Master Thesis Behavioural Economics

Polarization in social media

A closer look at polarization on YouTube through platform-user interaction

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Foreword

Writing my thesis during the COVID-19 pandemic was quite a challenge to me. Not being able to easily speak to and share ideas with fellow students and professors meant that I had to rely more on myself for motivation and inspiration. Luckily for me, first Benjamin Tereick and later Aurelien Baillon were very understanding as supervisors. I want to thank both for supporting me through this process. First, my thanks go out to Benjamin for helping me with setting up a research topic and the corresponding experimental process. Next, I sincerely want to thank Aurelien for supporting me with the writing process of my thesis. I have him to thank for re-motivating me and helping me structure the working process to get the writing process on the rails. I am glad that I was assigned a supervisor that was able to help me as much as Aurelien did, whilst also giving me the freedom to personalize my thesis. In closing thoughts, I hope that whoever reads this thesis will learn something from it and has an enjoyable time doing so.

Abstract

There is an increasing belief that algorithms used by social media, particularly YouTube, guide users to ever more extreme content. Little research has been done on this matter of which close to none are experimental. Therefore, this thesis uses an experiment to answer the research question: "Does following interesting choices recommended by YouTube's algorithm lead down a path of ever more polarizing content?". In the experiment participants are given a starting video on a topic with controversial opinions, gender-inequality and are asked to follow interesting recommended videos. Using the Pairwise t-test and the Wilcoxon sign-rank test the videos the participants ended on are compared to the starting videos. From the results it cannot be concluded that the ending videos are more polarizing, use more clickbait or are less trustworthy. Hence, in this situation it cannot be said that YouTube's algorithm guides people to ever more polarizing videos.

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1 Introduction

1.1 Introduction to the topic

In recent times it appears to have become more common for people to pick up biased, or even extremist views through online platforms, including, for a large share social media. There seems to be a belief that social media, and in particular YouTube, twitter and Facebook contribute to the polarization of its users. For YouTube it seems to some, such as Tufekci, Z. (2018) and Nicas, J. (2018) that its algorithm is more likely to guide people towards polarizing content compared to other content. Others, such as Munger, K., & Phillips, J. (2019) claim that this is merely due to supply and demand, or in other words: sensation sells well. So which roles do YouTube and its algorithm play in polarization?

1.2 Main research question

To answer part of the previous question this research focuses on how YouTube's algorithm interacts directly with its users through the platform. Due to resource restrictions, this research mainly focuses on how YouTube and its algorithm operate in the Netherlands. For this research, as further explained in the chapter Review of Literature, the following research question is created:

Does following interesting choices recommended by YouTube's algorithm lead down a path of ever more polarizing content?

1.3 The relevance of the subject

Polarization, biases and extremist views can be very dangerous if they are widely present in a society. Acts of terrorism, right-wing populism and discrimination are all products of polarization, biases and/or extremist views which have historically proven to be very damaging. Hence, it is important to understand where these views come from and where and how they are cultivated, to prevent them from spreading. This research contributes to answering the question what role social media platforms play in the seemingly increasing polarization, focusing on YouTube in particular. Multiple media outlets have been interested in this issue, such as the Greater Good Magazine, which asked the question if social media is driving political polarization (de-Wit, Brick & van der Linden, 2019). Articles such as this one however, go into different aspects of polarization and do not mainly focus on the role of the social media platform and its direct interaction with its users. Hence this research adds to the existing literature.

1.4 The underlying theory for answering the problem

Because social media is still very new and constantly changing, there are few theories regarding how it operates and affects society. This can also be seen from the fact that this research focusses on explaining part of the role of social media. Theory regarding polarization, is also reviewed to assist in answering the research question. Research by Conover, Ratkiewicz, Francisco, Gonçalves, Menczer and Flammini (2011) focusses on Political polarization on twitter and concludes that polarization is present in social media.

1.5 Structure

2 Review of literature

In this chapter I examine and discuss existing literature. From the existing literature it becomes clear which parts of the research topic are still left to be explored and what some of the current best practices are.

3 Experimental design

As the title suggests, in this chapter I describe the design of the experiment conducted for this research. This gives a detailed explanation of where the results come from, how the results are processed and why it is done this way, to make sure that the research is reproduceable.

4 Results

This chapter shows the results of the experiment. Various statistical tests are used to analyze the raw data to check for potential issues and to draw a statistical conclusion. The statistical conclusion consists of the result of the statistical tests and their interpretation.

5 Discussion

The discussion covers the strong points and limitations of the research to provide context to the results. In this chapter I also sketch what an ideal design of the research would be, given the same topic.

6 Conclusion

With the results and its context an overall conclusion is made with regards to the research question. In this chapter I answer the research question and sub-questions and I give the take-aways I concluded from the thesis.

2 Review of literature

To explore the literature in the field of this research I looked at three different types of research. First, I investigated articles and research that would give me an insight in the public opinion regarding polarization on YouTube, or other social media. These articles are used to shape the form of the research and the research question by assessing what the current (unproven) understanding of the topic may be and what still needs to be researched. Second, after gaining an understanding of what part of the topic should be investigated, I researched other academic works that did similar researches. These articles can help in shaping this research by trying to fill holes that are not yet explained. Third, I investigated other literature that is related to my proposed research but is not quite as similar. This literature can assist in finetuning the research setup.

2.1 Opinionated articles with relevance for the research

First, I found two opinionated articles with regards to general opinion and understanding towards YouTube and its algorithm's role in leading people to polarizing content.

The first article, titled "YouTube, the Great Radicalizer", was written by Zeynep Tufekci in the New York Times. Tufekci (2018) concluded that YouTube's algorithm significantly boosts right wing radicalization and polarization by suggesting ever more extreme content. She, however, does not make use of (nor cites) large experiments or data analysis and the article is based on her personal experience. In this article Tufekci (2018) from The New York Times reports that while investigating a lot of videos of Donald Trump rallies on YouTube for the 2016 US presidential elections she got recommended increasingly more extreme videos. She mentions being recommended videos that featured white supremacist rants and holocaust deniers. She then performed some personal smaller tests where even with non-political content such as vegetarianism, she still got recommended more extreme videos, in this case, videos about veganism.

The second article, titled "How YouTube Drives People to the Internet's Darkest Corners", was written by Jack Nicas for the Wall Street Journal. Nicas (2018), like Tufekci, suggests in his article that YouTube and its algorithm are more likely to display and recommend polarizing and radical content compared to established media, for example TV-networks, but also Google. Nicas (2018) shows through examples that when searching certain topics on both YouTube and Google, YouTube more often recommended videos that can be associated with conspiracy theories and

extremist views compared to Google. Again, however, this article is based mostly on personal findings and less so on data analysis or large experiments.

Both articles also mention that YouTube recommending more extreme videos is a widely shared sentiment and this was also seen in other less credible articles. Overall, it does seem like the general opinion is that YouTube's recommendation system, in perhaps differing degrees of power recommends people more extreme content then where they started at.

2.2 Papers found with relevant topics directly related to my experiment

Next, I found three academic papers that, through data analysis, explain three different parts of the workings of polarization on YouTube.

The first paper I found is titled "Auditing Radicalization Pathways on YouTube", written by Manoel Horta Ribeiro, Raphael Ottoni, Robert West, Virgílio A. F. Almeida and Wagner Meira Jr. Ribeiro et al. (2020) analyze data on videos to see whether and how often people who watch moderate right leaning videos end up consuming far right content. They show that a significant share of far-right viewers started by watching more moderate right leaning videos, suggesting that these moderate videos are a gateway to far right videos. This research however does not focus on the specifics of direct video to video progression. Instead this analysis was done over a longer time period, focusing on how viewers watch further right-leaning videos over the course of weeks, months or even years. In comparison, a setup for evaluating the interaction of YouTube's algorithm and a person's interest will most likely focus on immediate path taking.

The second paper is titled "Users Polarization on Facebook and Youtube", written by Alessandro Bessi, Fabiana Zollo, Michela Del Vicario, Michelangelo Puliga, Antonio Scala, Guido Caldarelli, Brian Uzzi and Walter Quattrociocchi. This paper by Bessi et al. (2016) focusses on the presence of polarized groups, or echo chambers, on the platforms YouTube and Facebook. They establish that there are indeed large echo chambers on both YouTube and Facebook and that information from one platform can be used to predict polarization on the other platform. The researchers mention that this could be due to inherent confirmation bias and human behavior or by means of the platforms algorithms but do not draw a direct conclusion as to which is more prevalent. This research does not use an experiment and does not directly look at YouTube's algorithm and its effect in combination with personal interest. This research focusses more so on the presence of polarized groups, leaving room for investigating immediate polarization pathways.

The third paper is titled "A Supply and Demand Framework for YouTube Politics", written by Kevin Munger and Joseph Phillips. Munger and Phillips (2019) investigate the supply and demand side of YouTube content consumption in their paper. They analyze data of different types of content and set up an explanation for this in the form of supply from the content creators and demand from the viewers. This paper explains that content creators try to make their videos appear more interesting by adding interesting title's, clickbait or interesting thumbnails to catch potential viewers' attention. This research focusses only on the watcher's interest in the videos and does not focus on the role of YouTube's algorithm in the consumption of videos.

Overall, these research papers support the claims made in the previously discussed opinionated articles that YouTube as a whole can in some cases lead to people consuming more extreme and polarizing content. However, these papers focus on different aspects as to why that may be the case, primarily attributing it to, YouTube's algorithm, human behavior and echo chambers perhaps being a combination of the two. However, none of these researches have made use of an experiment or focused on immediate person-platform interaction.

2.3 Overall takeaways

There is very little substantial research with regards to YouTube's algorithm and its role in polarization of its users, especially regarding people's immediate video pathways. Whilst multiple researches bring up YouTube's algorithm as a potential catalyst in the radicalization process, the main research done with this regard is data analysis. Relying on data analysis gives a clearer picture of the overall magnitude of polarization on the platform, or at least certain parts of it. Data analysis also uses true actions as opposed to simulated actions or intent, which validifies the results more. Data analysis, however, does not show personal interaction with the platform and individual pathways of content consumption. This leaves a gap in the existing literature in the form of experiments. Drawing direct conclusions from the existing literature may hence be difficult. There is evidence that suggests that the algorithm is a driver in polarization or at least guides users to more polarized content. Hence, an experiment where people directly use YouTube as it is designed, relying on their own interests, but guided by YouTube's algorithm, could give more insights in polarization on the platform.

