Power of Social Media and Acknowledgement of Government Organizations

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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 to the Current State of Social Media

From casual media consumption to social networking, social media contains a wide range of features that make people revisit the platform multiple times a day. The technology has evolved concurrently with its growing number of users. The user data collected over time has yielded improved platforms that better understand what types of content attract people the most. As a result, its user base has substantially increased. According to the statistics aggregated by Pew Research (2021), the percentage of U.S. adults who say they use at least one social media site has grown from 5% to 72% in 15 years. The number was even higher among teens as Allen (2019) noted, "A 2018 Common Sense Media report found that 81 percent of teens use social media, and more than a third report using social media sites multiple times an hour." (What About Teens section, para. 5). Considering that the current young generations will likely shape the norm of our future society, the influence of social media will continue to increase and potentially change the way we perceive the surrounding world. The unprecedented growth in the number of users alluded that social media has invisible power that attracts a wide range of population and makes it irreplaceable by traditional platforms such as newspapers and TVs.

A Rise of a New Role and a Revelation of the Invisible Power

As social media has become more influential, it started to serve a new role: the hub of information sharing. The transition was still ongoing but apparent, and our society has gradually adopted the trend to effectively utilize the technology in areas that need improvement. Some of the changes made include "…social media as feral systems, integration in businesses and firms, non-profit organization and agencies, smart environments and e-government" (Lombardo et al.,

2021, Introduction section, para. 5). Lombardo (2021) noted that feral systems in workplaces where employees can freely communicate with less or even no interference from corporations could be achieved through the use of social media platforms. Then, the corporations found out that the increased usage of social media in their employee's free time also influenced the way their employees want to work. In addition, concerns about the potential risk of a data leak on the social media platforms prompted the corporations to officially adopt the technology, often called Enterprise Social Media, to keep it under control. They also assessed its benefits and incorporated it into their business processes to improve agility in decision-making and help employees bring novel ideas into the communication. In non-profit organizations and agencies, improved communication generated strong social relations within support groups for chronic disease, and a strong community of open source developers, built upon connections made on social media, has resulted in a more refined software over time. Planning smart cities and their infrastructures could also take advantage of massive data generated on social media to analyze where people frequently visit and the general public's opinions on changes made in the cities. Interestingly, the concept of e-governments also became highly feasible by opening more accessible communication channels using social media which allow their citizens to report issues in a more streamlined process. (Lombardo et al., 2021). These changes already made in multiple aspects of our society suggested that the primary power of social media is agile, transparent, and accessible communication which traditional communication platforms could not fully provide.

An Absence of Social Media in Public Messaging During the Pandemic

COVID-19 pandemic outbreak in 2019 struck the world, and people were in chaos; they were scared of the new virus and clueless about what actions to take. The U.S. federal governments and public health agencies hastily communicated with the public about the virus through multiple channels including daily briefings and newspapers, but the communication was not as effective as it should have been. By the end of the year 2020, the U.S. reported over 20 million infection cases and more than 346,000 deaths ("A Timeline of COVID-19," 2021).

Its citizens expressed disappointment; Maryland governor, Larry Hogan, mentioned, "without help from the federal government, he was forced to rely on his wife, Yumi, who was born and raised in South Korea, to arrange for the purchase of 500,000 coronavirus test kits." and "Governors were being told that we were on our own. It was sink or swim," (Caldera, 2020, Federal Government section). If there were social media used as a communication channel to promptly inform public health guidelines and streamline the process to provide appropriate support, the virus could have been well under control. Tufekci (2021) stated that the WHO tried its best to prevent the virus from spreading but there still existed a huge gap in its infrastructure. As a result, "Many researchers and experts noted the absence of timely and trustworthy guidelines from authorities and tried to fill the void by communicating their findings directly to the public on social media." (Tufekci, 2021, para. 8).

We could conclude from these statements how much gap exists in the current U.S. federal government and public health agencies' method of public messaging, and the effective alternative resolution chosen by the field experts was social media. Those experts were well aware of how quickly the information can be delivered and how widely the information can reach the public through social media platforms.

I believed the continued use of traditional communication mediums and the reluctance of acknowledging the power of social media in public messaging can be problematic, especially for organizations like the federal government, the Centers for Disease Control and Prevention (hereafter: CDC), and World Health Organization (hereafter: WHO) who are responsible for informing the public about important news and guidelines on time, so this paper primarily aimed to identify that the problem was occurring and illustrate how social media can be a resolution.

