

Social Networking Service for Rapidly Growing School Community

Sociotechnical Imaginaries views on Social Media during COVID Pandemic

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By

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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

Nowadays, social network service has established itself as a main source of gathering information from different communities and individuals, and even constructing and disseminating new knowledge to the public. However, the technology is often overlooked as a casual media consumption, and people are not aware of the fact that it is, especially in the younger generation, the main driving factor of new knowledge formation and its exposure to large audiences has been constantly shaping our visions of the future.

Utilizing the power of social media to facilitate sharing information and connecting people, my technical project aims to build a social networking platform for my former high school to promote sharing college admission and professional career related information between current students and recent alumni, and also tightly connect the current, largely divided school community.

My STS research is tightly connected to my technical project because by studying how big social platforms such as Facebook, Instagram, and etc. are playing roles in shaping the visions of our future during COVID pandemic, I can make more thoughtful decisions in designing my software and stay cautious of its potential influence to my former high school community. The research mainly focuses on understanding how social media played a huge role as a major source of constructing scientific knowledge during COVID pandemic and evaluating what counts as social good and risk in its use cases. Furthermore, it also aims to review how differing engagements of everyday users, medical experts, and governments have shaped the way we respond to the disease.

Technical Topic

Started with only 25 students in total, my former high school has dramatically grown in size up to 250 over the past 3 years. With a sudden change in its size, the school has struggled with assimilating different groups of new students into the community, and has resulted in a notable segregation between original and new members of the community. This not only limits the opportunity of sharing information with others, but also disrupts maintaining a network between the current students and recent alumni. As a result, students, especially those who can not afford extra education outside the school and therefore only rely on school resources for gathering college admission and career related information, are at a huge disadvantage.

To address the concern, one alumnus and I formed a team and decided to build a social network service dedicated to the community where the current students can freely share information by anonymously posting college admission related questions, look up alumni who pursued the similar pathways, and even get in contact with alumni for further questions. Our team has taken a series of steps to achieve the goal of the project. We started by collecting requirements from the school and translating their plain text answers into technical specifications. After two weeks of extensively gathering requirements from various sources, two main features were prioritized in the first minimum viable product: “Alumni search directory” and “Anonymous posting and answering questions”. Also, additional yet minor requirements were 1) the service should be accessible in multiple browsers including safari, firefox, and chrome 2) the service should authenticate users by their own unique school email address so people outside the community can not access their personal data.

Because it was our “personal” project, we didn’t have any staff administration, so we decided to utilize a project management tool Github Actions to follow each other’s progress and break down the development process into multiple tickets/tasks. We ordered these tasks by their significance and urgency, and then began searching for the tools suitable for this project. We soon decided on using React for the client side and Django for the server side, jointly with PostgreSQL database. I mostly worked as a backend engineer in this project, implementing the application’s server API and database management. One of the contributions I made was writing a shell script to automate the conversion of text based excel data into the appropriate Django models for students or alumni data tables. It tremendously helped us save time in the long term when the number of users was drastically rising.

During the data collection, few ethical issues related to personal privacy arose. Our team initially planned to collect the current students data through various sources such as LinkedIn, Facebook, and the school’s counselors, but found out these methods are illegal without an explicit consent. So, we contacted the school office and asked for help collecting the current students’ information and admission results data with a legally documented consent of individuals.

The automation for managing data and the basic form of client interface supporting searching and posting questions features are fully implemented, but the data collection is estimated to take 6 months, according to the school office, to produce legally valid and reasonable amounts to operate the platform. Thus, our current goal is to continuously engage with the members of the community to advertise the platform and encourage them for participation. Once more data is collected, the maintenance of the

service will be our major focus, and we will continue collecting users' feedback to implement additional features into the service.

STS Topic

Since the outbreak of COVID pandemic in 2018 and by Jan 18, 2021, 95 million people have been infected with the virus worldwide, with about 2 million deaths (Tsao et al., 2021). The world was in chaos, and new statistics and health regulations were endlessly created at every minute. With a burst of new information and the inherent human nature of seeking information to make sense of the surrounding events (Buchanan et al., 2021), "social media has rapidly become a crucial communication tool for information generation, dissemination, and consumption." (Tsao et al., 2021). Taking the study of social media from this perspective will help us understand how social media has shaped our society during the pandemic and identify its benefits and risks. Moreover, the readers will be more aware of the outcome of their engagement in creating new information with their social media usage.

The research begins by observing how social media has earned its place as a major source of information during the pandemic. Since the COVID was officially labelled as a "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)", namely COVID-19 and acknowledged as global pandemic, social media has served a crucial role as a communication tool for healthcare professionals and governments to disseminate information about the disease and public health policies. The survey conducted by Pew Research Center from July 26 - August 8 2021 states that roughly half of Americans get some news about COVID-19 vaccines from social media, and 60% or more of those who regularly go to social media platforms for news consider social media as an important source of COVID-19 news (Mitchell & Liedke, 2021). This statistics highlights how influential social media can be in changing public's perception towards the pandemic, and a number of studies utilize the technology as the main source of understanding the public. For instance, the study conducted by a team of professionals mainly focused on reviewing the analysis of social media usage to evaluate the need for mental support during the global health crisis (Abbas et al., 2021).