2.4 Polarization

Lastly, I found one academic paper that helps with conceptualizing polarization in the context of this research.

This article is titled “Dynamics of Political Polarization”, written by Delia Baldassarri and Peter Bearman. Baldassarri and Bearman (2007) describe the presence of polarization as the existence of multiple groups that have a high degree of homogeneity within each group and a high degree of heterogeneity across groups. These groups must also be significantly sized for them to be relevant. This means that keeping all else constant, if groups with a high degree of heterogeneity across each other get an even higher degree of heterogeneity, or if groups with a high degree of heterogeneity across each other get larger, overall polarization increases. When a combination of the two happens in opposite directions, or if groups split up it may be more difficult to ascertain the increase or decrease of polarization.

In the context of this research overall polarization can thus be explained as the presence of groups of content consumers on YouTube that consume similarly opinionated content to others within their group but consume very differently opinionated content compared to content consumer of other groups. And thus, polarizing content or mechanisms and the process of polarization may be viewed as content, mechanisms or a process that stimulate the divergence in opinions between the groups or that increase that amount of people that are in these very different groups.

2.5 Main research question

This thesis investigates polarization in social media, specifically, YouTube. YouTube’s algorithm helps people find content they would probably like to watch by recommending videos that are similar to the ones they have already watched, or that were also watched by other people with similar viewing behavior. As seen in the literature, when trying to get more views, other than relying on the algorithm, some content creators try to make their videos appear more interesting by adding interesting title’s, clickbait or interesting thumbnails. It is also known that YouTube is a host to content that can be biased, misleading or polarizing. From the preceding opinionated articles there also seems to be an idea amongst many people that YouTube’s recommendation system leads people down a rabbit hole of ever more polarizing videos. Different from previously explored existing literature, this research aims to find out what effect YouTube’s algorithm has in combination with personal interest and other ways of getting people to watch content previously

mentioned. This leaves the question which role YouTube has in guiding people to this content, keeping in mind that people's attention may be drawn quicker when videos use techniques to appear more interesting. Therefore, the goal of this research is to test through an experiment to which degree people are led to polarizing content when they follow recommended videos they might be interested in.

2.6 Hypotheses:

The hypotheses focus on a situation like in the experiment, where a person starts by watching a video, the starting video, then views a few of the recommended video to end at a video, the ending video. These hypotheses are formed based on conclusions drawn from existing literature.

Hypothesis 1

The first hypothesis focuses on the main research question and is as follows:

Following interesting recommended videos on YouTube will lead to more polarizing content.

Hypothesis 2

The second hypothesis focuses on the usage of clickbait. Clickbait is used to attract a user's attention to generate clicks, meaning that this could be a more dominant factor than the YouTube algorithm in leading people to potentially polarizing content. The second hypothesis is thus as follows:

People are more likely to click on recommended videos that use more clickbait.

Hypothesis 3

The third hypothesis is focused on trustworthiness of the content. A higher polarization of the content and a higher prevalence of clickbait usage would suggest that the content would be less trustworthy. Trustworthiness should thus go down if clickbait usage and polarization is expected to go up. Thus, the hypothesis is as follows:

As people follow interesting recommended videos on YouTube, the trustworthiness of the videos shown goes down.

3 Method

The study is separated in three different parts; a survey, a task/experiment and an evaluation. The survey consists of basic questions and questions on the results of the task asked of the participants. This task for the participants was to follow a path of one given video and five additional videos they found interesting on YouTube and report back the last video they ended on. This task can also be seen as an experiment. The last part of the study is an evaluation of the ending videos of the participants based on four criteria, performed by eight evaluators to transform the links of the videos into workable data. The survey was conducted online to gain access to a larger number of participants. Unfortunately performing an online survey is the only viable way to conduct the experiment for this research because of lack of resources, the current global COVID-19 pandemic and the aim to have enough participants to get significant results. There was one group of participants for the survey and the task and a different group of people who acted as the evaluators for the evaluation. Control outcomes were also derived from following a path of videos without human influence. These control outcomes act as a control group. This control group is used as a reference point to be able to identify an interaction between YouTube and its users. The control outcomes show the result of following recommendations blindly, whereas the participants' outcomes show the result of the participants' interests interacting with YouTube. The outcomes of the participants and the control 'group' is analyzed to measure the differences in relevance, trustworthiness, polarization and clickbait usage in the starting, ending and control videos.

3.1 People

The people selected for the survey and the task largely consist of my own personal connections, located mostly in The Netherlands. They were asked to participate in the experiment and were informed that there would be no fiscal compensation for participating. Most of my connections are also people who use YouTube frequently, meaning that they are still representative of a share of YouTube's users. Overall, this means that the results are still accurate, but most likely not fully representative. The evaluators also consist of my personal connections and are mostly people that frequently use YouTube.

Descriptive statistics participants

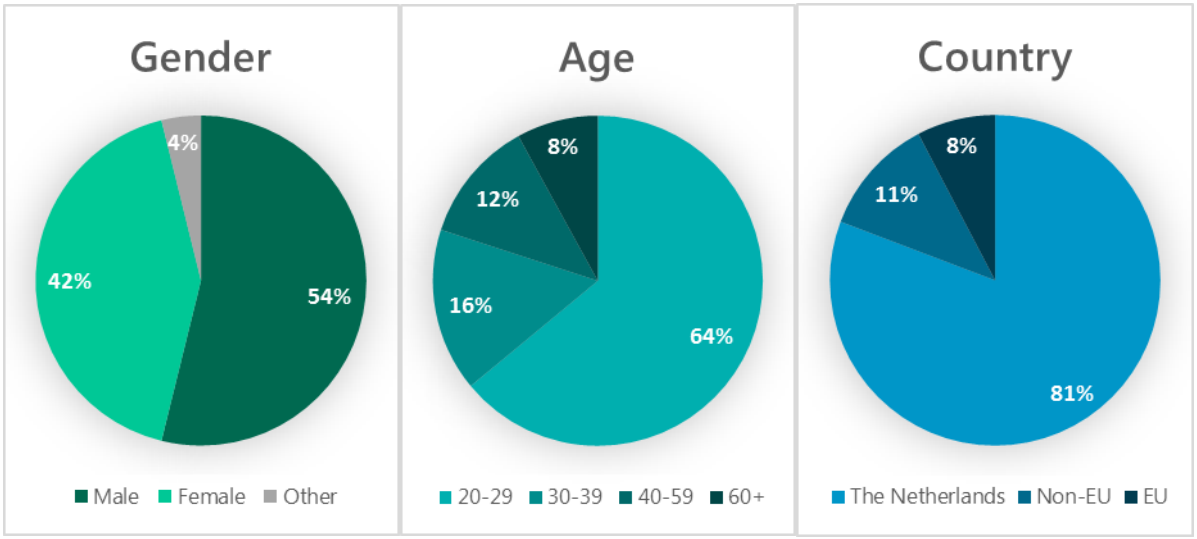

Figure 1 Demographic pie charts: participants' gender, age and country of accessing YouTube

Descriptive statistics Evaluators

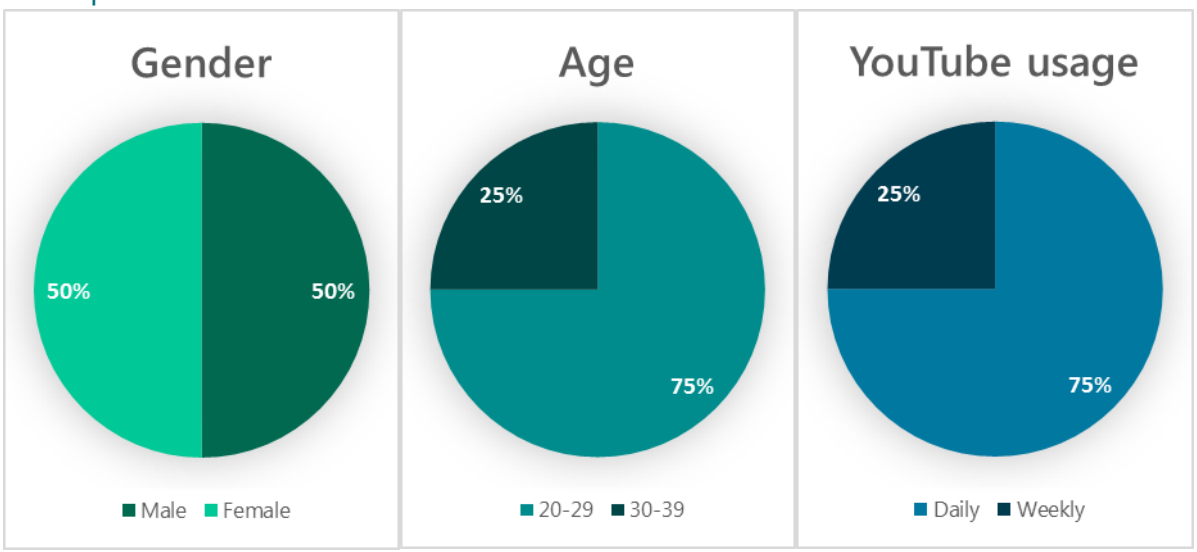

Figure 2 Demographic pie charts: evaluators' gender, age and YouTube usage

3.3 Survey

The survey is a supportive document to assist with the experiment. The survey consists of two different parts; task explanation and questions. In the survey I first made an introductory statement and thanked the participants. Next, in the first part of the survey I guided the participants through the actions they had to undertake to complete the task. In the survey I explained how to open a private browser and I explain that this is necessary to avoid skewing the data. I then explained the steps in the survey that the participants needed to take. After the explanation I provided a link in the survey to one of the starting videos, chosen at random, and left a text box open for the participants to reply the link of the video they ended on after

following the steps (The links to the starting videos and ending videos are shown in appendix B and C respectively). Lastly, in the second part, after the participants have entered the link of the last video they ended up at, I asked them some basic questions on their demographics, such as age (Figure 1), gender (Figure 1) and education and questions regarding how polarized their last video was, from which country they accessed YouTube (Figure 1), interest/knowledge on the topic (Gender inequality) and personal life YouTube usage. The full survey can be found in Appendix A.

