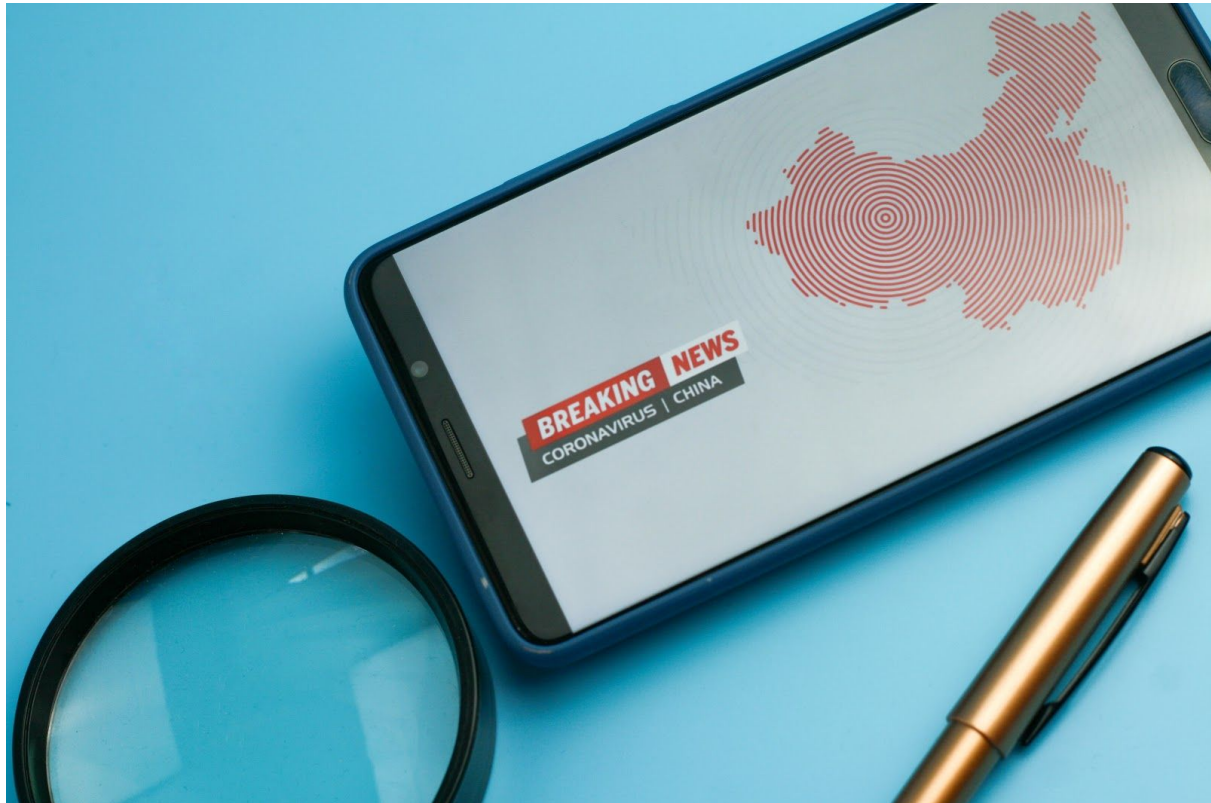


The longing for trustworthy information during a pandemic of fake news

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Amsterdam - With the rise of social media, misinformation has become a great aspect of contemporary media. What is real and what is not is often hard to distinguish nowadays, and often only the social media-experts are advanced enough to make the distinction. As a social media platform to which anyone can upload anything they want, YouTube is amongst the places that have the potential of spreading misinformation or “fake news”. In this article, one finds out whether or not YouTube can be considered as one of the right places to navigate to, to find reliable information on the now very popular COVID-19.