Next, we move on to analyze what differing engagements of different groups on social media existed and how they shaped the behaviors and response of the public. Individual users on social media are the most influential force in shaping new attitudes of the general public because they take their own unique perspective in creating new information and publicly respond to other news. The study of over

6,300 Americans conducted in March 2020 states that people spent on average 55 minutes every day on social media seeking for COVID related news (Buchanan et al., 2021). Also, the stories featured in World Health Organization stated that 43.9% of people in age 18 - 40 responded in the survey would likely share “scientific” content on their social media (Hess et al., 2021). Likewise, non-professional individuals actively engage in responding to COVID news and even posting scientific contents which can form the public’s attitude towards the virus.

Another major group engaging in constructing new information on social media is medical professionals who conduct a study of not only the disease itself but also the public’s reaction to the disease. In the past years, medical professionals stayed away from using social media for disseminating healthcare knowledge due to privacy concerns in patient-doctor relationship and informal characteristics of the platform (Haroon, 2020). As a result, falsely described medical knowledge and misinformation about the disease were blindly distributed and accepted at the early stage of the pandemic. However, the lockdown period forced them to seek for aversions such as social media and become heavily reliant on social media to follow up with constantly updating COVID information. Medical professionals soon witnessed a huge gap in the public’s knowledge and understanding of the preventative method, so few private groups consisting of physician volunteers were formed to educate the public and help filter out invalid information roaming on the platform. The groups were also involved in disclosing the lack of staff and infrastructure to treat patients which, in turn, led the public to pressure the government to take appropriate actions.

The last group is the government which mainly utilized social media to alleviate the public’s fear of uncertainty by constructing credible and official information. The study conducted on Macao’s government social media usage during different stages of the pandemic best exemplifies the engagement of the group. Before the pandemic outbreak, Macao government did not have their government Facebook pages about public health but started actively engaging in the platform, posting 1664 COVID related information and attracting 10,805 comments in a 304-day duration from 1 January 2020 to 31 October 2020 (Pang et al., 2021). From the beginning of the first confirmed case, the Macao special administrative region (SAR) government had been broadcasting daily press conferences live on social media every day. This not only improved the transparency of governments but also soothed the public’s uncertainty, promoting even more engagement of the public in the government’s social media. The government’s appreciation of medical staff and its citizens in actively participating in the health protective behaviors also boosted its relationship with the public. Thanks to these effective uses of social media by the Macau

SAR government, the city has recorded zero local community transmission cases for more than 350 days (Pang et al., 2021). With its great success, the **government's engagement in social media will become an exemplary model widely adopted by foreign nationals to effectively control rumors,** promote community cohesion, and prevent any further burst of infections.

The readers of the paper now **should have a clear understanding how social media functioned as a major source of constructing and disseminating information during the pandemic** and how different groups of people engaged in the platform to achieve their goals or simply make sense of the surroundings. The remaining question is how the visions of the future shaped by differing engagements affected us. **Social media usage in controlling the pandemic played a huge role in disseminating appropriate information in a timely manner, but two novel terms concerning its negative effects were created: "doom-scrolling" and "infodemics".** First, doom-scrolling is a term which describes **"when one becomes caught in an unending cycle of negative news"** (Buchanan et al., 2021). This phenomenon is prevalent during the pandemic because people averted their time during the lockdown period to social media, seeking for a sense of connection. However, the problem is that social media is mostly full of negative news such as recent confirmed infection cases in the community and such a constant exposure to negative news can pose a serious threat to the users' mental health. In fact, according to the data from a large cross-sectional survey conducted in France during its lockdown period, 45% of respondents spent more than half an hour, scrolling through news on social media each day. Also, those who spend most of their time on social media searching for COVID related news have shown higher levels of anxiety, distress, stress, and depression (Buchanan et al., 2021). Such a correlation between the time spent reading COVID news on social media and probability of mental illness was also apparent in the findings with a large cross-sectional study of over 6,300 Americans conducted in March 2020 (Buchanan et al., 2021). Second, infodemics, a phenomenon labeled by World Health Organization, tells us the spread of misinformation on social media can **"lead to poor observance of public health measures, thus reducing their effectiveness and endangering countries' ability to stop the pandemic"** (Neely et al., 2021). Even with the help of medical professionals actively filtering out invalid information on social media, the rate of misinformation being generated is incomparably faster and therefore can not be fully controlled. The average percentage of people believing in COVID-19 conspiracies and false claims on social media, though slightly differing by the platforms, is recorded at about 27% and those who believe in these false claims tend to avoid getting appropriate vaccinations and there's a strong correlation between believing misinformation and wearing a mask (Kulke, 2020). Considering how one false claim can mislead multiple individuals to irreversible consequences, the number is significant and should be taken seriously.

Next Steps

Because the COVID pandemic is an ongoing disease, and our society is currently on the edge of transitioning our perception from fighting the disease to co-living with it while keeping its spread under control using preventative public health policies and vaccinations. Over the course of Fall semester, I want to observe how social platform interfaces change as a response to the new stage of the pandemic and its impact on the public's acceptance of the new transition by following posts with a hashtag "With Corona". Lastly, I will stay alert of any false COVID information on social media misleading our society to pitfalls and actively engage in requesting correction and providing open feedback on any information I find contradictory.

Clearly identifying the impact of social media in the current world has led me to view my technical project from an entirely different perspective. Before taking the STS research, I only focused on my engagement as an engineer in building the social network service, but now I am more aware of different groups of people including the current students, recent alumni, and school teachers who will engage in shaping the visions of the software. As I continue on collecting more data to improve the platform, I will keep interacting with different groups of community members to understand their goals in using the software and ensure the software only brings positive impact to the community.

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