3.4 Task

Participants

As mentioned at the starts of this chapter, the participants were asked to perform a task for this experiment as can also be seen in appendix A, page 2 of the survey. The task consisted of a few steps; firstly, the participants were asked to open an incognito (or similar private) web browser. This step is very important, because if this step was not performed, then YouTube's recommendations would have been biased based on what kind of videos the participant had watched before entering the experiment. Secondly, the participants were asked to open the YouTube link given to them in the private web browser. For this experiment 31 different starting videos were used, and every participant was shown one of these 31 videos at random (The 31 starting videos can be found in appendix B). Thirdly, participants were asked to look at the right-hand side of the page at the video recommendations and click any video that looked interesting. They did not have to watch the video they clicked. The participants were asked to repeat this process 5 times, meaning that including the link send to them at the start they had accessed 6 videos. Lastly, the participants were asked to report back the link of the last (6^{th}) video they had clicked.

Control outcomes

The control 'group' was generated by me. I followed the same steps as the participants. However, instead of clicking any recommended video I found interesting, I chose the first recommended video by YouTube 5 times. The control group consists of 31 entries, one per starting video (The 31 control videos can be found in appendix D). Each control video (outcome) is connected to a starting video, such that the first starting video S1 resulted in the first control video C1, S2 in C2 and so on. Each entry was conducted in a fresh private browser to prevent previous entries from skewing the results.

3.5 Evaluation

After the participants were done, all the videos were evaluated by a different group, the evaluators. The videos this group evaluated were all the starting videos that were shown to participants through the random selection, all the control videos connected to these starting videos and all the ending videos that the participants ended on starting from these starting videos. This means that all the starting videos and control videos linked with them that did not get shown to participants through random selection were left out of the evaluation. This was done because the analysis of the results will be performed on paths people took, meaning that all ending videos are connected to a starting video and a control video. This in turn means that the videos the participants ended on have no connections to the unshown starting videos and hence, it was not relevant to analyze these starting videos for my research. The people that evaluated these videos, again, consisted of my personal connections. There were eight different evaluators to diminish the chances of having individual evaluators' biases in the evaluations. The eight evaluators were also asked some questions regarding their gender, age and YouTube usage (Figure 2). These eight evaluators evaluated all the videos relevant for the research on four criteria, being; relevance, trustworthiness, polarization and clickbait usage of the video on a scale from 1 to 10 (see appendix E for the evaluation survey with one example video). Because intensely analyzing all the videos was a task too large to ask for from the evaluators that helped without compensation, the evaluation was only on the video titles, not the entire video. This means that the evaluation is less accurate, because the video title is not always very telling of the video's content.

3.6 Hypotheses

Hypothesis 1

Following interesting recommended videos on YouTube will lead to more polarizing content.

To test the first hypothesis in this experiment the starting video, which the participant got linked in the survey, is compared to the ending video, which the participant reported back in the survey. The first hypothesis regards the videos' evaluation on the criterium polarization. The null- and the alternative hypotheses are as follows:

H0: The level of polarization of the starting videos is equal to, or higher than the level of polarization of the ending videos.
Ha: The level of polarization of the starting videos is lower than the level of polarization of the ending videos

Hypothesis 2

People are more likely to click on recommended videos that use more clickbait.

The second hypothesis uses the videos' evaluation on the criterium clickbait usage. The null- and the alternative hypotheses are as follows:
H0: Clickbait usage in the starting video is equal to, or higher than clickbait usage in the ending videos
Ha: Clickbait usage in the starting videos is lower than clickbait usage in the ending videos

Hypothesis 3

As people follow interesting recommended videos on YouTube, the trustworthiness of the videos shown goes down.

The third and final hypothesis is applied on the videos' evaluation on the criterium trustworthiness. The null- and the alternative hypotheses are as follows:
H0: The trustworthiness of the starting videos is equal to, or lower than the trustworthiness of the ending videos
Ha: The trustworthiness of the starting videos is higher than the trustworthiness of the ending videos

3.7 Statistical testing

First, statistical tests are performed on the evaluations by the evaluators on the videos to evaluate the data on two aspects. First, to evaluate if the different evaluation criteria are measuring the same, or different latent concepts Cronbach's Alpha is used. This is done to test if the evaluators are using the different criteria separate from each other, not using them as if they were all the same. Second, to evaluate if none of the evaluators misunderstood the instruction or answered very different from the other evaluators, a correlation is ran between all the evaluators. If any of the evaluators' evaluations is an outlier, their evaluation may be excluded.

Next, the pairwise t-test and the Wilcoxon sign-rank test are used to test the hypotheses. These tests are done to analyze the differences between the starting videos, the ending videos and the

control videos. First, pairwise t-tests are done to compare the average evaluations of the starting videos with the average evaluations of the ending videos and control videos separately. The pairwise t-test is a well-fitting test in this situation to compare the means since the starting, ending and control videos are connected, or individually paired. Second, Wilcoxon sign-rank tests are done as a control test to make sure that the results from the pairwise t-tests were not skewed by outliers. Since the Wilcoxon sign-rank test ignores the magnitude of the differences it may not be the best to draw conclusions, but this feature makes it excellent to be used as a control test. Combined, the two tests give an accurate result on the differences between the three video groups. The results from these statistical tests are used to test the hypotheses formed above.

4 Results

4.1 Cronbach's Alpha:

First, I performed a test to see whether the different evaluation criteria were measuring the same latent concept.

The videos were evaluated based on 4 different criteria; "Relevance", "Polarization", "Clickbait" and "Trustworthiness", as can also be seen in appendix F. The Relevance criterium was created to check if the videos were off topic, whereas the other criteria were created to evaluate the content of the videos. Cronbach's alpha was used to test whether the criteria Polarization, Clickbait and Trustworthiness evaluate the same latent concept. For this test the values for Trustworthiness were inverted such that a polarizing, clickbait using, untrustworthy video would obtain high scores on all evaluation criteria. When using Cronbach's alpha, depending on the circumstances (how strict measurement should be), rule of thumb can be used to say that a score of 0.7 or higher indicates acceptable similarity. (Nunally, 1978) Hence, for this test I deem a score of 0.7 or higher as indication that the criteria measure the same latent concept.

In this dataset the Cronbach's Alpha was 0.3836 for Polarization, Clickbait and Trustworthiness, 0.47 for Polarization and Clickbait, 0.27 for Trustworthiness and Clickbait and 0.04 for Polarization and Trustworthiness. Overall, the tests show that there is not enough evidence for similarity, thus meaning that there is no indication that Polarization, Clickbait and Trustworthiness measure the same latent concept.

4.2 Correlation:

Next, I tested whether all evaluators interpreted the criteria similarly to each other by computing the correlation between the evaluators. The individual evaluations can be found in appendix F.

To make sure that the data from the evaluations is not severely skewed as a result of one of the evaluators' extreme opinions or misunderstanding, testing is done. To test this, the correlation between the evaluations of the evaluators are calculated. The calculated correlations are as follows:

	Eval 1	Eval 2	Eval 3	Eval 4	Eval 5	Eval 6	Eval 7	Eval 8
Eval 1	1.00							
Eval 2	0.36	1.00						
Eval 3	0.58	0.52	1.00					
Eval 4	0.53	0.46	0.60	1.00				
Eval 5	0.60	0.35	0.58	0.47	1.00			
Eval 6	0.53	0.29	0.46	0.50	0.53	1.00		
Eval 7	0.55	0.39	0.65	0.60	0.53	0.55	1.00	
Eval 8	0.56	0.54	0.58	0.56	0.43	0.46	0.57	1.00

Table 1 Correlation between evaluators

The calculations show that most correlations are around 0.5 and that there seem to be no outliers among the evaluators. This indicates that the evaluators have some similarity in their evaluations but are not completely similar. This could imply that overall, most evaluators judged the video titles differently, for example due to their differing personalities. Because there is not one significant outlier from the rest of the evaluators, there is no need to exclude any of the evaluators' evaluations for the analysis of the results.

4.3 Pairwise t-test

To analyze the results of the study (see appendix F), I first use a pairwise t-test to check if there are any significant differences between the different videos.

The first test analyzes if the results of each path taken by the participants shows a significant divergence from the starting video. This is done by performing pairwise t-tests between the starting video of the participants and the ending video of the participants, based on the evaluated relevance, trustworthiness, polarization and clickbait usage of the video. As a control measure pairwise t-tests are also performed between the starting video and the corresponding control video and the ending video and the corresponding control video. The results are as follows:

	Start	End	Control	P-values				
				S = E	S = C	E = C	S < E	S > E
Relevance	8.34	2.77	3.98	0.0000	0.0000	0.0427	1.0000	0.0000
Trustworthiness	4.49	4.38	4.35	0.6336	0.4936	0.8865	0.6832	0.3168
Polarization	5.89	3.64	4.15	0.0000	0.0000	0.1884	1.0000	0.0000
Clickbait	5.92	5.80	5.60	0.7390	0.4120	0.7097	0.6305	0.3695

Table 2 Pairwise t-test results

This table shows the mean values of the starting videos (Start), ending videos (End) and control videos (Control), per evaluation criteria (Relevance, Trustworthiness, Polarization and Clickbait).

The p-values for the two-sided tests in the first three columns indicate the likelihood of seeing a sample mean difference of this magnitude or greater if the sample means are equal, or in other words if the null-hypothesis is true. The P-values for the one-sided tests in the last two columns indicate the likelihood of finding a sample mean difference lower than this (Ha S < E), or higher than this (Ha S > E), if the sample means are equal, or in other words if the null-hypothesis is true. The underlined p-values are the values that can be considered statistically significant, with an alpha of 0.05.

Overall, there is evidence to suggest that the path people took in their videos took them to less relevant videos (and significantly different from what is expected without human input, in Control), videos of a non-significantly different level of trustworthiness (and not significantly different to what is expected without human input, in Control), less polarizing videos (but not significantly different to what is expected without human input, in Control) and videos that use a non-significantly different amount of clickbait (and not significantly different to what is expected without human input in Control).