This research paper first walks through analyzing the survey statistics on the public's inclination to choose social media for collecting information, highlighting the emerging role of social media platforms. Then, it explores case studies in two foreign countries, Israel and South Korea, where their citizens or government agencies utilized social media during the pandemic for public messaging and achieved great success. Lastly, it explores similar case studies situated in the U.S. to assess whether the similar strategy that achieved success in two foreign countries is also applicable in the U.S. Based on the analysis of the statistics and exploration of the case studies, the paper intends to conclude that the U.S. federal government and public health agencies should acknowledge that social media has become so powerful that it has become the public's standard source of collecting information; therefore, they should actively adopt social media platforms as their official communication tools to effectively disseminate information.

Public's Inclination Towards Social Media for Information

New forms of media such as news mobile apps and social media platforms have become more dominant than traditional media. These new forms of media can provide a quick and accessible source of information through multiple digital devices with the internet, so it was not surprising when people started to favor social media over other platforms for collecting information. According to the data from Pew Research collected from August 31 to September 7, 2020, about 71% of people go on social media platforms to get news (Walker & Matsa, 2021). The number showed that more than two-thirds of Americans choose social media as a source of information. The data are noteworthy alone, but more notable data are that 42% of Americans aged between 18 and 29 go on social media to get news, and the number got even bigger when we looked at millennials in which the population chose social media as the primary news source was up to 90% (Djordjevic, 2021).

These findings deserve great attention because these younger generations will form the norm of our future society, and the data indicated social media will naturally become the standard medium for sharing information in a few years. governments should start paying close attention to the change and assess whether social media can be adopted as an official medium for public messaging. Some can be skeptical due to potential side effects such as spreading misinformation, but multiple case studies in foreign countries proved to say its benefits can be substantial.

Case Study: Social Groups on Facebook during Pandemic in Israel

Vaccination has been the most reliable, effective method to prevent COVID-19 infection since the first FDA approval of the Pfizer-BioNTech COVID-19 vaccine. However, the initial response of the public to this approval was somewhat skeptical due to its unusually rapid approval timeline, and people were reluctant to be forerunners and risk the side effects. Such sentiments have posed serious concerns to multiple countries in curbing the rising infection cases and prompted finding ways to encourage the public's participation. Social media such as

Facebook, WhatsApp, etc. played a significant role in promoting vaccine acceptance and delivering information that had a long-lasting impact on shaping their users' perception and behavior during the pandemic.

As of Jan 18, 2021, 95 million people had been infected with the virus worldwide, with about 2 million deaths (Tsao et al., 2021). With the introduction of vaccines, infection cases have gradually diminished, but skepticism around the vaccine's potential harm and its wasted surplus were still limiting its effectiveness. It was even worse in Israel due to its limiting infrastructure which is responsible for tracking wasted surpluses, but its citizen has cleverly utilized social media platforms such as Facebook to form social groups where the groups' members collected, verified, and disseminated information about vaccines in the country (Manor & Israeli, 2021).

The panic among Israelis was at its peak before the formation of the social groups on Facebook because they were constantly witnessing infection cases among their family members and friends. So, Israelis were eager to find ways to get vaccinated early, even though they can anyhow get vaccines on their designated schedules. Two members of the social group, Sheila, and Ilana, once described the panic, "I am afraid of getting sick, because someone in my family has already gotten sick." and "Two of my friends who were careful and wore face masks all the time got sick, so I'm afraid I'll get sick too." (Manor & Israeli, 2021, The Panic section).

In contrast to Israel's case, other Arab countries had a lower rate of vaccine uptake, so there existed lots of leftover vaccines. However, Israeli Health maintenance organizations (hereafter: HMO) were struggling to keep track of these surpluses and their locations due to heavy workloads and lacking infrastructure. Noticing this gap in effectively bringing vaccine surpluses to those willing to get vaccinated early, a few ordinary citizens of Israeli voluntarily created social groups on multiple platforms including WhatsApp, Telegram, and Facebook. The

groups soon attracted an unexpectedly high number of members, and they started sharing the vaccine availabilities and their geographical locations (Manor & Israeli, 2021).

The size of one of the groups on Facebook, called Vaccines Between Friends, has grown up to 63,000, and healthcare employers from the HMOs also started to use the groups as their medium for reporting vaccine surpluses (Manor & Israeli, 2021). Social media was the perfect cue to supplement the HMOs' shortfalls because Israeli citizens could instantly share information, and a single post can be publicly accessed by multiple people on highly accessible social media platforms. The impact of the group was further amplified as users on social media, who prefer interactions with like-minded others, generated an "echo chamber" phenomenon in which members of the group reinforced the need for vaccination and opposed any unverified conspiracy (Lang et al., 2021). With the far-reaching impact, the group also created a sense of social pressure that made users outside the group also feel that they need to get vaccinations like everyone else. This has led to more engagement in the group and facilitated sharing of vaccine information.