It has been a hot topic of discussion for months now, and increasingly more countries are encountering the consequences of the outbreak. Of course, we are talking about the now world-famous coronavirus, also known as COVID-19. The virus broke out in the Chinese city of Wuhan, located in a region called Hubei, in December 2019. Although many theories about its cause are circulating, these are only speculations. Initially, the fish market in Wuhan was seen as the place of origin. Today however, we are not so sure. According to the [World](#)

[Health Organization](#), symptoms of the virus include “respiratory symptoms, fever, cough, shortness of breath and breathing difficulties”. At this moment, the worldwide count of infections is at 1,433,055, spread over 209 countries and territories. In the Netherlands 19,580 people are now [infected](#) by the virus, and the government is taking drastic measures to fight the spread.

Because of the fact that it spreads so quickly and on such a large scale, the media have been covering it nonstop for the past few months. Everywhere you look, whether it is the newspaper you are flipping through or the TV channel you are watching, people are talking about COVID-19. Like the recent coronavirus, previous outbreaks such as the SARS epidemic of 2002-2003, and the swine flu of 2009 have also caused panic on global scale. However, the fear surrounding the coronavirus seems to be intensified in comparison to the earlier epidemics, because of the growth of the role that social media has come to play in the spread of news over the past few years. The share of social media in the creation of overabundance of information on topics like the coronavirus is very large, and has the potential to allow for more misinformation and disinformation to be spread, which eventually adds to the global panic. The virus has even been deemed ‘infodemic’ by the [World Health Organisation](#). On the Munich Security Conference of 15 February 2020, World Health Organisation’s Director-General Tedros Adhanom Ghebreyesus first mentioned the term in relation to the virus, and said:

“Fake news spreads faster and more easily than this virus, and is just as dangerous. That’s why we’re also working with search and media companies like Facebook, Google, Pinterest, Tencent, Twitter, TikTok, YouTube and others to counter the spread of rumors and misinformation”.

Hence, due to the overabundance of (mis)information it seems to get harder for people to determine what is real and what is not about the virus. In line with this more general problem of the spread of dis- and misinformation, which has become more and more discussed due to the increase of social media use, this article will investigate, analyze, and visualize the spread of dis- and misinformation about the coronavirus on YouTube.

Youtube is the largest video-sharing social networking website to date, it has over [30 million visitors](#) per day and has in total more than [5 billion videos](#) on its platform. Youtube is not only used for entertainment, the number of people who get their news from this social media platform is rising. Especially teens, the next generation, get their news from Youtube. A [study](#) found that 50% of teens get their news on Youtube. A [study](#) by Pew Research center revealed that in 2017 32% of all Youtube users said that they get news on Youtube, this number rose to 38% in 2018. Because of this rising number we beg the question: Can YouTube be considered as a right place to go when one wants to find information about the virus? Or is it rather a place of exaggerations and mis- and disinformation?

To find an answer to those questions, we decided to take a closer look at the 20 most-viewed videos on March 15 of this year with the search query ‘coronavirus’. We found a wide variation of video types, which we all analyzed according to six variables (image 1): background music, language, images/infographics, titles/thumbnaill/clickbait , the sources (who are talking (e.g. experts, politicians) and the message of the video.