4.4 Wilcoxon sign-rank test

Next, I studied whether a test other than the pairwise t-test would show the same results, to test previous results and improve the strength of the conclusions.

The second test performed to analyze the data is the Wilcoxon sign-rank test. The Wilcoxon sign-rank test counts the number of positive and negative differences between two samples and sums their ranks as opposed to the pairwise t-test which compares means. This can result in different conclusions if the means were heavily skewed by a few outliers. The results are as follows:

	Start-End				**Start-Control**			
	+	-	Zero	P-value	+	-	Zero	P-value
Relevance	31	0	1	0.0000	30	2	0	0.0000
Trustworthiness	16	14	2	0.6743	17	12	3	0.6473
Polarization	27	3	2	0.0000	27	5	0	0.0000
Clickbait	17	12	3	0.4678	13	18	1	0.9301

	End-Control			
	+	-	Zero	P-value
Relevance	9	22	1	0.0371
Trustworthiness	14	15	3	0.7015
Polarization	14	18	0	0.2800
Clickbait	17	14	1	0.7018

Table 3 Wilcoxon signed-rank test (1): sign count

	Start-End				Start-Control			
	+	-	Zero	P-value	+	-	Zero	P-value
Relevance	527	0	1	0.0000	525	3	0	0.0000
Trustworthiness	285.5	239.5	3	0.6743	286	236	3	0.6473
Polarization	505.5	19.5	3	0.0000	502.5	25.5	0	0.0000
Clickbait	300.5	221.5	6	0.4678	258.5	268.5	1	0.9301

	End-Control			
	+	-	Zero	P-value
Relevance	152.5	374.5	1	0.0371
Trustworthiness	240	282	6	0.7015
Polarization	205.5	322.5	0	0.2800
Clickbait	284.5	242.5	1	0.7018

Table 4 Wilcoxon signed-rank test (2): rank sum

Table 3 shows the number of positive signs between two samples (+), the number of negative signs between two samples (-) and the number of zero outcomes between two samples (Zero). Table 4 shows the sum of the ranks of the positive sings, the negative signs and the zero outcomes. The p-value indicates the likelihood of finding this rank sum distribution or one that is more unequal if the two sample medians are equal, or in other words if the null-hypothesis is true. As before, the underlined p-values are the values that are statistically significant, with an alpha of 0.05. The tests are two-sided.

These results show significant differences in the same criteria as the results from the pairwise t-tests, meaning that the result seen there is supported by the Wilcoxon sing-rank tests.

4.5 Hypotheses results

Hypothesis 1

H0: The level of polarization of the starting videos is equal to, or higher than the level of polarization of the ending videos.

Ha: The level of polarization of the starting videos is lower than the level of polarization of the ending videos

The pairwise t-tests and the Wilcoxon sign-rank tests did not provide enough evidence to reject the null hypothesis.

Hypothesis 2

H0: Clickbait usage in the starting video is equal to, or higher than clickbait usage in the ending videos

Ha: Clickbait usage in the starting videos is lower than clickbait usage in the ending videos

The pairwise t-tests and the Wilcoxon sign-rank tests did not provide enough evidence to reject the null hypothesis.

Hypothesis 3

H0: The trustworthiness of the starting videos is equal to, or lower than the trustworthiness of the ending videos

Ha: The trustworthiness of the starting videos is higher than the trustworthiness of the ending videos

The pairwise t-tests and the Wilcoxon sign-rank tests did not provide enough evidence to reject the null hypothesis.

5 Discussion

5.1 Strong point

This research was conducted through an experiment where people interact with the platform in a way that is as natural as possible. This experiment consisted of having people simulate their behavior after finding a video that covers a topic for which there are controversial opinions. By creating the experiment this way, it can be seen if people interact with YouTube and its algorithm in a way that leads them to polarizing content. This means that this experiment shines light on a different aspect of polarization in YouTube, its content and its users, compared to the existing data analyses.

5.2 Limitations

The experiment was conducted under external restrictions, such as lack of resources and hence was not what it ideally could have been. The following most important limitations of the experiment were identified;

Limitation 1

The evaluation of the videos was done by having different evaluators evaluate the video's based on the video titles. This method of evaluation is somewhat shallow since videos cannot be fully evaluated based on just their titles. A better method of evaluating videos is to have evaluators fully watch all the videos.

Limitation 2

The evaluators sometimes (but not consistently) gave very different evaluations on certain videos. In this research it is not possible to figure out why this is the case. Examples of possible explanations are that some evaluators did not understand the question, were distracted, interpreted the title differently or had different personal opinions. In a better setup, evaluators would all be present in a lab where they are given the same instructions and can ask questions and in addition the evaluators would watch the videos fully. They could also be asked why the evaluated videos in a certain way, to make sure outliers can be better accounted for.

Limitation 3

The participants of the experiment could not be observed, which means that it is unclear if all the participants understood the setup completely and performed it without mistakes. This could have also affected the sample size since participants may have withdrawn from participating in the

experiment if they did not fully understand it. Overall, this is unlikely to skew the results in any particular way, but it may decrease the significance in the findings. In a better setup the participants would be joined by one or multiple experimenters that would explain the experiment to all the participants at the same time, so that everyone would know what they need to do exactly. If things would still be unclear, they could ask questions to the experimenter(s).

Limitation 4

This experiment worked with participants that are directly or indirectly acquainted with me. This means that many of the participants were similar to me and one another in terms of age and education level. Most participants also conducted the experiment in The Netherlands, meaning that they used the Dutch version of YouTube and its algorithm. This in turn means that the results in this experiment may not apply to other countries' YouTube or people of vastly different backgrounds and ages. A more ideal design for the experiment would have participants that are representative of the whole population in question. It could also conduct multiple experiments in different countries or locations to better understand the effect of location on the polarization of YouTube's users.

5.3 Ideal design

An ideal setup for this research question would still work off the baseline off performing an experiment to test the direct video pathways. This is important because this research aims to find more concrete evidence for how people may or may not consume more and more polarizing content, with the focus being on the interaction between user and platform. This ideal experiment can have the same outline as the experiment used currently where participants are asked to browse videos on a specific topic, the starting, ending and control videos would be evaluated, and the results would be analyzed. However, to cover the identified limitations of the current design the three main changes would be:

Firstly, the experiment would be conducted in a controlled environment. A controlled environment would consist of a lab, where the devices participants use all have the same baseline with regards to viewing preferences. Another part of the controlled environment would be to have one or multiple researchers that give instructions to the participants and help clear up misunderstandings or uncertainties of the participants. Next, having the participants browse an equal number of videos and start at the same topic is also important if only one group is researched. If other aspects are of interest for testing then one option would be to have different groups that have a different setup between them, but the same setup within the groups. Having a

controlled environment is important in an experiment if you want to isolate a certain aspect of the situation, in this case the interaction between user and platform. The less controlled and experimental environment is, the more likely it is to experience noise in the findings.

Secondly, the participants of the experiment would ideally be perfectly representative of the population that is studied. In the case of this study the population would be all of YouTube's users and the participants would thus ideally represent all of YouTube's users. YouTube's userbase is very large and diverse and hence it can be difficult to draw results regarding YouTube and its users in its entirety when using a small, non-diverse group of participants. It could for example be that only a small share of users is likely to watch polarizing content whilst the majority is not, or vice versa. It is also known that YouTube's website operates differently depending on in which country or region you are. This includes, most importantly for this research, what videos get recommended. Hence, it is likely that if polarizing content is more likely to be created in a certain region, it is also more likely to be recommended and consumed in that region. Ideally the experiment would thus take place in different regions, either physically or virtually through for example proxy networks. Overall, having a representative share of participants and conducting the experiment on different region's YouTube makes the results more externally valid.

Lastly, it would be ideal to have an in depth, unbiased evaluation of the starting, ending and control videos. To have an unbiased evaluation it would be best to make use of an algorithm or other AI that can evaluate the videos. Such an algorithm could provide an unbiased evaluation based on for example video tags, transcript, channel evaluation and other metadata of the videos, or a combination of all of these. This method however may not be able to give an in-depth evaluation of the videos since the polarization of a video is still a subjective matter for which there is no exact science nor formulas. Using an algorithm could also more easily lead to oversights of things that could make a video polarizing, or not polarizing, but are not necessarily picked up in the evaluation of the algorithm, such as sarcasm, satire or non-factual data. Hence it may be better to use an expert to evaluate the starting, ending and control videos. In this case an expert for example would be someone who works, or has worked for YouTube's content evaluation, who reviews flagged content to see whether it breaches the terms of service. When using an expert however, the results of the evaluation are likely to be more biased compared to when using an algorithm. Overall working with an algorithm is more transparent, replicable and unbiased, and an algorithm can be more easily adapted if an oversight is found later on, thus making the usage of an algorithm preferable for an ideal setup.

6 Conclusion

6.1 Research question and hypotheses

The results from the experiment support none of the three hypotheses formed for this thesis.

Hypothesis 1

Following interesting recommended videos on YouTube will lead to more polarizing content.

The results of the experiment suggest that following interesting recommended videos on YouTube does not lead to more polarizing content. The results even suggest that in this experiment participants that followed interesting recommended videos were led to less polarizing content.

Hypothesis 2

People are more likely to click on recommended videos that use more clickbait.

The results of the experiment did not suggest that people are more likely to click on recommended videos that use more clickbait. The participants in the experiment ended up at videos that on average used a similar amount of clickbait compared to the starting videos.

Hypothesis 3

As people follow interesting recommended videos on YouTube, the trustworthiness of the videos shown goes down.

Again, the results from the experiment do not support this hypothesis. On average participants ended up at a video of similar trustworthiness compared to the videos they started at.

It can however not be concluded with certainty that all three hypotheses do not hold in non-experiment settings. Another interesting result from the experiment was that participants ended up at videos that were significantly less relevant to the topic gender equality compared to the starting video. This could mean that the participants were not interested in the topic, but another reasonable explanation is that YouTube's algorithm does not yet fully focus when you have watched only one video on a topic. The algorithm would in this case recommend a broader variety of videos, since it has yet to figure out the users' preferences. Lastly, as mentioned in the previous chapters, there were several limitations with the experiment, which each can affect the results of the experiment.

However, the results from the experiment still hold enough internal validity to draw conclusions from.

