COVID Misinformation in Social Media
(Technical Topic)

The exploration of the disruptions from online learning
(STS Topic)

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Introduction

In March 2020, the world was faced with a unique situation not seen in over a century, the whole global economy came to a grinding halt with the new stay at home orders due to the COVID-19 pandemic. With this disruption, the education model was severely affected and colleges all around the world had to quickly adapt to the online learning model if they hoped to continue teaching the rest of the semester. With such drastic changes, everyone involved was in unfamiliar territory and had significant new challenges in both teaching and learning the content. In this paper, I plan to explore various factors affecting students and teachers alike at different colleges in order to create guidelines on effective teaching techniques and creating an accommodating environment for all college students (Zuluaga, 2021). By exploring this topic, teachers and students alike can make modifications to their approach to studying along with universities in order to create a more refined educational approach. Along with the disruption to education, one key aspect that shaped this period was the prominence of misinformation in social media. Social media has been a critical component in reaching out and quickly communicating with the public but this reach was also exploited to spread misinformation and create a divide in public opinion. There has been an ever-increasing distrust on social media platforms due to their terrible moderation of content and propagation of scientifically proven misinformation (Wang, T., 2020). I plan to explore the effects of automating content filtering and moderation on the largest social media platforms during the advent of COVID-19.

Technical Topic

In the current climate where we are fighting to control a once in a century pandemic, it is critical to make sure that we have trustable, verifiable information from the proper sources to educate people. Given that a significant majority of people use social media to convey information, we have been observing extensive damages to general knowledge due to misinformation. According to the WHO, COVID misinformation have been spreading rampant, causing misleading medical information and economic disruption (Mourad et al., 2020). In my technical paper, I would like to explore the reasons causing the propagation of such misinformation through social media channels.

The effect of the misinformation has a grave effect in the current climate as people have been and are continuing to lose lives (Al-Rakhami et al., 2020). It is pertinent to understand the main issue with the spreading of this type of misinformation to make changes to alleviate the dangers of such content. To explore this topic, I will be using datasets provided by previous research papers to understand some of the techniques used in spreading misinformation and identifying patterns. The majority of all misinformation that are seen by the public originate from or spread rampantly on Twitter and Facebook as they have algorithms that reward engagement on their platforms, without accepting any responsibility of the harm cause by such algorithms. I will specifically be using data gathered from Twitter due to its prevalence in current social culture and its use by prominent and influential individuals such as presidents and other officials. As newer generation of people are growing up, they are increasingly spending more and more time on social media as it grows to become more intertwined in our lives. As we grow more

accustomed to it presence, it inherently makes us comfortable in using the applications for a significant portion of our world view.

But there are significant problems in relying on such apps they do not have our best interests in mind when designing the personalized algorithm for individuals, these companies only care about engagement on their platform and time spent. As such, they can turn into echo chambers where your feed will be filled with related content that will garner a reaction from you, not the most accurate or truthful information (Mourad et al., 2020). During COVID-19, this became especially dangerous as false medical information or poorly supported opposition to expert medical advice were being subverted by the very such algorithms we rely on. My paper aims to explore in detail the dangers of Covid misinformation and how we can identify such content so these platforms can create better systems to block such content. In addition, I hope to provide the audience with strategies they can use in their own scenarios to identify accurate information on social media. The prevalence of social media in our lives will only grow in the future based on the current trajectory of the large social media platforms. We must learn to apply critical thinking when consuming the content on social media and self-regulate our emotions before falling victim to the dangers. By analyzing techniques and patterns of misinformation creators, we can better understand why people mistrust certain sources and create our own strategies to counteract the misinformation in our daily lives.

STS Topic

When all students were abruptly forced to switch to virtual classes, their learning was affected. With the whole change of the class structure, time-zone differences, and various environmental factors all led to a general disruption in the learning environments for all students. My STS research paper aims to identify the key components that affect the performance and proficiency of students when using online learning to improve the curriculum. There has been some published research that does explore the same concepts since a great deal of academics are trying to understand the crux of the issue and how they can help accommodate all the students who are facing difficulties with online learning. Based on an early study by the National Center for Education Statistics, 87% of undergraduate students experienced enrollment disruptions and 40% of students experienced financial disruptions (Cameron et al., 2021). Most of the evidence used to research this topic are gathered using case studies from students and professors from which I will be utilizing a combination of research paper data along with my own sample of case studies collected from students attending UVA (Elberkawi et al., 2021).

A key factor in determining the effectiveness of teaching methods is the user response to the changes. Students hold the most valuable data in regards to the different strategies universities have applied to accommodate for the pandemic (Jiranantanagorn et al., 2021). In order to get the most insightful data on what the students are truly feeling and also what the teachers are truly feeling on the current condition of online learning, I will be analyzing research papers to compile a list of factors in a class setting that had an effect on the student's perception and performance in the class. Along with previous research, I will

further gather data to analyze they key factors by sampling UVA students to understand if there are further components that should be looked into. While students do provide important data when understanding a teacher can also provide valuable information. Content from a teacher's perspective will also be included in the analysis as a teacher can effectively gauge the aptitude of the class and the general sentiment of the class. A student on the other hand can give detailed breakdown of each teaching technique and why certain approaches work better for their situation.

The research paper will utilize techniques from the actor network theory model to understand how different people interact with classroom technology in order to evaluate how key components of a class can be modified to more effective (Rodger et al., 2009). While no quantitative survey can properly convey the unique situations faced by all individuals involved in this study, key components will be granted equal amounts of agency in analyzing their effects for the actor network theory. By approaching the teaching challenges with no preconception, we can properly build a network of components that teachers should reference when building their schedules and teaching techniques so that they are able to accommodate some of the disruptions caused by online learning. Some of the factors I believe effect educational efficiency include: class time, lecture time, group work, office hours, grading structure, and tools utilized for teaching (Han et al., 2022). By identifying the factors affecting students' performance, confidence, and mastery on the classes, I would be able to advise teachers and universities how they can utilize technology to create a better class environment, one that properly teaches the content but also takes care of the student's mental health.

Conclusion

To take lessons from this unique situation, I plan to explore the topics of misinformation in social media so that we are able to better able to understand what techniques are utilized to subvert the advice of medical and economic professionals. When we understand the key ways to convey proper information to the general populous, we will be able to better educate people about COVID and other future pandemics. With transparent communication from professionals on medical advice, we will be able to decrease the deaths from COVID as listening to properly updated medical advice give people the strongest probability of overcoming the pandemic. As the disruptions caused by the stay-at-home mandates have resulted in a decrease in education quality, it is critical to take lessons from this event to understand what components of the teaching structure can be modified to better educate students. An additional benefit to properly analyzing and taking lessons for improving online education will greatly benefit the underprivileged groups around the world. By accommodating digital learning as a critical component of college classes, professors will not only be able to more effectively teach their students in online format but also allow anyone else in the future to benefit and learn from their classes. By understanding and learning from the negative repercussions from COVID-19, we can collectively as a society greatly improve our pedagogy for higher learning along building better standards for fighting disinformation.

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