

The Relationship Between Personal Freedoms and COVID-19 Prevention Systems

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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 late 2019, a novel coronavirus appeared in Wuhan, China, and began spreading to other parts of the globe. Governments of the world hastily implemented containment devices and procedures in an effort to protect their populace. These efforts ranged from bleeding edge technology to medical devices first proposed in 1897 (Spooner, 1967, p.1) Due to the fast-spreading nature of the virus, these containment measures were developed with a short-term goal of stopping the spread of the disease without considering long term social effects to privacy, consumer freedom, and trust in government. The social construction of technology (SCOT) will be used to analyze how COVID-19 containment measures were implemented around the world and what affects they may have on privacy concerns moving forward. By the end of the paper, I hope to show the tradeoffs that personal freedom may have within the context of a pandemic to help inform future policy decisions.

STS FRAMEWORK

Social Construction of Technology (SCOT) is a socio-technical research framework that utilizes three concepts to allow researchers to methodically analyze adoption of prevailing technologies - social groups, interpretive flexibility, and conflict resolution. As an example, let us consider the number 2 pencil to illustrate the core tenants of SCOT.

First, researchers using SCOT determine social groups involved with developing or impacted by the technology. In the case of the number 2 pencil, we can envision students, artists, and lawyers as potential social groups. These groups are picked due to their differing needs that may provide insight on the adoption of the pencil within their communities.

Next, the researchers determine the interpretation of this technology within these social groups. For example, consider artists, a defined social group. Some artists use pencils as a means for construction, symbolism, or other cultural imagery. These interpretations were not the

intentions of the inventors of the pencil, most likely, but they emerged from a social group having a use case that the pencil provided for.

Lastly, the conflicts between the relevant social group's interpretations and needs are analyzed to determine how the prevailing technology succeeded when others failed. For example, take a lawyer. The lawyer may have a need for writing, but some of their writing might need to be permanent. Therefore, the pencil does not fulfill a common use case, for their need of permanency is in conflict with their need for writing. Identifying these needs and determining why a pen would fit a lawyer's needs better is critical to using SCOT.

BACKGROUND CONTEXT

For a year now, at time of writing, COVID-19 has upended society around the world. There have been more than 2,100,000 deaths globally with more than 117 million infections worldwide (Worldometer, para. 1). The symptoms of the virus vary from person to person, but the most common symptoms are fever, cough, muscle aches, loss of taste and smell, sore throat, congestion, nausea, and vomiting (Centers for Disease Control and Prevention, 2020b). In severe cases, it can cause respiratory failure, pneumonia, and death. No one was prepared for an outbreak of this nature, and the affects worldwide were brutal.

By mid-March 2020, the United States and other countries began limiting travel between nations and implementing lockdowns (Staff, 2021, para. 15). These travel restrictions rocked the global economy, sending the world into an economic crisis. As companies reacted to stock prices plummeting, everyday workers were being laid off due to demand for many industries being negligible. While the wealthy sailed through this time relatively unscathed, lower class citizens were forced to find ways to survive. Applications for unemployment assistance in the USA skyrocketed, and many were searching for jobs. Some states, primarily states in the southern united states, pushed for lesser restrictions as an effort to stimulate the economy and restore

some of the freedoms denied by the lockdowns (Staff, 2021, para. 30). These states appealed to the American ideals of personal freedom and liberation to gain traction in their movement to the disapproval of others. Now, the panic has long since dissipated, but the unease and changes to social life are evident in every action taken in a time of sadness, stillness, and disease.

Privacy Laws of the World

The role of personal privacy changes globally due to cultural and legal norms. These norms help contextualize the choice of COVID-19 prevention methods, and therefore are worthy of discussion.

For example, the European Union codified their General Data Protection Regulation (GDPR) in May of 2018. This set of laws arose from the modern need for regulation over the digital landscape and defines the extent that digital providers can collect, manage, and distribute a user's personal data. The GDPR employs a "Privacy by Design" approach that effectively keeps the data subject in focus while defining actors that influence a person's data (Das, 2018). This is to protect the misuse of sensitive data and to ensure that banking, communication, and businesses can operate efficiently with consent of the customer (Das, 2018). In the European Union, guidelines for contact tracing were published that require applications to follow the GDPR fully when collecting data in defense of the pandemic (Gerke et al., 2020, para. 20).