Research question

Does following interesting choices recommended by YouTube's algorithm lead down a path of ever more polarizing content?

Based on the results of the tested hypotheses, taking into account this research's strong points and limitations, the following can be said with regards to the research question:
In this setting following interesting videos recommended on YouTube does not lead down a path of ever more polarizing content.

6.2 Take-aways

In the specific setting of this research it is thus shown that there is no evidence to support that YouTube's algorithm leads people to more polarizing content. However, as mentioned previously, other settings may show different results. Of these other settings, the most notable differences could be seen in different regions, with different participants, or when consuming different content topics. This research specifically showed results for videos on gender equality, in the Netherlands consumed by mostly student age participants. It may be impossible to find result regarding global YouTube recommendation system effects, unless all regions are experimented in, or the algorithm itself can be evaluated. What was also not covered by this research was polarization over a long term, or cross platform. These two topics were already covered by previous literature and hence I did not focus on this aspect of the research question.

Since this research topic is very complex, but not very well-researched it is difficult to directly apply the results of this research. What this thesis has shown is but a small part of a much more complex and broad research topic. Within the current research question alone one can look at different regions, topics, users and timeframes, in addition to looking towards other causes for polarization and other platforms. Thus, I believe that the results of this research are best used as a mark in this relatively new research-field on which can be improved and expanded.

A better follow-up study on this research question should have a controlled experimental environment, a representative share of participants and a broader range of topics. These were aspects which this experiment could not fully fulfill due to lack of resources but would greatly improve the research's internal and external validity. This coincides mainly with the ideal design as

sketched in the discussion, with the addition of looking at different topics to make the study less case specific.

Lastly, on the topic of polarization in social media, I think more research should be done with regards to the content creators' role in polarization. As mentioned in this research, clickbait and other methods are often used to grab the attention, or the click of content consumers. I believe that it would be interesting to look at this topic from the content creators' side to see if polarizing content is mostly made in good faith or in bad faith. Good faith would apply to cases where the content creators are truly believing and supporting of what they put out and bad faith would apply to cases where the content creators mainly create the content for financial or social gain.

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Appendix A Survey thesis

Page 1

Thank you for participating in this survey/experiment to help with my master thesis! The survey will consist of, a short instruction on how to do the experiment and secondly, five questions regarding the experiment and YouTube and three basic demographic questions.

Please note that the replies to this survey/experiment are anonymous and data gathered will be exclusively used for my master thesis.

Page 2

Now, I would like to ask you to participate in a short experiment. The experiment will be regarding YouTube and it's recommendation system. In this experiment you will be looking up some YouTube video's regarding inequalities (in this case meaning unfair differences) between men and women. For this experiment you are **not** required to watch the video's, but you may do so if you please.
During this experiment, please make use of **private/incognito browsing**. Using an private/incognito browser makes it so that when you access YouTube the videos you get recommended are purely recommended based on what you have watched that session, which is essential for the experiment.
To open up a private/incognito window for most browsers you can use the following shortcuts:
Google Chrome, press **ctrl+shift+n**
Safari, press **shift+command+n**
Microsoft Edge, press **windows+shift+p**
Firefox, press **ctrl+shift+p**

To start the experiment, please please follow the next steps:

Copy and paste following link in a private/incognito tab/window: (randomly chosen, one of 31 links, see Appendix B)

Click one of the recommended videos that you think looks interesting, or that you would like to watch on the right side of the video.

On the page of the new video you have just clicked repeat step 2 and click another recommended video.

Repeat step 3 three more times, meaning that you will have clicked a recommended video five times in a chain.

Paste the url-link of the last video you clicked below:

_____

Page 3

Thank you for participating in this experiment, please fill in these last few questions to complete the survey

How extreme was the **first** video you clicked with regards to its views on gender inequality?

The video strongly adhered to a single viewpoint and did not consider other viewpoints (1)

The video moderately adhered to a single viewpoint and only somewhat considered other viewpoints (2)

The video did not adhere to a single viewpoint and considered multiple viewpoints (3)

The topic of the video was unrelated to gender inequality, or it was unclear what viewpoint(s) the video took into consideration (4)

From which country did you access YouTube during the experiment?

The Netherlands (1)

A country in the EU, but not the Netherlands (2)

A non-EU country (3)

How interested where you in the topic of the first video?

Very interested (1)

Moderately interested (2)

Neutral (3)

Uninterested (4)

How knowledgeable where you on the topic of the first video before the experiment?

Extremely knowledgeable (1)

Very knowledgeable (2)

Moderately knowledgeable (3)

Slightly knowledgeable (4)

Not knowledgeable at all (5)

How often do you watch YouTube videos in your daily life?

On a daily basis (1)

On a weekly basis (2)

On a monthly basis (3)

Less often than on a monthly basis (4)

What is your gender?

Male (1)

Female (2)

Other, prefer not to say (3)

What is your age?

_____

What is the highest level of education you have completed?

Primary education (1)

Secondary education (2)

Bachelor (3)

Master (4)

Phd (5)

Page 4

We thank you for your time spent taking this survey.

Your response has been recorded.

Appendix B Starting videos

Starting videos				
S#	Link	Title	E#	C#
S1	https://www.youtube.com/watch?v=g97rVFhWcA	What you need to know about the gender pay gap		C1
S2	https://www.youtube.com/watch?v=eCknUUjc3qU	The surprising neuroscience of gender inequality | Janet Crawford | TEDxSanDiego	E2,E9	C2
S3	https://www.youtube.com/watch?v=13XU4fMlN3w	What people miss about the gender wage gap	E6,E8	C3
S4	https://www.youtube.com/watch?v=QcDrE5YvqTs	There Is No Gender Wage Gap		C4
S5	https://www.youtube.com/watch?v=PKq8MqrvYU8	Three gender pay gap myths explained		C5
S6	https://www.youtube.com/watch?v=M8EiCCTto9U	Gender Inequality	E28	C6
S7	https://www.youtube.com/watch?v=ad2gJVrB_rk	Tackling Gender Inequality | Rosie Carter | TEDxYouth@Harlow	E3	C7
S8	https://www.youtube.com/watch?v=4viXOGvvu0Y	Gender Equality: Now		C8
S9	https://www.youtube.com/watch?v=n1wU-9ZTTJc	ENGLISH SPEECH | EMMA WATSON: Gender Equality (English Subtitles)		C9
S10	https://www.youtube.com/watch?v=hg3umXU_qWc	We should all be feminists | Chimamanda Ngozi Adichie | TEDxEuston	E7,E19	C10
S11	https://www.youtube.com/watch?v=18uDutylDa4	Why we have too few women leaders | Sheryl Sandberg	E4	C11
S12	https://www.youtube.com/watch?v=0WRNwDptQe8	Gender Discrimination	E20	C12
S13	https://www.youtube.com/watch?v=eJeVE-xFXuo	Epic RANT on Gender "Equality" - Jordan Peterson on why there are so few women at the top	E5	C13
S14	https://www.youtube.com/watch?v=Xg2pspJy4nQ	Jordan Peterson vs The Gender Pay Gap		C14
S15	https://www.youtube.com/watch?v=4GLT8lGO_B4	Women vs Men, In the workplace	E25	C15
S16	https://www.youtube.com/watch?v=zuiTe-KQ0-8	The Serious Problem With Gender Equality		C16
S17	https://www.youtube.com/watch?v=Nq6lVEA-qCU	Is Male Privilege Real? | Debunking Gender Inequality	E13,E22,E30,E31	C17
S18	https://www.youtube.com/watch?v=vArDM2_cbks	Gender inequality and the pay gap		C18
S19	https://www.youtube.com/watch?v=L4TxoVqAJX4	Gender Inequality and the Economy	E1	C19
S20	https://www.youtube.com/watch?v=4tUrNvIiRNQ	Gender Inequality In the Workplace	E17	C20
S21	https://www.youtube.com/watch?v=Ts2k4kIQzhc	Why There is No Gender Wage Gap	E12	C21
S22	https://www.youtube.com/watch?v=ps8pokiiqpA	6 Ways To Convince Someone The Gender Pay Gap Is Real | CNBC	E21	C22
S23	https://www.youtube.com/watch?v=vvFiPHwF6To	The gender wage gap is a myth		C23
S24	https://www.youtube.com/watch?v=B6LK-2RYnD8	Is masculine culture toxic for boys?	E26,E29,E32	C24
S25	https://www.youtube.com/watch?v=it0EYBBl5LI	Is the Gender Pay Gap Real?	E23	C25
S26	https://www.youtube.com/watch?v=58arQIr882w	The gender wage gap uses bogus statistics | FACTUAL FEMINIST	E16,E27	C26
S27	https://www.youtube.com/watch?v=Q14XIkZRQIE	Tackling gender inequality	E15	C27
S28	https://www.youtube.com/watch?v=1_2gl7Iz25E	Men - The forgotten gender | Deepika Bhardwaj | TEDxIIFTDelhi	E10,E24	C28
S29	https://www.youtube.com/watch?v=bWJxUSdeZDw	The Left is Wrong. There is No Gender Wage Gap	E14	C29
S30	https://www.youtube.com/watch?v=iizk3W37qo4	Gender inequality and the impact of children	E11	C30
S31	https://www.youtube.com/watch?v=mpE8ttCEd-w	Why are women paid less than men? | The Economist	E18	C31