Video-trustworthiness ranking system

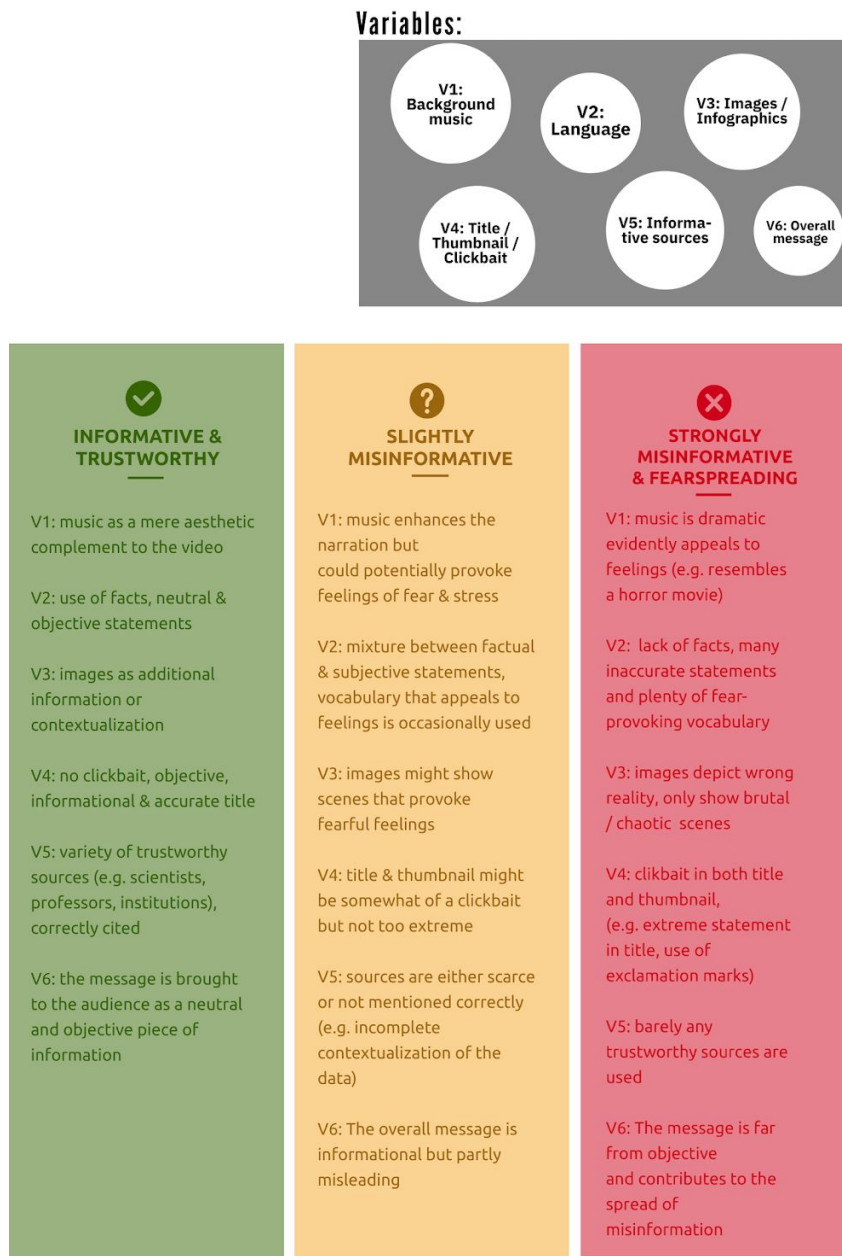


Image 1: The six variables and their relation to the trustworthiness of a video.

We chose to look at these specific variables as we wanted to analyse variables that would tell us something about the way in which the video is set up and the way in which message in the video is brought to the viewer. By analysing whether there was background music used in the videos and if so, what kind of background music is used, the ambience within the video could be established. This is important because the ambience within a video leaves the viewer with a certain feeling after watching the video and can also change what is said or shown in the video into something positive, negative or tense. When for example 'tense' music is used, while showing a shot of an alley, whether it is a dark or light alley, the viewer will become tense and to a certain extent fearful while watching the video. This is why background music adds to setting the tone of a video.

Analysing what language is spoken in the video and from where the video was produced helps us to establish an overview of all 20 videos. When having analysed all 20 videos we can then draw conclusions on whether a certain amount of videos from a certain country have a higher degree of being misinformative than videos from another country for example. Having this context can be useful for these later connections.

