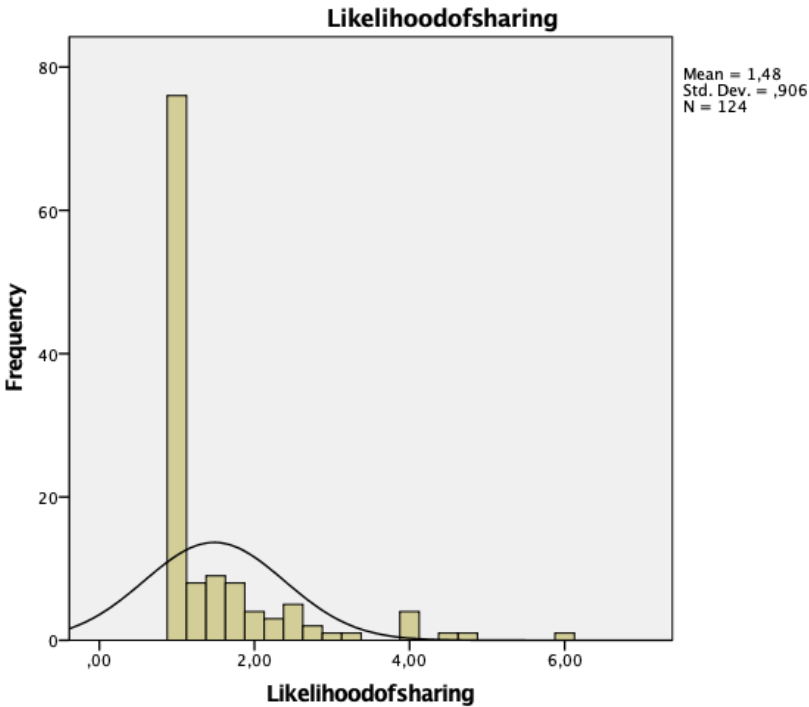*Histogram on frequencies in the variable likelihood of sharing*

Figure 3.

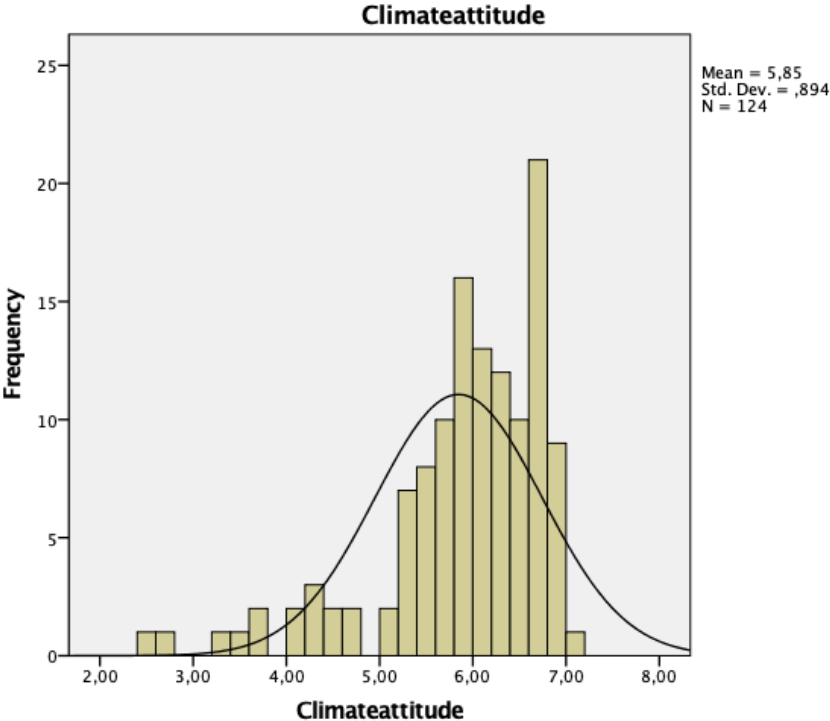*Histogram on frequencies in the variable climate attitude*

Figure 4.