The number of vaccinated populations in Israel has substantially increased over time thanks to such a public movement. However, all the efforts almost went in vain when a large number of ultra-Orthodox Israelis that take up 13% of Israel's 9.3 million population raised skepticism around vaccination and spread misinformation on social media (Goldenberg, 2021). Their vaccination rate was half of the general Israeli population, endangering the entire country. This declining trend was partly due to the nature of the community; ultra-Orthodox people generally do not have access to smartphones and the internet where they can evaluate the validity of the information, and they tend to blindly follow their head rabbi's decision (Goldenberg,

2021). This suggested that there's a limitation of the power of social media depending on the cultural context and internet accessibility.

One interesting behavior to note from the case of Israeli social groups on Facebook was that the members of the group tend to remain even after they get vaccinated to continue collecting information for their friends and families and benefiting other members in the group. This helped to enlarge the group and augment the positive effects through collective action. It was evident that social media has served a crucial role in sharing timely information during the disordered time, and even employers from HMOs acknowledged it to be effective and used it to report the surpluses. The next case study is placed in South Korea where its government openly adopted social media and effectively utilized it during the pandemic to curb infection cases.

Case Study: Use of Social Media in South Korea during Pandemic

South Korea, located near China where the first COVID-19 case was identified, suffered from the initial outbreak of the pandemic but has successfully managed to control the number of infection cases thanks to lessons learned from its previous encounter with Middle East Respiratory Syndrome (hereafter: MERS) outbreak in 2015 (Tworek, 2020). The MERS incident initiated South Korea to reform its disease prevention system to emphasize a timely, clear disease reporting system as the key to achieving effective disease control. Hence, when the first COVID-19 infection case was identified in South Korea on January 20, 2020, its government and disease control organizations could promptly respond to the case by opening communication using various channels including the Korean CDC twice-daily press briefings, text messages, and, most importantly, social media posts (Cha, 2020). Through these multiple channels, they consistently informed their citizens about real-time updates on prevention best practices, testing

guidelines, and infection case reports. The communication process was quick and transparent, so the citizens could openly trust the information and timely respond to the pandemic with informed actions.

In addition to the robust system built by government officials, South Korea also launched a social media campaign encouraging global citizens to join its effort in fighting against COVID-19 ("South Korea Launches," 2020). The #StayStrongCampaign rapidly gained attention after prominent Congress members, government officials, and organizations publicly announced words of encouragement on social media and through interviews. By the end of a full year after its first reported infection case, South Korea reported fewer than 80,000 cases and 1,500 deaths (Kim et al., 2021). This was an outstanding result compared to other countries and exemplified how powerful social media can be in delivering information even during a chaotic time.

Another study conducted on the impact of social media usage during the pandemic in South Korea substantiated both the positive sides and concerns about social media. The study indicated that the public's use of social media enhances risk perception, social distancing, and negative emotions (Choi et al., 2017). People who use social media for collecting information tend to perceive the risks of not following public health guidelines as harmful. However, the study also indicated that greater risk perception may lead to greater negative emotions affecting one's mental state, and misinformation spread on social media can result in public's misleading perceptions (Choi et al., 2017). The results suggested controlling misinformation on social media is going to be a determining factor to decide whether officially adopting the technology is a viable resolution.

Applicability of Social Media Usage for Combating COVID-19 in the U.S.

Two previous case studies situated in foreign countries, Israel and South Korea, suggested there were evident benefits of using social media as an effective communication platform for promptly spreading crucial information and few concerns regarding spreading misinformation that can produce the opposite result. The question we need to address at this point was whether the lessons learned from the case studies are realistically applicable in the U.S. which has a different cultural context and varying usage of the technology. So, we explored two case studies situated in the U.S. in which a strategy similar to Israel's case study was implemented and proven to be successful.

The first case took place in Washington state. A 32-year-old Sharla wanted to find ways to book vaccine appointments but was soon frustrated by the complicated process she had to go through. To resolve the struggle, she and her brother created a social group, Find a COVID shot WA, on Facebook where they can share vaccine information and how to step through the process of making appointments (Ibrahim, 2021). The group now grew to over 52,000 followers, making a far-reaching impact. Sharla also noted, "If it was hard for two kids from a suburban area, [who] are white and speak English and are privileged, how hard is it going to be for people who don't have the privileges that we have," (Ibrahim, 2021, para. 4). She deeply understood how more overwhelming the process can be for those less privileged. The group addressed the issue by creating a process for them that only requires making a single post with hashtags #searching or #support, and the group's volunteers will promptly reach out to them for support. Even if they are unable to make a post due to the absence of the internet, they can also simply make a phone call or leave a voicemail in either English or Spanish (Ibrahim, 2021).