Images and/or Infographics that are used in the videos tell us a lot about the tone of the video like the background music. In the case of coronavirus, showing images of for example only percentages of deaths, caskets and poor hygiene in Wuhan leads the viewer to get an over exaggerated image of the situation regarding the coronavirus. Analysing whether or not and to what extent this is the case can help us establish at our final conclusions which videos are considered misinformative or over exaggerating the subject and which videos are neutral. By analysing the use of infographics, the trustworthiness of the video as a whole can also be deduced. As an infographic with no source named that appears to be taken out of context can tell us what then the aim of the video as a whole will probably be. Are these infographics for example adding to informing the viewer about coronavirus or are they meant to scare the viewer?

What is also important to look at when wanting to conclude whether the videos are neutral, misinformative or fear inflicting is the title of the video, the thumbnail and the amount of clickbait within these two variables. When a fear inflicting image or sentence is used in either the title or the thumbnail that aims for the viewer to click on the video and then does not end up to be that fear inflicting or ends up being misinformation, then we can speak of clickbait. Clickbait within the 20 most viewed videos regarding coronavirus is worrisome, as this means that news outlets or other content creators are taking advantage of the popularity of the subject just to get clicks and then misinform the viewer.

Furthermore, the sources used in the videos are analysed. Is it an expert speaking? Are the quotes of statements used in the video trustworthy? Is everything claimed in the video fact checked and shown to the viewer? Are the people speaking claiming to have expertise on the

subject? And do they actually have expertise? The answers to these questions can conclude into the video being misinformative and not trustworthy and that is important to know for the rest of our analysis.

Finally the overall message of the videos is analysed. This is done to make the overall trustworthiness of the video coherent with the rest of the variables. The overall message of the video comes from what is actually said within the video. What it starts with and how it is concluded. When all the variables lead to the belief that the video is misinformative but the video ends up being a parody of some sort, this misinformation can be partly dismissed because of the humorous nature of the video and because the viewer knows that what is said in the video must not be taken seriously. From the overall message of the video we can thus either confirm the conclusion from the analysis of the other variables or change our overall conclusions taking into account the analysis of the other variables.

Based on these variables, we were able to make claims about YouTube's degree of being informative and neutral, or rather adding to the high amount of fake news/mis-/disinformation on the coronavirus which could then create more fear and

1. [How Serious is the Coronavirus? Infectious Disease Expert Michael Osterholm Explains | Joe Rogan](#)

A: No background music

B: Joe Rogan, American, stand up comedian

C: No images, viewer only sees Joe Rogan and Michael Osterholm talk. world map shown with degree of severity of cases around the world

D: The use of the word expert already makes it seem like the information that will be told in this video will be trustworthy. In the thumbnail and title there seems to be no form of clickbait and they do not seem to be made with the intentions to create fear or misinformation.

E: Michael Osterholm: American public-health scientist and a biosecurity and infectious-disease expert. Donald Trump (not informative but for use of satire). public health experts.

F: Michael Osterholm talks about the severity of the situation at hand. Video leaves the viewer with worry, while being informative. (there is a part two in which he explains what we can do and how not to worry as much, so it is likely that the people who watched this video will also watch the next one). makes Americans worry about the trustworthiness of their president because of false claims from him.

exaggeration on the topic.

Image 2: Example of a video analysis according to the six variables.

To gain a better insight into how professionals that are dealing with the virus think about social media coverage of it, we asked Dr. Maiza Compos Ponce for her view on the coronavirus in relation to social media and misinformation. We asked her, who is an associate

professor at the Vrije Universiteit Amsterdam (VU Amsterdam), acting head infectious disease section, to answer a few social media and coronavirus-related questions.

What are the most noticeable differences between the SARS epidemic and the coronavirus pandemic in the area of information?

“What I think that is most noticeable about the difference between SARS and the coronavirus, is the scale on which news is produced. The scale today is much larger than that of the media in 2002-2003. This must have everything to do with what your studies are probably all about: social media.”

Why do you think that the spread of misinformation is such a recurring issue when talking about the coronavirus in the media?