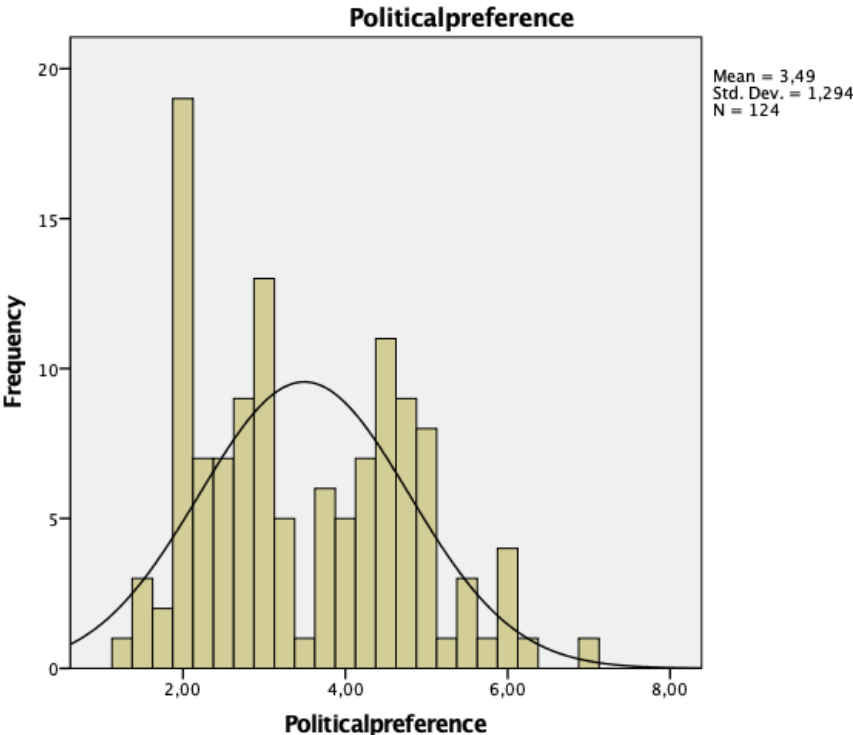*Histogram on frequencies in the variable political preference.*

Figure 5.
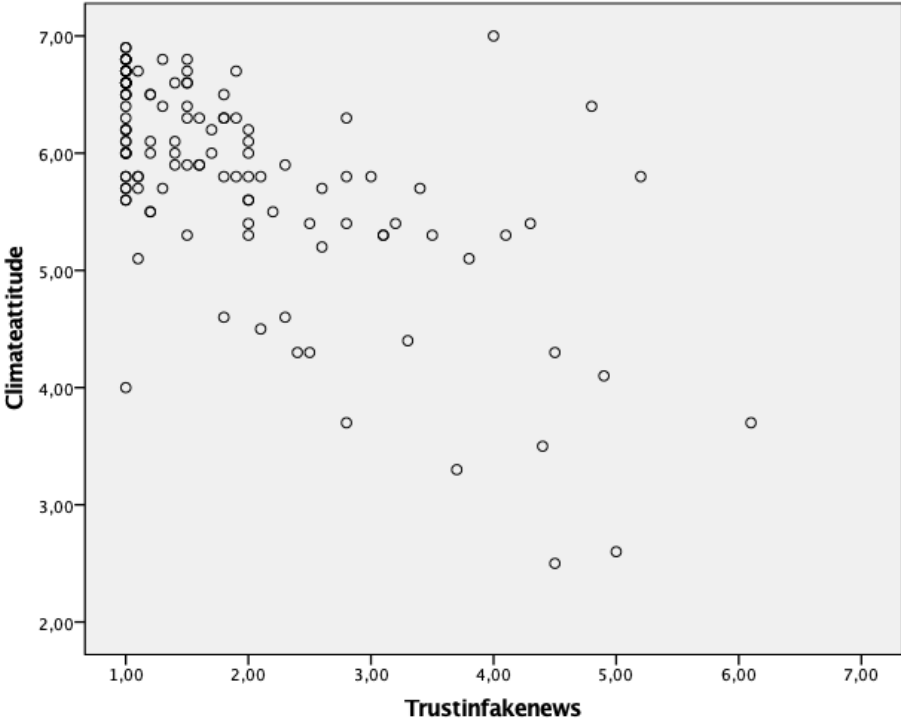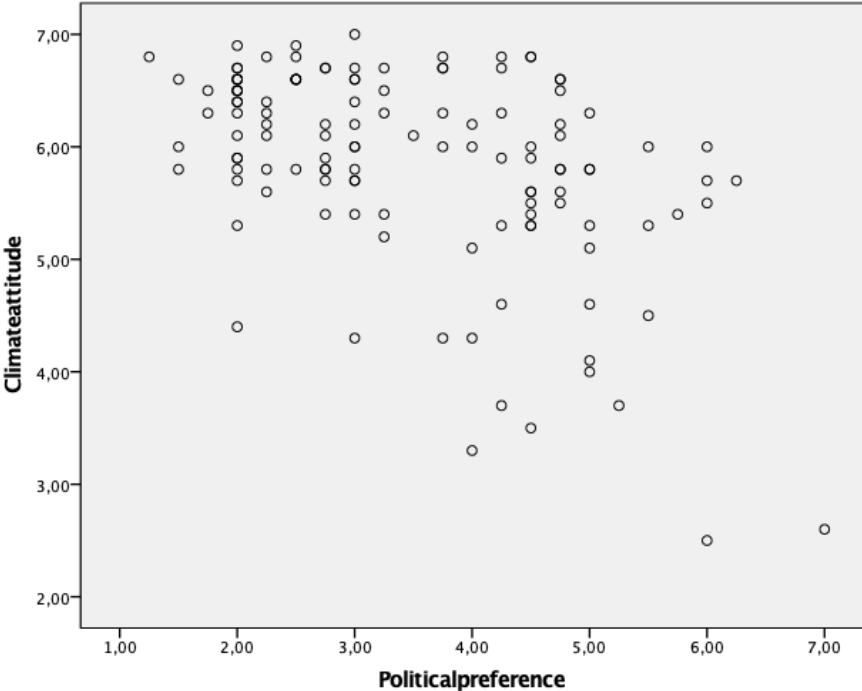*Scatterplot of the correlation between trust and climate attitudes.*