Appendix C Ending videos

Ending videos					
E#	Link	Title	S#	C#
E1	https://www.youtube.com/watch?v=B0ouAnmsO1Y	The secrets to decoding facial expressions	S19	C19
E2	https://www.youtube.com/watch?v=Ed4SeoQvpv0	Why I escaped from my brainwashed country | Hyeonseo Lee | TEDxKyoto	S2	C2
E3	https://www.youtube.com/watch?v=tLteWUtiEfM	Potential: Jordan Peterson at TEDxUofT	S7	C7
E4	https://www.youtube.com/watch?v=MYSSatbZMAo	What makes you special? | Mariana Atencio | TEDxUniversityofNevada	S11	C11
E5	https://www.youtube.com/watch?v=mMpQBWH-RwA	Shelby Steele On "How America's Past Sins Have Polarized Our Country"	S13	C13
E6	https://www.youtube.com/watch?v=ULmO1q5G_ug	Running Exercises: Improve your hip drive to run FASTER!	S3	C3
E7	https://www.youtube.com/watch?v=tLteWUtiEfM	Potential: Jordan Peterson at TEDxUofT	S10	C10
E8	https://www.youtube.com/watch?v=Stjlv33zJ9c	Life in North Korea | DW Documentary	S3	C3
E9	https://www.youtube.com/watch?v=xp0O2vi8DX4	How to motivate yourself to change your behavior | Tali Sharot | TEDxCambridge	S2	C2
E10	https://www.youtube.com/watch?v=Fr8G7MtRNIk	Implicit Bias -- how it effects us and how we push through | Melanie Funchess | TEDxFlourCity	S28	C28
E11	https://www.youtube.com/watch?v=vullsN32WaE	The mathematics of weight loss | Ruben Meerman | TEDxQUT (edited version)	S30	C30
E12	https://www.youtube.com/watch?v=d0VGdNEWdn0	How to learn any language in six months | Chris Lonsdale | TEDxLingnanUniversity	S21	C21
E13	https://www.youtube.com/watch?v=H7Gn2a0GnAc	The slut, the spinster and the perfect woman: Martha Mosse at TEDxCoventGardenWomen	S17	C17
E14	https://www.youtube.com/watch?v=phFij-01hBk	10 Most Unusual Vehicles	S29	C29
E15	https://www.youtube.com/watch?v=veEQQ-N9xWU	The art of being yourself | Caroline McHugh | TEDxMiltonKeynesWomen	S27	C27
E16	https://www.youtube.com/watch?v=7eQuea_hgVw	Thank God for Our Vagina! | Kaouthar Darmoni | TEDxLinz | kaouthar Darmoni | TEDxLinz	S26	C26
E17	https://www.youtube.com/watch?v=HE9nLWFZ6ac	10 Famous Funny Commercials	S20	C20
E18	https://www.youtube.com/watch?v=mpE8ttCEd-w	Why are women paid less than men? | The Economist	S31	C31
E19	https://www.youtube.com/watch?v=lW8pJ7E9taQ	The Science of Touching and Feeling | David Linden | TEDxUNC	S10	C10
E20	https://www.youtube.com/watch?v=0BBrTkI-FRI	How do We Handle Negative Thoughts and Emotions? | Sadhguru	S12	C12
E21	https://www.youtube.com/watch?v=_J5bDhMP9lQ	What does the Quran really say about a Muslim woman's hijab? | Samina Ali | TEDxUniversityofNevada	S22	C22
E22	https://www.youtube.com/watch?v=fJA-PUI0AfM	Black Man Asked To Leave His Own Pool	S17	C17
E23	https://www.youtube.com/watch?v=oEkhW8m7rdo	How The States Voted In Every Presidential Election	S25	C25
E24	https://www.youtube.com/watch?v=A9UmdY0E8hU	Where in the world is it easiest to get rich? | Harald Eia | TEDxOslo	S28	C28
E25	https://www.youtube.com/watch?v=SN7YFw3pQKI	Behind Trump's Billions: How He Really Got His Real Estate	S15	C15
E26	https://www.youtube.com/watch?v=IFqVNPwsLNo	Conservatives, Black Lives Matter, Racism | Larry Elder | POLITICS | Rubin Report	S24	C24
E27	https://www.youtube.com/watch?v=78nsxRxbf4w	How to Be Happy Every Day: It Will Change the World | Jacqueline Way | TEDxStanleyPark	S26	C26
E28	https://www.youtube.com/watch?v=yvTsrWarrw	What kindergarteners taught me about gender | Batya Greenwald | TEDxCU	S6	C6
E29	https://www.youtube.com/watch?v=vgouNodXwfA	Enslaved: from victim to victor: Jessica Minhas at TEDxFiDiWomen	S24	C24
E30	https://www.youtube.com/watch?v=3WMuzhQXJoY	MEETING THE ENEMY A feminist comes to terms with the Men's Rights movement | Cassie Jaye | TEDxMarin	S17	C17
E31	https://www.youtube.com/watch?v=ZbhqHCqJoZ0	This is What Will Happen in the Next Billion Years	S17	C17
E32	https://www.youtube.com/watch?v=M7hOpT0lPGI	I've studied nuclear war for 35 years -- you should be worried. | Brian Toon | TEDxMileHigh	S24	C24

Appendix D Control videos

Control videos				
C#	Link	Title	S#	E#
C1	https://www.youtube.com/watch?v=ovYE83qidSI	Piers Morgan Clashes with Harriet Minter Over 'Sexist' Advertisements | Good Morning Britain	S1	
C2	https://www.youtube.com/watch?v=L9UIF85ZBoo	How Five Simple Words Can Get You What You Want | Janine Driver | TEDxHardingU	S2	E2,E9
C3	https://www.youtube.com/watch?v=SEZwkbIiJr8	Warren Buffett reveals his investment strategy and mastering the market	S3	E6,E8
C4	https://www.youtube.com/watch?v=nFBEolQutSc	My black year: Maggie Anderson at TEDxGrandRapids	S4	
C5	https://www.youtube.com/watch?v=kJLeBRVOIMY	Does the Gender Pay Gap Really Exist? | Good Morning Britain	S5	
C6	https://www.youtube.com/watch?v=ehhrLC9Eg98	Gender-based violence	S6	E28
C7	https://www.youtube.com/watch?v=xylQFI865_w	Suffering in Silence: The Emotional Abuse of Men | Dr. Timothy Golden | TEDxWallaWallaUniversity	S7	E3
C8	https://www.youtube.com/watch?v=pni_kDv9BsU	Former CIA Officer Will Teach You How to Spot a Lie I Digiday	S8	
C9	https://www.youtube.com/watch?v=y24hreGe9mU	Sadhguru at Christ University, Bengaluru – Youth and Truth [Full Talk]	S9	
C10	https://www.youtube.com/watch?v=IT1o2esE_88	Communication is ruining your relationships | Beth Luwandi Lofstrom | TEDxGustavusAdolphusCollege	S10	E7,E19
C11	https://www.youtube.com/watch?v=LTZPvLI3Hdc	Lean in: A Discussion on Leadership with Sheryl Sandberg	S11	E4
C12	https://www.youtube.com/watch?v=R_vx_SC3l9g	Cycle of Socialization; Gender	S12	E20
C13	https://www.youtube.com/watch?v=v-PQbFfQKVs	Jordan Peterson at Room for Discussion	S13	E5
C14	https://www.youtube.com/watch?v=v6H2HmKDbZA	Jordan Peterson: From the Barricades of the Culture Wars	S14	
C15	https://www.youtube.com/watch?v=1_2gl7lz25E	Men - The forgotten gender | Deepika Bhardwaj | TEDxIIFTDelhi	S15	E25
C16	https://www.youtube.com/watch?v=17fbxRQgMIU	Sir Ken Robinson: Finding Your Element	S16	
C17	https://www.youtube.com/watch?v=cYpELqKZ02Q	Intersectional Feminism: What is it? | FACTUAL FEMINIST	S17	E13,E22,E30,E31
C18	https://www.youtube.com/watch?v=_GrJO-oRQ5M	The Economics of TRUMP with Jacob Clifford- Part 1: Trade	S18	
C19	https://www.youtube.com/watch?v=mzlrjOtASK0	My Presidential Endorsement- April 2016	S19	E1
C20	https://www.youtube.com/watch?v=17fbxRQgMIU	Sir Ken Robinson: Finding Your Element	S20	E17
C21	https://www.youtube.com/watch?v=UZMlbo_DxJk	Jordan Peterson | Full Address and Q&A | Oxford Union	S21	E12
C22	https://www.youtube.com/watch?v=qvIiveTtfy4	Is It OK to Be Fat? | Good Morning Britain	S22	E21
C23	https://www.youtube.com/watch?v=VdrgtGxVINA	Should Sponsors Drop Cristiano Ronaldo? | Good Morning Britain	S23	
C24	https://www.youtube.com/watch?v=T704le1D1ag	No more bad dates | Evan Marc Katz | TEDxStJohns	S24	E26,E29,E32
C25	https://www.youtube.com/watch?v=kJLeBRVOIMY	Does the Gender Pay Gap Really Exist? | Good Morning Britain	S25	E23
C26	https://www.youtube.com/watch?v=FKprYVtYSCk	Rape culture panic is not the answer | FACTUAL FEMINIST	S26	E16,E27
C27	https://www.youtube.com/watch?v=MB5IX-np5fE	This could be why you're depressed or anxious | Johann Hari	S27	E15
C28	https://www.youtube.com/watch?v=BFas9cd8ZZ8	Heroes and Villains: Is hip-hop a cancer or a cure? | Lecrae | TEDxNashville	S28	E10,E24
C29	https://www.youtube.com/watch?v=wBxD4ZZ_kug	Is It OK Not to Be a Feminist? | Good Morning Britain	S29	E14
C30	https://www.youtube.com/watch?v=vv2IXBrahic	The Agents of Socialization (4 types)	S30	E11
C31	https://www.youtube.com/watch?v=dOFTVzsssEA	What's the Biggest Lie You Ever Told Your Mom?	S31	E18

Appendix E Evaluation survey with one example

Page 1

Thank you for participating in this evaluation to help with my master thesis!

The evaluation will consist of first, three introductory questions and secondly, the evaluation of 73 YouTube videos based on their titles.

These evaluations will be based of of four criteria per video of which you only get to know the title.

In total, I estimate that the survey will take 20 minutes to complete.

Please note that the replies to this survey are anonymous and data gathered will be exclusively used for my master thesis.

Please fill in the following introductory questions

Page 2

What is your gender?

- ○ Male
- ○ Female
- ○ Other / prefer not to say

What is your age?

- ○ less than 20 years old
- ○ 20-29 years old
- ○ 30-39 years old
- ○ 40-49 years old
- ○ 50-59 years old
- ○ 60-69 years old

- ○ More than 70 years old
- ○ Prefer not to say

How often do you watch YouTube videos in your daily life?

- ○ On a daily basis
- ○ On a weekly basis
- ○ On a monthly basis
- ○ Less often than on a monthly basis

Page 3

Next I would like you to evaluate the titles of all videos on 4 criteria, namely:

Relevance

How relevant do you think the video is on the topic gender equality on a scale from 1-10, 1 meaning not relevant at all and 10 meaning very relevant.

