

Improving Dental X-Rays by Updating the Sensor Positioning Device  
Misinformation and the Social Construction of Fact on Social Media

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On my honor as a University Student, I have neither given nor received  
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## **STS Prospectus**

### **Introduction**

As humans increasingly exist in technological settings, outsourcing interactions to screens, social media has grown to encompass an outsize share of our daily lives. This fundamental societal change has occurred on a massive scale only recently, spurred by the invention of personal computers and, more recently, smartphones. As social media has seeped into each corner of life, it has become a platform for every type of interaction and has empowered anyone with internet access to disseminate whatever content they please. While in theory providing nearly every member of the populace with the ability to propagate their views to a large audience is a noble idea, it has yielded unexpected and unwelcome side effects. One worrisome trend that has erupted over the last few years is the rise of misinformation spread on social media platforms. Misinformation has the ability to influence various aspects of life, most notably election outcomes and public health, especially relating to the COVID-19 pandemic. I am interested in the effects that social media have on our psychology, why social media makes us more likely to spread misinformation, and what role social media companies and governments have taken in intervening when misinformation spreads online.

### **Research Questions**

The questions I've chosen to guide my research are the following: How are facts and truth socially constructed and how are they presented on social media? How has the individual's formation of truth changed since the advent of social media and what molds a social media user's understanding of truth? What role do social media companies have in moderating content on their platforms, and in what context, if any, should governments become involved in regulating social media companies?

## Literature Review

Before attempting to discuss the broader, more tangible issues at play regarding the spread of misinformation on social media, it's necessary to understand the psychological aspects that lead users to engage with social media in unintentionally detrimental ways. As Fischer (2019) argues, the creation of a post-truth society, in which truth is ignored in favor of appeals to emotion, is not the result of postmodernism but rather social constructivism. While these are similar views, the postmodernist theory posits that reality is not reflected in human understanding; instead, reality is constructed by the individual and is subject to alteration. Working within this theoretical framework, social constructivism asserts that each individual's reality and understanding of their environment is formulated by their interactions with others. Schrader (2015) elaborates on psychology, demonstrating that known psychological tendencies are maintained through a technological medium. She writes that "knowledge occurs through shared activity...students learn to both think and explore within and outside of their own perspective or mindset. They also learn to take perspectives of others in important ways that influence social-emotional learning."

Johnson (2018) adapts this perspective to the realm of social media, applying Latour's Actor-Network theory (ANT) as a framework for viewing radicalization through internet media. She postulates that each user on a social media platform is considered an actor, but that the advanced algorithms that social media companies apply curate content in such a way that polarizes the network, so that those with differing opinions hardly interact. For example, if a user tends towards liberal politics, her Facebook feed may eventually only display liberal-leaning news sources. Harkening back to Schrader's research, if one derives their understanding of truth from a narrow network of like-minded actants, they will be much more likely to believe

misinformation that spreads within this network. Marwick (2018) takes a similar socio-technical approach, and arrives at the same conclusion, that “whether people are likely to trust a story has less to do with who published it than who shared it.” She expounds another occurrence of social understanding through social media, that being that misinformation typically reinforces narratives about race, class, and gender that helps reinforce collective identity, a pull factor for some in an increasingly diverse world.

Apart from social constructivism, there are other psychological aspects that can be studied regarding social media use, and how users interact with news that they see on these platforms. Madden, Lenhart & Fontaine (2017) showed in focus groups that most young people demonstrate low levels of trust in news media. Many participants acknowledged that it can be difficult to discern what information they see online is accurate, and many cited consulting multiple sources to verify the stories they’d encountered. They also tended, interestingly, to believe a news source more credible if its biases were known. As Wang et al. (2019) point out, social media is a poor environment for factual reporting for a few reasons. Users perceive info on social media as just as credible as television and radio, even though there is no factual verification or accountability on social media. Specifically, regarding public health, they cite that humans are more likely to engage with sensationalized and provocative media than factual media, which in the context of the medical field is often esoteric and dull. This leads to further spread of misinformation, and has picked up since the onset of the COVID-19 pandemic.

So, what have social media companies done to try to curb the spread of misinformation? As Kwok and Koh (2020) discusses in his article about deepfakes, big tech companies such as Facebook, Twitter, and Google have implemented limited bans on deepfakes, and have released databases of deepfakes to help improve identification of this novel technology. As this is one of

the most prominent and potentially influential forms of misinformation, there has been plenty of research into technologies that can automatically detect and assess visual media integrity, but the ability to detect and limit the spread of deepfakes has not yet caught up to the rapid advances of deepfake capabilities. Kwok approaches deepfakes with a social construction of technology perspective, showing that the technology cannot be stopped, but that as a society we can push to make it used for purely beneficial uses. Iosifidis & Nicoli (2019) conducted a qualitative analysis of Facebook's actions since Nov. 2016, when Donald Trump won the US Presidential election, to limit the spread of misinformation and identified numerous proactive (i.e. unprompted) and reactive changes that they've made since then. They came to the conclusion that Facebook relies too heavily on AI to detect false content, which can be easily outmaneuvered by AI-generated content or unable to pick up on nuance of language such as satire or humorous content. While Facebook also employs human, independent fact checkers to moderate content on their site, they are opaque about the interactions between them and the AI. The authors noted that while implementing third-party fact checkers may be a better solution, introducing them to the entire platform of Facebook is impossible, as there is too much content being posted at any given time. Susan Morgan (2018), a senior program officer at Open Society Foundations, mentioned in an interview that social media companies would not have taken any steps to curb misinformation had it not been for pushback. A prominent example of how pushback has recently pushed social media companies to stop misinformation spread is the "Plandemic" video that was widely shared on Facebook in May 2020. The video, showing an interview with a discredited former researcher, was littered with falsehoods and conspiracies around COVID-19 and was quickly taken down after many prominent virologists pointed out the extent of misinformation presented. She mentions how social media companies were aware of