The United States has the Health Insurance Portability and Accountability Act (HIPAA), which addresses "the use and disclosure of individuals' health information...to ensure that individuals' health information is properly protected while allowing the flow of health information needed to provide and promote high quality health care and to protect the public's health and well-being" (Centers for Disease Control and Prevention, 2018, para. 1). In addition to this "Privacy Rule", HIPAA also holds a "Security Rule" that outlines guideline to "Ensure the

confidentiality, integrity, and availability of all electronic protected health information," among other things (Centers for Disease Control and Prevention, 2018, para. 5).

To protect and limit how healthcare officials treat sensitive data, South Korea has the Personal Information Protection Act (PIPA) (Park & Ko, 2020, p. 1). In response to the pandemic, South Korean officials amended their Personal Information Protection Act with the Contagious Disease Prevention and Control Act (CDPCA), which allowed them to share private information with the public (Park & Ko, 2020, p.1). In the COVID-19 pandemic, this equates to mandatory contact tracing applications that can report identifying information, health information, credit card transactions, immigration records, and more (Park & Ko, 2020, p.1). As we will see earlier, these actions greatly reduced deaths due to the pandemic, but the long-term effects of this privacy invasion are still unknown.

LINKS BETWEEN STS FRAMEWORK AND TOPIC

Strategies and Technologies

COVID-19 put undeniable stress on social interactions around the world. From lockdowns, social distancing requirements, and a collective fear of one's neighbors, social interaction is radically different, and this stress introduces unique social challenges on any technology used to fight the disease. Per the tenants of SCOT, we can start by defining the strategies used to fight COVID-19 and three social groups which hold differing values and have different needs.

Masks, social distancing, lockdowns, contact tracing, and facial recognition are the most used strategies and technologies used to combat COVID-19. These technologies approach the problem differently, therefore SCOT may be used to determine why they fill their niche. By far, the most common form of COVID-19 prevention comes in the form of wearing masks and other PPE. This practice is recommended by the CDC because it is simple to do and has a fairly high

efficacy (Centers for Disease Control and Prevention, 2021, para. 1). These masks typically cover the person's nose and lower face and wrap around their ears or neck. This barrier primarily contains droplets from the nose and mouth from spreading and landing on others. They may also help hide a person's identity, which may help their case when considering privacy implications of this prevention strategy. Studies have shown that masks interfere with not only human recognition of individuals, but they also interfere with facial recognition technology (Carragher & Hancock, 2020, para. 1).

Social distancing, isolation, and lockdowns are all different extremes of the same prevention strategy. This tactic involves limiting interactions between individuals, with social distancing being the least extreme and lockdowns being the most. This strategy, when implemented, is very good at limiting the spread of any virus due to the chances of contact with an infected person being lowered. However, as discussed later, this may not be feasible for entire social groups or economic classes of people.

Contact tracing has various implementations in different settings. Traditional contact tracing refers to interviewing the patient to determine who they have come into contact with. Modern contact tracing refers to digitally collecting data of a person and sharing it with others through algorithmic determinism (Zhang et al. 2020, p. 1). For example, contact tracing apps in Virginia use an encrypted key and communicate over low power Bluetooth channels on cellular phones to detect other users in the vicinity (Virginia Department of Health, 2021, para. 17). If one of the users later tests positive for COVID-19, and alert is sent to anyone who was in range of the Bluetooth and notified of the exposure. In some instances, contact tracing is used hand in hand with facial recognition to ensure accuracy and validity of the reports. Modern contact tracing is mandatory in certain countries around the world, with varying degrees of privacy adherence.

Facial recognition has been used through the pandemic as a means to collect data on the movement of civilians through public spaces. It has been used hand in hand with contact tracing to monitor the spread of COVID-19. High fidelity cameras stations outside of businesses and on streets allow for neural networks to identify individuals from a crowd and monitor their location (Brough & Martin, 2020, para. 2). Some facial recognition software is successful at identifying faces with or without a mask, but the results are sometimes inconclusive or wholly incorrect. Loosely coupled with facial recognition is other personal monitoring systems such as in home devices that monitor throughput of an area or use a similar Bluetooth technology to determine how many people are in a room (Gerke et al., 2020, para. 4). These implementations can collect and share data on citizens without their knowledge much to the alarm of privacy advocates.