Trustworthiness

How trustworthy do you think the content of the video is on a scale from 1-10, 1 meaning not trustworthy at all and 10 meaning very trustworthy.

Polarization

How polarizing do you think the video is on a scale from 1-10, 1 meaning not polarizing at all and 10 meaning very polarizing

What is meant with a polarizing video in this survey is a video that contributes to dividing people into sharply opposing groups. For example by strongly focusing on one side of a complex situation, by over-exaggerating facts, by hiding or diminishing facts that oppose the video's message, or by falsifying or wrongly interpreting facts.

Clickbait

How much do you think the title of the video uses clickbait on a scale from 1-10, 1 meaning you think the title of the video does not use clickbait at all, and 10 meaning you think the title uses very much clickbait.

What is meant by a title using clickbait is a video title that is sensationalizing and/or uses other tricks in an attempt to grasp the attention of people and have more people click on the video to watch it.

Page 4 Example

(This page was repeated for every different video title)

Video title:

"**The surprising neuroscience of gender inequality | Janet Crawford | TEDxSanDiego**"

How much do you think the video title above rates on the evaluation criteria below?

	Not at all / Somewhat / Very much 1 2 3 4 5 6 6 7 8 9 10
Relevance to gender equality	
Trustworthiness of the content	
Polarizing	
Clickbait usage	

Appendix F Evaluations of all videos on a scale of 1-10 per evaluator

Evaluation	Eval 1	Eval 2	Eval 3	Eval 4	Eval 5	Eval 6	Eval 7	Eval 8
S2-Relevance	8	7	9	8	10	8	10	10
S2-Trustworthiness	5	6	7	3	7	6	9	6
S2-Polarization	2	5	6	2	10	2	6	3
S2-Clickbait	3	5	4	8	1	7	10	5
S3-Relevance	8	8	8	9	10	8	8	9
S3-Trustworthiness	4	7	3	1	6	7	5	6
S3-Polarization	5	2	8	3	6	6	7	2
S3-Clickbait	5	7	6	6	6	7	8	6
S6-Relevance	10	8	6	9	10	10	10	10
S6-Trustworthiness	3	6	1	5	3	9	4	4
S6-Polarization	4	6	6	1	4	1	6	1
S6-Clickbait	4	6	6	1	4	1	1	1
S7-Relevance	8	6	10	7	10	10	10	10
S7-Trustworthiness	5	2	6	2	4	8	6	6
S7-Polarization	4	8	6	1	10	2	5	6
S7-Clickbait	1	8	5	5	3	2	8	2
S10-Relevance	9	6	10	3	10	8	9	8
S10-Trustworthiness	4	4	6	3	3	3	6	6
S10-Polarization	8	7	5	6	10	6	8	6
S10-Clickbait	4	6	6	6	3	8	9	7
S11-Relevance	7	5	7	6	10	8	9	8
S11-Trustworthiness	5	5	7	1	10	8	7	6
S11-Polarization	4	7	6	6	10	4	8	4
S11-Clickbait	1	8	6	7	4	4	7	6
S12-Relevance	10	9	6	9	10	8	9	7
S12-Trustworthiness	5	4	1	1	2	8	8	4
S12-Polarization	5	7	6	1	10	2	6	1
S12-Clickbait	1	6	6	6	3	2	2	1
S13-Relevance	9	10	9	4	10	4	8	10
S13-Trustworthiness	1	10	5	1	1	1	6	6
S13-Polarization	7	2	8	2	10	10	6	7
S13-Clickbait	9	1	9	8	10	10	7	8
S15-Relevance	7	8	9	7	10	7	8	7
S15-Trustworthiness	4	6	5	1	4	6	7	4
S15-Polarization	6	4	5	6	6	4	9	2
S15-Clickbait	3	4	7	4	4	3	8	1
S17-Relevance	9	6	7	6	10	8	10	10
S17-Trustworthiness	3	7	6	1	1	3	6	6
S17-Polarization	7	3	6	3	10	10	8	6
S17-Clickbait	6	4	7	5	10	10	10	7
S19-Relevance	10	7	9	8	10	10	10	10

S19-Trustworthiness	6	4	6	1	6	9	8	6
S19-Polarization	2	8	6	1	4	4	5	2
S19-Clickbait	1	7	5	3	4	5	5	3
S20-Relevance	9	9	7	9	10	9	9	9
S20-Trustworthiness	5	6	3	1	1	8	6	5
S20-Polarization	3	6	6	5	5	5	5	2
S20-Clickbait	1	3	3	4	6	2	6	3
S21-Relevance	9	8	6	8	10	5	9	9
S21-Trustworthiness	3	8	1	1	2	2	2	6
S21-Polarization	9	3	8	2	10	10	9	6
S21-Clickbait	6	7	6	7	10	8	8	7
S22-Relevance	9	9	6	7	10	7	10	9
S22-Trustworthiness	3	3	2	2	3	3	9	7
S22-Polarization	7	8	7	6	10	9	3	4
S22-Clickbait	5	8	7	8	5	10	10	7
S24-Relevance	9	7	6	7	10	5	10	6
S24-Trustworthiness	5	3	1	1	2	4	6	5
S24-Polarization	7	6	6	4	10	7	9	4
S24-Clickbait	2	8	5	4	10	8	8	5
S25-Relevance	9	8	7	7	10	8	10	9
S25-Trustworthiness	3	7	2	1	3	4	6	6
S25-Polarization	7	2	6	4	10	10	8	5
S25-Clickbait	7	7	3	7	6	10	10	6
S26-Relevance	9	8	9	7	10	10	8	9
S26-Trustworthiness	2	7	5	2	6	2	3	5
S26-Polarization	9	3	9	4	10	10	9	7
S26-Clickbait	9	4	9	6	6	8	9	8
S27-Relevance	9	9	9	8	10	8	10	10
S27-Trustworthiness	4	3	6	1	3	8	6	4
S27-Polarization	4	8	6	3	3	2	5	2
S27-Clickbait	2	8	6	6	4	2	7	2
S28-Relevance	9	7	9	8	10	5	8	8
S28-Trustworthiness	5	7	6	3	3	3	5	6
S28-Polarization	4	3	6	5	10	7	8	7
S28-Clickbait	1	2	6	5	10	8	9	3
C15-Relevance	9	7	9	8	10	5	8	8
C15-Trustworthiness	5	7	6	3	3	3	5	6
C15-Polarization	4	3	6	5	10	7	8	7
C15-Clickbait	1	2	6	5	10	8	9	3
S29-Relevance	8	9	8	8	10	6	8	9
S29-Trustworthiness	1	8	1	7	4	2	2	6
S29-Polarization	10	3	8	7	10	8	9	7
S29-Clickbait	8	8	8	2	7	8	10	7
S30-Relevance	10	7	8	8	10	10	10	10
S30-Trustworthiness	7	6	6	1	2	2	7	6

S30-Polarization	3	6	5	1	3	7	9	2
S30-Clickbait	1	4	7	5	4	3	6	3
S31-Relevance	8	9	8	5	10	8	9	9
S31-Trustworthiness	6	8	7	3	10	3	10	7
S31-Polarization	5	4	5	2	10	7	3	3
S31-Clickbait	1	7	5	8	5	8	9	6
E18-Relevance	8	9	8	5	10	8	9	9
E18-Trustworthiness	6	8	7	3	10	3	10	7
E18-Polarization	5	4	5	2	10	7	3	3
E18-Clickbait	1	7	5	8	5	8	9	6
E1-Relevance	1	1	1	1	1	1	2	1
E1-Trustworthiness	3	6	2	2	1	1	4	6
E1-Polarization	1	2	1	1	1	2	3	1
E1-Clickbait	5	6	4	3	1	8	8	2
E2-Relevance	1	1	1	1	1	8	8	3
E2-Trustworthiness	5	4	4	3	1	8	8	6
E2-Polarization	5	4	8	3	4	2	6	2
E2-Clickbait	3	8	8	3	4	8	8	6
E3-Relevance	4	6	1	1	8	6	1	2
E3-Trustworthiness	3	10	6	3	1	6	3	6
E3-Polarization	7	4	2	1	10	8	1	2
E3-Clickbait	1	2	2	1	2	8	3	1
E7-Relevance	4	6	1	1	8	6	1	2
E7-Trustworthiness	3	10	6	3	1	6	3	6
E7-Polarization	7	4	2	1	10	8	1	2
E7-Clickbait	1	2	2	1	2	8	3	1
E4-Relevance	1	1	1	1	1	5	6	2
E4-Trustworthiness	3	5	4	4	1	3	5	6
E4-Polarization	1	3	1	1	3	4	4	3
E4-Clickbait	6	3	6	5	3	8	6	6
E5-Relevance	1	1	1	1	1	2	5	2
E5-Trustworthiness	4	4	6	4	1	1	5	6
E5-Polarization	6	10	8	8	10	8	6	5
E5-Clickbait	3	8	8	7	10	10	8	5
E6-Relevance	1	1	1	1	1	1	1	1
E6-Trustworthiness	1	6	4	1	1	6	3	4
E6-Polarization	1	1	1	1	1	3	1	2
E6-Clickbait	10	7	1	5	10	8	4	6
E8-Relevance	1	5	1	1	1	2	1	2
E8-Trustworthiness	7	5	4	5	1	7	9	6
E8-Polarization	4	5	4	1	10	3	1	3
E8-Clickbait	1	5	6	1	1	4	6	6
E9-Relevance	1	1	1	1	1	2	3	1
E9-Trustworthiness	3	6	6	3	6	3	4	6
E9-Polarization	1	4	2	1	3	2	1	2