misinformation prior to 2016 but took a “hands-off” approach, which was in their best interest to maximize ad revenue. She critiques Facebook but also Twitter, saying that they should move to ban bots, which are notorious for making certain topics trend that could benefit political parties and influence elections.

Finally, Egelhofer & Lecheler (2019) make the distinction between the fake news genre and the fake news label, and what that means for our broader discussion of media credibility. They define the fake news genre, which receives more research but less attention, as “pseudojournalistic misinformation,” while the fake news label is applied to delegitimize news media, especially broadcast news. They suggest greater research should be applied to the fake news label and its implications in altering collective perception of news, arguing that it levels the playing field between the fake news genre and respected newspapers by delegitimizing the latter.

The topic of social media misinformation is unique in that it incorporates both psychological and sociotechnical research, two dissimilar fields of study. Although there is an abundance of research into both fields, the complex interactions that occur between the two is lacking research. By looking at social media companies’ and governments’ actions and how they alter the social constructivism of social media users, I feel that I can contribute to the overall knowledge of this complex system and offer solutions to improve it. Research into social media misinformation has exploded over the last few years, and will continue to be a pressing topic for these companies and governments for long into the future. Being able to understand and interpret this system will produce great, increasingly important, benefits.

## **STS Framework and Method**

Given the nature of social media, applying Latour's actor-network theory is the most logical framework to understand this complex environment. Under ANT, each user on the platform is an actor that influences each other actor within their sphere when they interact on social media sites. So, by sharing an article that they read, a user is working as an actant to display that information to their followers, which are other actors in the network and may or may not be influenced by the article. In this sense, the construction of truth is a networking process in which the more complex the network, the more robust the sense of truth is. Using ANT, misinformation spread is the result of a breakdown of one of the long connections that led to the production of truth. Visualizing social media users in this context is an apt prism through which the social construction of truth is easily understood as well. By creating a network of like-minded users, each user continues to grow their understanding of truth based off what others in their network believe, which can eventually be warped if users are in an information bubble, leading to users trusting any information shared within their circle, even misinformation. Relating to COVID-19, one prominent example of misinformation that has been widely spread is the belief that the virus was created by the world's elites in order to profit off an eventual vaccine. While this assertion is patently absurd, a social media user that already lives in a network that is distrustful of elites may be more inclined to believe this conspiracy. In terms of data collection, I plan on conducting it in two ways. The first will be a survey of social media users, ideally with a sample around 30 and with a diverse user pool, probing their social media habits and if their social media usage and psychological biases match what the existing literature has shown. The other data collection will be researching the actions that social media companies and governments have taken in regulating misinformation, and investigating how well these

actions diminished the spread of misinformation and analyzing the reactions of users to these measures. Unfortunately, the survey may suffer from typical poll biases, including response bias, under-coverage bias and voluntary response sampling. In order to deter response bias, I am planning on making the survey anonymous so that users feel they can share their honest opinions. To combat under-coverage bias, if the initial sample of 30 that I receive is inadequately diverse, I will enlarge the sample and attempt to attract the under-covered group. Tackling voluntary response sampling may be difficult, as it is unreasonable to expect a true random sample of all social media users, but if all demographic groups have similar voluntary response rates then I can discount this methodological bias.

### **Timeline**

I'm seeking to begin data collection on social media companies and governmental actions, as well as finalize my survey, in early December, finishing by the end of the calendar year. I hope to have all of my data collection completed by the beginning of the Spring semester so that I can begin synthesizing the data and producing the final report.

### **Conclusion**

I wanted to focus on social media and its effects since it will always be a pertinent topic, and the public discourse has deteriorated to a point where misinformation is unfortunately common on these platforms. I feel that by incorporating the social construction of truth and the psychological aspect it will provide a more well-rounded interpretation of how humans interact with and gain knowledge from social media. Increasingly more important, also, is the steps that social media companies, and to a lesser extent government, take in policing their platform and aiming to rid it of misinformation. I expect to find the same biases that lead to social construction of truth as previous literature, but I am also focused on users' interpretation of



social media companies' actions and I'm interested in synthesizing all this information to gain a clear picture of why misinformation is so likely to spread on these sites and how companies and users can react to prevent it from happening in the future. Improving discourse and the trustworthiness of information on social media won't be an easy task, but I believe that there are actions we can all take to prevent harmful misinformation from spreading on the world's largest platforms, which will ultimately be for the benefit of society as we work to end the COVID-19 pandemic.

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