Other ordinary citizens in Virginia came up with a similar resolution. Two local women, Cindy Jez of Chesterfield and Liz Thurman of Henrico, both felt overwhelmed by the

vaccination booking process suggested by the state, so they worked together to create a social group on Facebook, named RVA Vaccination Hunters (O'Brien, 2021). Its group members could freely and quickly share any updates on vaccination and personal experience of successfully getting vaccinated. The group now grew to over 6000 members within days, and Thurman stated, "Several people joined the site because they said their doctor recommended it" (O'Brien, 2021, para. 8), which shows how much trust and reliance the group held in the community. These two cases placed in the U.S. closely aligned with the movement in Israel in which they suggested the shortcomings of the current state-wide infrastructures, and social media was an effective strategy to fill in the gap.

Discussion

The survey statistics on the public's inclination towards social media for news alerted government organizations, especially their public health agencies, should consider adopting social media platforms as their official communication tool. Then, two case studies situated in Israel and South Korea exemplified how their citizens and the CDC effectively utilized the platforms to quickly deliver information, leading to improved vaccination rates and reduced infection cases. Lastly, two cases studies, each situated in Washington and Virginia, exemplified a similar resolution was needed and proven to succeed even in a different cultural context.

However, the question of its potential side effects remained. As more influential the social media grew, the risk of spreading misinformation was also concerning; a false conspiracy was prevalent, often misleading the public's perception and behavior. In addition, it raised the concern of privacy in countries like the U.S. where its citizens were less tolerable of personal data-sharing. Perez (2021) once noted a 5% decrease in social media usage for getting news from

2020 to 2021 and explained, "The change comes at a time when tech companies have come under heavy scrutiny for allowing misinformation to spread across their platforms" (Perez, 2021, para. 3). Then he noted, "That criticism has ramped up over the course of the pandemic, leading to vaccine hesitancy and refusal, which in turn has led to worsened health outcomes for many Americans who consumed the misleading information" (Perez, 2021, para. 3).

Despite the concerns, social media remained a viable solution. Heidi Tworek (2020), an associate professor at the University of British Columbia, stated in her article, "It would be wishful thinking to hope for the current U.S. federal government to adopt many, or any, of these strategies. But other levels of governments, for example the states, could learn from this approach." (Spotlight Public-Health section, para.3). She pointed out that states in the U.S. can still build appropriate health communication infrastructure to consistently provide information from trusted sources, so their citizens can avoid confusion and trust the information. However, Hyland-Wood (2021) warned, "while the use of some digital technologies may be proportionate and deemed necessary by public health officials during a pandemic, issues of social license, due diligence, and new legislation require careful consideration and communication." (The Role of Emerging Digital Tools section). Likewise, it is going to be a challenge to gain the public's trust and ensure the transparency of the system. Tworek (2020) was aware of this and emphasized that technology played a significant role in South Korea's successful response to the pandemic, but the solution could work because "they were based on values of openness, trust, and transparency" (para. 15). This suggested the potential first step that the U.S. federal government and its public health agencies such as CDC can take is to start building trust by transparently communicating what metrics are collected and how they plan to address issues. As long as the

core values of the solution do not change, the solution using social media as an official medium will remain effective and viable at the same time.

References

- Allen, S. (2019, September 20). Social Media's growing impact on our lives. American Psychological Association. Retrieved March 16, 2022, from https://www.apa.org/members/content/social-media-research
- Caldera, C. (2020, August 19). Fact check: Governors, president both responsible for pandemic response. USA Today. Retrieved April 24, 2022, from https://www.usatoday.com/story/news/factcheck/2020/08/19/fact-check-governorspresident-both-responsible-pandemic-response/3296998001/
- Center for Strategic & International Studies. (2020, April 27). *South Korea launches "Stay strong" campaign*. South Korea Launches "Stay Strong" Campaign | Center for Strategic and International Studies. Retrieved March 13, 2022, from https://www.csis.org/analysis/south-korea-launches-stay-strong-campaign
- Cha, V. (2020, March 27). A timeline of South Korea's response to covid-19. A Timeline of South Korea's Response to COVID-19 | Center for Strategic and International Studies. Retrieved March 11, 2022, from <u>https://www.csis.org/analysis/timeline-south-koreas-</u>
 <u>response-covid-</u>
 <u>19#:~:text=South%20Korea%20saw%20its%20first,South%20Korea's%20third%2Dlarges</u>

t%20city.