E9-Clickbait	3	4	2	4	3	7	9	7
E10-Relevance	2	3	2	3	1	4	2	7
E10-Trustworthiness	6	6	5	3	1	6	4	6
E10-Polarization	2	4	5	4	3	5	2	4
E10-Clickbait	3	4	3	7	4	6	7	4
E11-Relevance	1	1	1	1	1	1	1	1
E11-Trustworthiness	3	5	6	3	5	1	6	6
E11-Polarization	2	4	5	1	2	6	1	3
E11-Clickbait	5	2	5	8	3	7	8	5
E12-Relevance	1	1	1	1	1	1	1	1
E12-Trustworthiness	3	5	4	3	3	5	4	6
E12-Polarization	1	1	1	1	3	1	1	2
E12-Clickbait	6	7	7	7	10	8	10	7
E13-Relevance	7	6	8	1	8	4	9	5
E13-Trustworthiness	3	5	6	2	6	2	5	6
E13-Polarization	8	4	7	3	10	5	7	3
E13-Clickbait	5	5	9	10	7	7	10	4
E14-Relevance	1	1	1	1	1	1	1	
E14-Trustworthiness	2	6	2	1	1	3	2	
E14-Polarization	1	1	1	3	2	1	1	
E14-Clickbait	9	7	5	3	10	8	7	
E15-Relevance	2	1	2	1	2	3	5	3
E15-Trustworthiness	3	6	5	3	5	4	5	6
E15-Polarization	2	4	1	1	5	4	2	2
E15-Clickbait	5	4	1	2	1	7	5	6
E16-Relevance	6	1	7	1	10	8	10	2
E16-Trustworthiness	3	6	6	3	7	3	5	6
E16-Polarization	5	4	6	5	6	2	6	3
E16-Clickbait	7	3	7	9	7	9	8	6
E17-Relevance	1	1	1	1	1	1	1	1
E17-Trustworthiness	2	9	6	1	1	4	1	5
E17-Polarization	2	2	1	1	3	1	1	1
E17-Clickbait	8	9	7	6	10	10	9	6
E19-Relevance	1	1	1	1	1	1	1	1
E19-Trustworthiness	2	6	6	3	1	2	5	6
E19-Polarization	2	5	1	1	1	1	2	1
E19-Clickbait	1	4	2	1	1	6	5	1
E20-Relevance	2	1	1	1	1	5	1	1
E20-Trustworthiness	4	6	3	2	1	5	3	6
E20-Polarization	2	4	1	1	4	3	2	2
E20-Clickbait	4	4	2	5	3	6	6	1
E21-Relevance	6	6	6	3	10	7	10	5
E21-Trustworthiness	5	6	6	3	8	7	9	6
E21-Polarization	6	3	7	2	10	10	7	2
E21-Clickbait	2	4	6	4	10	10	8	7

E22-Relevance	1	1	1	1	1	1	1	4
E22-Trustworthiness	5	3	1	5	1	6	4	6
E22-Polarization	9	8	7	7	10	7	7	2
E22-Clickbait	2	10	8	7	10	10	8	6
E23-Relevance	1	1	1	1	1	3	1	2
E23-Trustworthiness	6	8	4	8	8	4	4	6
E23-Polarization	3	2	1	1	2	1	8	2
E23-Clickbait	1	2	1	2	2	5	4	4
E24-Relevance	1	1	1	1	1	1	5	2
E24-Trustworthiness	3	6	5	3	1	2	3	6
E24-Polarization	2	2	7	1	7	1	5	2
E24-Clickbait	6	10	8	8	10	8	10	6
E25-Relevance	1	1	1	1	1	1	2	2
E25-Trustworthiness	2	3	2	1	2	1	4	6
E25-Polarization	6	9	8	4	2	1	7	5
E25-Clickbait	8	10	8	9	10	10	10	7
E26-Relevance	2	1	1	1	1	1	4	1
E26-Trustworthiness	4	7	7	1	6	7	6	6
E26-Polarization	8	3	7	3	2	7	7	4
E26-Clickbait	2	2	5	2	5	7	6	6
E27-Relevance	1	1	1	1	1	2	1	1
E27-Trustworthiness	3	6	5	3	6	2	3	6
E27-Polarization	2	3	2	1	10	1	1	2
E27-Clickbait	6	10	6	7	10	8	8	5
E28-Relevance	8	8	7	7	10	5	9	6
E28-Trustworthiness	4	6	6	3	4	4	5	6
E28-Polarization	5	4	1	4	10	1	6	4
E28-Clickbait	2	4	6	7	8	10	7	6
E29-Relevance	3	1	6	1	10	4	10	4
E29-Trustworthiness	3	7	6	3	7	5	6	6
E29-Polarization	6	5	3	1	5	3	7	2
E29-Clickbait	3	6	4	5	2	6	10	7
E30-Relevance	8	7	8	6	10	7	8	7
E30-Trustworthiness	3	10	6	3	3	2	5	6
E30-Polarization	7	2	7	5	3	5	5	3
E30-Clickbait	8	2	8	7	5	8	7	6
E31-Relevance	1	1	1	1	1	2	1	3
E31-Trustworthiness	7	2	4	1	2	1	1	5
E31-Polarization	3	2	5	1	1	1	1	3
E31-Clickbait	3	8	9	8	10	6	8	6
E32-Relevance	1	1	1	1	1	1	1	1
E32-Trustworthiness	3	6	4	3	6	1	6	6
E32-Polarization	6	6	1	3	2	6	7	4
E32-Clickbait	7	9	9	10	2	7	10	6
C2-Relevance	1	1	1	1	1	2	6	2

C2-Trustworthiness	2	6	3	3	7	2	3	6
C2-Polarization	4	2	1	1	3	1	2	4
C2-Clickbait	6	9	6	10	3	10	8	8
C3-Relevance	1	1	1	1	1	1	4	4
C3-Trustworthiness	2	6	1	1	7	8	6	6
C3-Polarization	3	2	1	2	7	1	4	2
C3-Clickbait	9	5	8	10	6	6	10	6
C6-Relevance	9	8	9	7	10	8	9	7
C6-Trustworthiness	6	5	6	1	4	8	6	6
C6-Polarization	3	4	6	1	3	2	9	2
C6-Clickbait	1	4	6	4	3	2	10	6
C7-Relevance	8	9	8	5	10	5	9	6
C7-Trustworthiness	6	7	6	5	7	2	7	6
C7-Polarization	4	3	5	5	10	7	9	2
C7-Clickbait	1	7	3	3	7	10	10	6
C10-Relevance	1	7	1	1	1	4	5	2
C10-Trustworthiness	2	6	5	3	1	3	7	6
C10-Polarization	3	3	1	1	10	5	4	3
C10-Clickbait	6	7	4	6	10	10	6	7
C11-Relevance	3	3	1	1	6	7	7	6
C11-Trustworthiness	4	2	7	1	7	8	7	7
C11-Polarization	2	8	3	1	6	3	4	2
C11-Clickbait	1	1	3	1	2	2	6	3
C12-Relevance	8	6	8	4	6	10	8	6
C12-Trustworthiness	3	5	6	2	6	10	4	4
C12-Polarization	1	4	6	1	3	2	3	2
C12-Clickbait	2	4	1	1	3	1	6	1
C13-Relevance	4	1	1	1	7	7	4	2
C13-Trustworthiness	2	10	1	1	1	7	3	6
C13-Polarization	7	2	1	1	10	10	2	2
C13-Clickbait	1	2	1	1	9	7	4	3
C17-Relevance	8	7	6	4	10	7	5	
C17-Trustworthiness	2	6	6	1	7	8	7	
C17-Polarization	7	3	1	1	10	2	8	
C17-Clickbait	4	3	1	3	8	2	3	
C19-Relevance	1	1	1	1	1	1	2	2
C19-Trustworthiness	2	6	5	8	1	5	3	6
C19-Polarization	9	3	7	8	3	6	6	1
C19-Clickbait	3	1	6	9	10	6	9	7
C20-Relevance	1	1	1	1	1	1	1	2
C20-Trustworthiness	2	5	3	3	1	2	4	6
C20-Polarization	2	5	1	1	1	1	1	2
C20-Clickbait	4	1	4	1	1	1	5	4
C21-Relevance	4	1	1	1	1	3	1	3
C21-Trustworthiness	2	10	6	3	1	3	3	7

C21-Polarization	8	1	1	1	1	8	3	2
C21-Clickbait	1	1	3	1	1	8	4	2
C22-Relevance	1	1	1	1	1	2	3	2
C22-Trustworthiness	2	4	4	1	1	1	4	6
C22-Polarization	5	6	6	4	10	7	2	3
C22-Clickbait	3	6	6	8	6	8	8	5
C24-Relevance	3	1	1	1	1	6	5	3
C24-Trustworthiness	6	6	3	6	2	4	2	6
C24-Polarization	5	3	1	1	4	2	7	2
C24-Clickbait	6	4	6	9	10	8	9	7
C25-Relevance	9	9	9	6	10	8	10	9
C25-Trustworthiness	2	4	3	1	3	3	8	6
C25-Polarization	7	8	8	3	10	8	6	6
C25-Clickbait	2	8	7	4	10	10	9	6
C26-Relevance	9	6	7	5	10	4	9	6
C26-Trustworthiness	2	5	4	1	4	6	5	5
C26-Polarization	8	5	7	6	10	7	7	6
C26-Clickbait	4	5	8	8	10	10	8	7
C27-Relevance	1	1	1	1	1	2	1	2
C27-Trustworthiness	2	6	5	3	3	1	4	6
C27-Polarization	3	3	2	2	6	6	1	3
C27-Clickbait	7	8	5	7	4	10	9	6
C28-Relevance	1	1	2	1	1	1	1	1
C28-Trustworthiness	3	6	6	3	6	6	1	6
C28-Polarization	8	4	7	4	6	4	8	4
C28-Clickbait	1	6	10	7	10	7	7	2
C29-Relevance	7	3	8	3	10	8	8	6
C29-Trustworthiness	2	1	4	1	5	3	5	6
C29-Polarization	6	10	4	3	6	10	7	4
C29-Clickbait	3	10	6	4	6	10	9	6
C30-Relevance	1	1	1	1	1	2	2	2
C30-Trustworthiness	3	5	4	2	1	3	3	6
C30-Polarization	2	4	1	1	1	2	2	2
C30-Clickbait	5	4	2	4	1	4	4	4
C31-Relevance	1	1	1	1	1	1	3	2
C31-Trustworthiness	1	8	1	1	3	1	3	5
C31-Polarization	1	2	1	1	5	1	4	1
C31-Clickbait	7	2	2	7	5	10	7	4

Table 5 All evaluations on a scale of 1-10 of all videos per evaluator