Figure 6.
Scatterplot of the correlation between political preference and climate attitudes.

Appendix E – Tables

Table 1.

Independent samples t-test for differences grouped by gender

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Standard Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Trust in Tweets	Equal variances assumed	7.03	.009	1.27	122	.207	.26	.20	-.15	.66
	Equal variances not assumed			1.25	104.41	.214	.26	.21	-.15	.67
Likelihood of sharing	Equal variances assumed	6.40	.013	1.56	122	.121	.25	.16	-.07	.57
	Equal variances not assumed			1.53	97.12	.129	.25	.17	-.08	.58
Climate attitude	Equal variances assumed	9.07	.003	-3.06	122	.003	.,48	.16	-.78	-.17

	Equal variances not assumed			-2.99	94.99	.004	-.48	.16	-.79	-.16
Political preference	Equal variances assumed	1.61	.207	2.28	122	.025	.52	.23	.07	.97
	Equal variances not assumed			2.26	117.50	.025	.52	.23	.07	.98

Table 2.

One-way ANOVA test for age

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Trustinfakenews	Between Groups	8.74	5	1.75	1.36	.243
	Within Groups	15.41	118	1.28		
	Total	160,16	123			
Likelihoodofsharing	Between Groups	8.04	5	1.61	2.04	.078
	Within Groups	92.86	118	.79		
	Total	100.90	123			
Climateattitude	Between Groups	8.36	5	1.67	2.19	.059
	Within Groups	89.97	118	.76		
	Total	98.33	123			
Politicalpreference	Between Groups	3.01	5	.60	.35	.882
	Within Groups	203.05	118	1.72		
	Total	206.06	123			

Table 3.

One-way ANOVA test for nationality

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Trustinfakenews	Between Groups	3.51	3	1.17	.90	.445
	Within Groups	156.65	120	1.31		
	Total	160.16	123			
Likelihoodofsharing	Between Groups	2.13	3	.71	.86	.463
	Within Groups	98.77	120	.82		
	Total	100.90	123			
Climateattitude	Between Groups	.76	3	.25	.31	.818
	Within Groups	97.57	120	.81		
	Total	98.33	123			
Politicalpreference	Between Groups	1.14	3	.38	.22	.881
	Within Groups	204.92	120	1.71		
	Total	20.06	123			

Table 4.

One-way ANOVA test for occupation

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Trustinfakenews	Between Groups	2.43	4	.61	.46	,766
	Within Groups	157.73	119	1.33		
	Total	160.16	123			
Likelihoodofsharing	Between Groups	2.33	4	.58	.70	,592
	Within Groups	98.57	119	.83		

	Total	100.90	123			
Climateattitude	Between Groups	4.60	4	1.15	1.46	,219
	Within Groups	93.74	119	.79		
	Total	98.33	123			
Politicalpreference	Between Groups	3.58	4	.90	.53	,717
	Within Groups	202.48	119	1.70		
	Total	206.06	123			