“I think that the amount of misinformation that is available on an issue depends on the scale of the issue: on an issue that is much discussed, and often on a large scale, oftentimes a lot of misinformation will be available. Therefore I would argue that it does not depend on what the issue is exactly, but how popular the issue is. It seems to get more interesting to misinform people when an issue, like COVID-19, is very popular.”

Do you think that misinformation overshadows trustworthy information on social media, and if so, why?

“I do not think that everything that is said on social media is misinformation. However, my answer to this question will have to be yes, since there is a great amount of misinformation on it available on social media. Think for example of memes that oftentimes do not make a lot of sense.”

What are the best places, in your experience, to find trustworthy information?

“The best tip I would give to anyone that is looking for information on COVID-19, is that one should always start at websites of the government. These websites will always give you the right information, because this information will be based on what experts on the issue claim and argue. Next, I would recommend reading articles from the large and well-known newspapers of your country. Do however pay attention to which newspaper you are reading, because some of them are more reliable than others.”

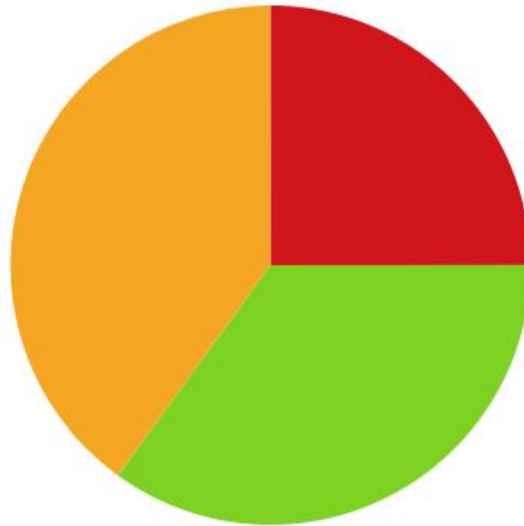
Do you have any advice on finding trustworthy information on this topic on YouTube? (as far as any signs that would reveal the trustworthiness of the information)

“I am not exactly an expert on YouTube content but of course, I occasionally use the platform to look up things. I know that there is a lot of really good and informational content on there, but also a lot of nonsense. Therefore, my advice would be to be very careful with

what to believe or not. Really try to look at the professionalism of the content, and also, follow your instincts.”

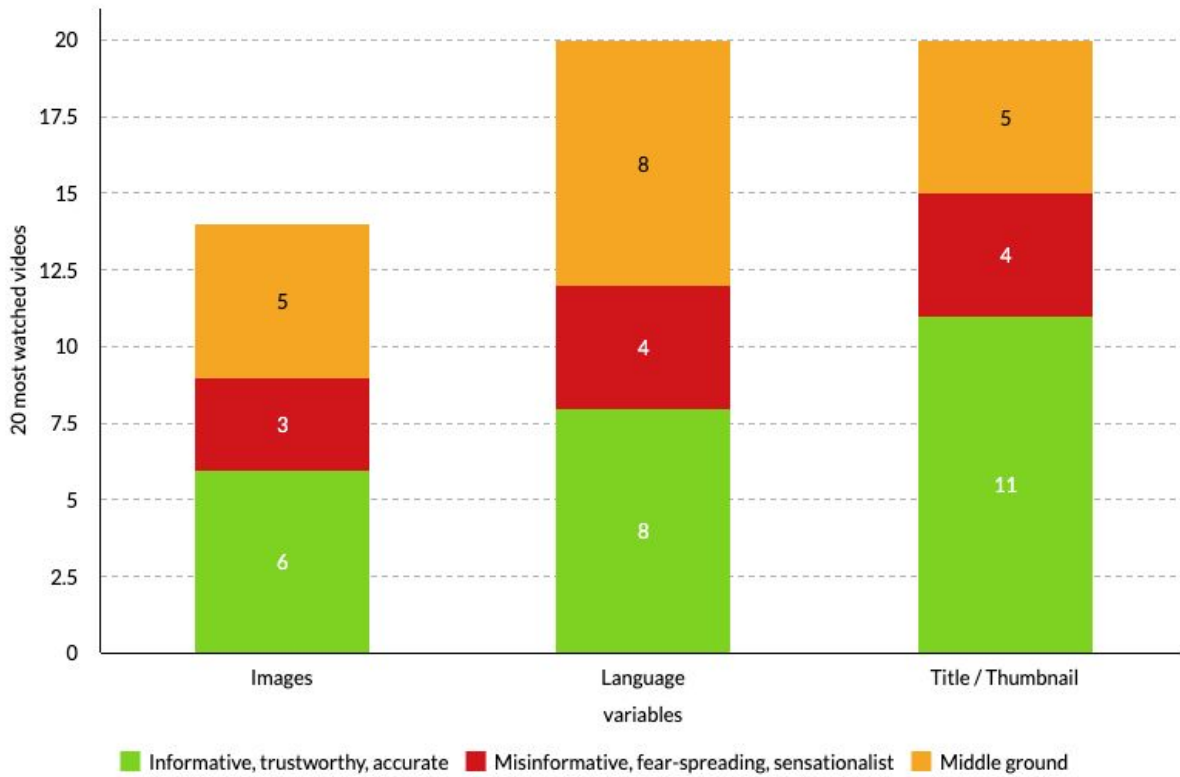
As we can conclude from Dr. Ponce’s answers, as someone who is a specialist in diseases, would not immediately discard the option of getting information on the coronavirus via YouTube. However, she does stress that it is important to always be careful with deciding what is real and what is not.