Defining the Social Groups

The first social group to be examined through the lens of SCOT is the healthcare professionals of the globe. They work diligently and the title encompasses doctors, emergency technicians, nurses, and more. This social group is tied to personal privacy through medical information laws, the needs of their hospitals, and the culture in which they live.

Next, we have the policymakers of the world. This social group has a duty to their citizens to protect them and make their country a better place. There are two main strata within this group - policymakers within an autocracy or within a democracy. This differentiation describes the changes between the laws in place, between the chosen strategies for containment, and between the emphasis on privacy when governing.

Lastly, we have the general populace. This is an extremely broad category, but everyone on the planet has been affected by this pandemic. To specify, the general populace of South Korea absolutely has different virtues, needs, and cultural norms than those of the UK, who also differentiate wildly from those in South America. Another differentiating factor is one of wealth.

The wealthy may be able to take action that the poor cannot. These social norms and class stratification, per SCOT, illuminate what technologies are adopted, rejected, and transformed to fit the needs of the populace. Each of these groups have their own values, own requirements, and own compromises they are willing to make when containing the virus. However, sometimes these values are in conflict with one another. It is these societal influences that make COVID-19 prevention a relevant and timely topic for which to utilize SCOT.

ANALYSIS BY STS FRAMEWORK

The following analysis of the defined social groups first analyzes the needs of the social group. Then, the technologies defined are examined to see how they fit those needs. Lastly, any extra information required to contextualize the analysis from a privacy standard is addressed.

Healthcare Workers

Frontline healthcare workers' primary goal is to prevent the loss of life due to COVID-19. Preventing infections and treating cases are foundations of this goal, and any strategy that helps this goal is to be considered.

Supplying enough personal protective equipment (PPE) is essential to preventing spread of infectious disease within a hospital setting. The CDC lists the recommended PPE for those working around COVID-19 as face masks, N95 respirators, eye protection, gowns, and gloves (Centers for Disease Control and Prevention, 2020a). This PPE is key, and, at the beginning of the pandemic, there was not enough PPE to be supplied to every hospital in the country (Thobaity & Alshammari, 2020, para. 8). It has been shown that adequate PPE provides immense protection from COVID-19, and this protection is the primary reason this prevention method is used. In this setting, personal privacy does not play a large role when choosing to wear PPE.

Contact tracing efforts within hospital walls and prevention of contamination has proved effective in fighting this virus while respecting patients' privacy and wellbeing. Contact tracing apps may not be the most useful for hospital staff, but surveillance footage and facial recognition definitely may play a key part in monitoring breaches of protocol. For example, Chinese researchers proposed a system of monitoring emergency and COVID wards to identify exposures quickly and effectively in a stressful environment. They cite an example of a nurse helping an elderly infected patient, their gloves rip, and the monitoring personnel sends another nurse to help the patient while the exposed nurse washes their hands and gets new gloves (Chen et al. 2020, p. 2). This type of surveillance may be a necessity to fight the virus in hospitals, but often does not scale well to other, larger use cases.

Limiting factors to healthcare workers are healthcare privacy laws that limit and define how healthcare officials must treat sensitive data, including the more invasive technologies like contact tracing and facial recognition. These laws limit the extent that some contagion policies can be taken and may prevent most effective treatment, but navigating the restrictions placed on them is part and parcel of any hospital worker.

Policymakers

Policymakers often have competing values and responsibilities that are further exemplified in times of crisis. Politicians and leaders are responsible to their constituents or subjects, the health of their economy, have oversight on companies, and must uphold or change freedoms protected by law.

Of the social groups, politicians in the United States have to consider personal freedoms when proposing mask mandates. Some constituents consider mask mandates a violation of personal freedoms enshrined in the constitution such as the freedom of expression in the First Amendment (Kields, 2020, para. 8). Privacy advocates worry that governmental overreach in this

sector may spill over into other, more private, affairs. However, a large factor to consider when restricting these liberties is the burden the mandates place on the public. Compared to other measures, mask mandates implement little restriction on personal freedoms, but these qualities must be considered by the policymakers when making their decisions (Tisdell, 2020, p. 25).