Choi, D.-H., Yoo, W., Noh, G.-Y., & amp; Park, K. (2017, March 3). The impact of social media on risk perceptions during the MERS outbreak in South Korea. Computers in human behavior. Retrieved April 21, 2022, from

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7126097/

- Djordjevic, M. (2021, February 25). *How many people get their news from social media in* 2021? Letter.ly. Retrieved March 13, 2022, from https://letter.ly/how-many-people-gettheir-news-from-social-media/
- Goldenberg, T. (2021, December 28). Hard-hit by first waves of COVID, Israel's ultra-Orthodox slow to get vaccinated. The Times of Israel. Retrieved April 21, 2022, from <u>https://www.timesofisrael.com/hard-hit-by-first-waves-of-covid-israels-ultra-orthodoxslow-to-get-vaccinated/</u>
- Hyland-Wood, B., Gardner, J., Leask, J., & Ecker, U. K. H. (2021, January 27). Toward effective government communication strategies in the era of covid-19. Nature News.
 Retrieved April 23, 2022, from https://www.nature.com/articles/s41599-020-00701-w#Sec19
- Ibrahim, A. (2021, April 29). Facebook group in WA wants to help you get a vaccine appointment. Crosscut. Retrieved April 22, 2022, from https://crosscut.com/equity/2021/04/facebook-group-wa-wants-help-you-get-vaccineappointment
- Kim, J.-H., An, J. A.-R., Oh, S. J. J., Oh, J., & Lee, J.-K. (2021, March 5). *Emerging covid-19 success story: South Korea learned the lessons of mers*. Our World in Data. Retrieved March 11, 2022, from https://ourworldindata.org/covid-exemplar-south-korea

- Lang, J., Erickson, W. W., & Jing-Schmidt, Z. (2021, April 28). #maskon! #MaskOff! Digital polarization of mask-wearing in the United States during COVID-19. PLOS ONE. Retrieved March 13, 2022, from https://doi.org/10.1371/journal.pone.0250817
- Lombardo, G., Mordonini, M., & Tomaiuolo, M. (2021, March 18). Adoption of social media in socio-technical systems: A survey. MDPI. Retrieved March 16, 2022, from https://doi.org/10.3390/info12030132
- Managed Care & Care & Communications, LLC. (2021, January 1). A timeline of covid-19 developments in 2020. AJMC. Retrieved April 24, 2022, from https://www.ajmc.com/view/a-timeline-of-covid19-developments-in-2020
- Manor, S., & Israeli, T. (2021, June 13). Friends get vaccinated: The power of social media groups in the COVID-19 vaccination campaign. First Monday, 26(7). Retrieved March 10, 2022, from https://doi.org/10.5210/fm.v26i7.11622
- O'Brien, K. (2021, March 11). Two local women create Facebook group to help others track down vaccine appointments. WRIC ABC 8News. Retrieved April 22, 2022, from https://www.wric.com/health/coronavirus/two-local-women-create-facebook-group-tohelp-others-track-down-vaccine-appointments/
- Perez, S. (2021, September 20). Study finds half of Americans get news on social media, but percentage has dropped. TechCrunch. Retrieved March 13, 2022, from https://techcrunch.com/2021/09/20/study-finds-half-of-americans-get-news-on-socialmedia-but-percentage-has-dropped/

- Pew Research Center. (2021, April 7). Demographics of social media users and adoption in the United States. Pew Research Center: Internet, Science & Tech. Retrieved March 11, 2022, from https://www.pewresearch.org/internet/fact-sheet/social-media/
- Tsao, S.-F., Chen, H., Tisseverasinghe, T., Yang, Y., & Li, L. (2021, January 28). What social media told us in the time of COVID-19: a scoping review. Retrieved March 12, 2022, from https://doi.org/10.1016/s2589-7500(20)30315-0
- Tufekci, Z. (2021, February 26). 5 pandemic mistakes we keep repeating. The Atlantic. Retrieved April 23, 2022, from https://www.theatlantic.com/ideas/archive/2021/02/howpublic-health-messaging-backfired/618147/
- Tworek, H. (2020, October 6). Lessons learned from Taiwan and South Korea's tech-enabled COVID-19 Communications. Brookings. Retrieved March 12, 2022, from https://www.brookings.edu/techstream/lessons-learned-from-taiwan-and-south-koreastech-enabled-covid-19-communications/#cancel
- Walker, M., & Matsa, K. E. (2021, September 20). News consumption across social media in 2021. Pew Research Center's Journalism Project. Retrieved March 12, 2022, from <u>https://www.pewresearch.org/journalism/2021/09/20/news-consumption-across-socialmedia-in-2021/</u>