Use of informational sources

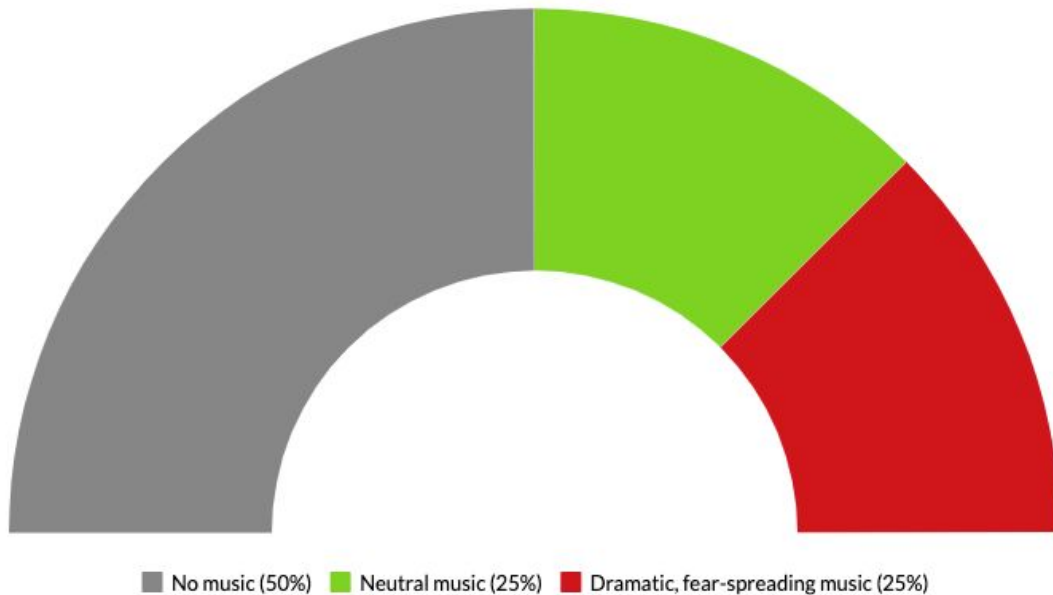


- Videos with no sources (25%)
- Videos with trustworthy, well incorporated sources (35%)
- Videos with not so-trustworthy or vaguely mentioned sources (40%)

Use of images, language & titles / thumbnails



Use of music



After investigating the six chosen variables under the search query “coronavirus” on YouTube, the overall result illustrated a strong correlation between videos showing trustworthy information and others showing somewhat trustworthy information. Taking the “video-trustworthiness” ranking system as well as the variable-based data into account, the information based on the six variables were split into three distinct categories, that were eventually used to depict the degree of overabundance of misinformation with regards to “coronavirus” on YouTube.

In order to interpret the degree of misinformation used on YouTube with the ongoing issue of the virus today, the six variables helped create a niche for the research, which was used to help distinguish and narrow-down the findings into YouTube sources that were either; trustworthy, somewhat trustworthy and not trustworthy at all. After analyzing the 20 videos based specifically on view count, the six variables were converted into the categories of: Use of informational Sources, Use of images, language & titles/thumbnails, and Use of Music. By implementing the variables into the process of analyzing the chosen 20 videos, one of the main findings included how dependent the characteristics of YouTube videos were on the initial source and value of information provided by the video. Whilst most videos portrayed the virus in their own unique manner, it was the use of music, thumbnails, images, infographics and clickbait titles for each video that determined it’s “video-trustworthiness”. After analyzing the chosen YouTube videos, the data not only provided insight into how YouTube operates as a platform itself (being mostly based on monetary value and purposes), but it also presented the immense amount of videos on the platform that are labelled as “unreliable”.

When analyzing the “Use of Informational Sources”, the data shown suggests that out of the total 20 videos, 75% used trustworthy or somewhat trustworthy sources in the videos themselves. Videos with no sources with a rating of 25% mostly consisted of SNL shows or impressions of political figures who talked about the virus in a comedic manner. As 35% used well incorporated and trustworthy sources, the majority of sources being 40%, were either not that trustworthy, or vaguely mentioned their sources. This suggests that although 20 videos based on “coronavirus” as a search query had the highest view count, their information fell generally into the category of being slightly misinformative, proving how hard it is to determine the level of authenticity and truth when it comes to the topic of the virus on YouTube.

With regards to the “Use of Images, language and titles/thumbnails”, titles and thumbnails of videos seemed to depict the highest level of accuracy. As language variables and the title/thumbnails of videos appear higher than images, it suggests how views are correlated to the first impression of a video which consists of the title and thumbnail. As the title and thumbnail act as the first impression of the video when a viewer clicks on it, language also helps determine the accuracy and trustworthiness of the video. Of the 20 videos, ones that consisted of slang and clickbait titles often appeared to be on the lower spectrum of “trustworthiness” and often were categorized as “fear-spreading” and “sensationalist”. On the other hand, formal videos with no clickbait titles were categorized as being trustworthy.

When looking at the “Use of Music” category on all 20 videos, the chart shows 50% of all videos had no music whatsoever, 25% had rather neutral music, and the other 25% had dramatic-based music. Taking this into account, the information suggested that there was a correlation between the value of the source and the type of music played in the background. As background music plays a role in establishing the “ambience” within the video, its use in a video results in leaving the viewer with a certain feeling after watching the video. Alongside this, the music helps determine what is said and shown in the video which can dictate how positive, negative or tense the video portrays itself to the viewer, which results in setting a specific tone of a video. Therefore, the 25% of neutral music and 25% of dramatic music suggested that videos fell into being either informative, somewhat informative or completely misinformative. Initially, neutral background music played in videos were more leaning on being trustworthy and informative, whilst dramatic music (appealing to audience feelings) were more likely at being misinformative and fear spreading. Not only did music portray how informative or misinformative the video was, but neutral and dramatic music were used to shift and adjust the overall focus and aim of the video.

The amount of videos about the coronavirus that are out there that are not (or not completely) truthful is worrying and is a part of a bigger problem out there which is the ongoing spread of misinformation that is accelerated by the development of social media. While the social media companies can try to combat this issue, it is also up to us to critically review what is real and what is not.