An example of a prevention strategy that limits the personal freedoms of constituents is widespread lockdowns. Lockdowns however have significant economic implications and reduce the prosperity of a populace. Commonly, lockdowns have been proposed for those "only at risk" to help strengthen the economy, but how are those "at risk" individuals identified without infringing on privacy rights (Tisdell, 2020, 22)? The efficacy of lockdowns cannot be ignored, and many governments around the world implemented them to great success. The choice to lock down inherently involves privacy evaluation and personal freedoms.

Contact tracing is another perfect example of privacy concerns affecting containment implementation by policymakers. European guidelines require contact tracing applications to follow the GDPR when collecting data (Gerke et al., 2020, para. 20). In contrast, South Korean officials amended their Personal Information Protection Act with the Contagious Disease Prevention and Control Act (CDPCA), which allowed them to share private information with the public (Park & Ko, 2020, p.1). The freely available information helped the population make informed decisions at the detriment to personal freedom. This would not work in the United States, for a poll taken during the pandemic shows only 42 percent of Americans support such measures (Zhang et al., 2020, p. 1).

Many times, what is best for the constituent's health might be bad for their wallets and hurt the economy (Tisdell, 2020, p. 22). What is protected by law might hurt the efficacy of prevention methods. What is allowed to be collected by companies might hurt the populace in

unforeseen ways. In this time of crisis, policymakers have had to make tough decisions in order to keep their people safe.

General Populace

The last social group identified, the general populace, is the hardest to define and 'place in a box'. A large divide within this subgroup is one of socio-economic status. What may be a good containment strategy for the wealthy is completely infeasible to those struck with poverty (Tisdell, 2020, p. 22).

Wearing a mask, however, is something that both the wealthy and poor can do together. Privacy-conscious individuals have learned that wearing a mask increases their privacy in public, for it makes it more difficult for people and machines to recognize them (Carragher & Hancock, 2020, para. 1). Masks are a great choice for privacy-respecting individuals although some claim the act of wearing them itself is a violation of personal freedoms (Kields, 2020, para. 8).

A blanket lockdown is not effective for the poor family that cannot put food on the table. The poor can rarely work from home, and they often have other contributing factors that increase their susceptibility to the virus (Tisdell, 2020, 22). Isolation may not be viable for a poor household, but taking the less extreme version of the strategy daily, social distancing, might be beneficial.

On top of that, poor countries may not have the technology to implement facial recognition strategies or advanced contact tracing. Wealthier countries like the UK are using smart city technology to help identify COVID hotspots to some success (Brough & Martin, 2020, para. 2). The citizens there are able to pay the taxes needed to support that kind of infrastructure. However, these implementations have raised alarms from privacy advocates because they do not give a person a choice over their privacy.

There is also a cultural shift when analyzing the choice of COVID-19 prevention methods. Traditionally western cultures' take a stance on the "trade-offs between saving lives and saving the economy", while traditionally eastern cultures focused on what needed to be done to eradicate the virus in their community (Newfield, 2020, para. 3). This divergent cultural rhetoric allowed South Korea to embrace the aggressive contact tracing methods while masks were endlessly debated in the United States.

DISCUSSION, INSIGHTS, AND ARGUMENTS

Choosing the ideal COVID-19 prevention strategy for a given situation is difficult. Quantifying the ideal response in all situations is an endeavor that can be debated endlessly. However, it may be possible to shed light on a valid ethical decision-making process. The cultural divide in COVID-19 response is the key to understanding this ethical debate. For readability, we will continue using “western” to denote traditionally western cultures and “eastern” to denote traditionally eastern cultures.

The western response to COVID-19 has been heavily focused on defining what is and is not acceptable within our defined set of rules on freedoms, economics, and interpersonal relations (Newfield, 2020, para. 3). This response heavily mirrors that of deontological ethics. These rules appeal to a moral “Right” that guides the decision-making process instead of focusing on the moral “Good” that decision would have (Alexander & Moore, 2020, para. 13). These rules regarding what is “Right” are deeply ingrained in the western culture and lead the discussion on impacts to seemingly unrelated-to-the-pandemic notions of the economy, privacy, and personal freedom. This debate over trade-offs is important in this culture to ensure future decisions cannot take these rights away from the people. According to this way of thinking, “one is permitted to do [these actions] even though they are productive of less good consequences than their alternatives” (Alexander & Moore, 2020, 14). In this context, “these actions” refer to

less invasive contact tracing and facial recognition procedures that may not be the most effective at stopping the virus but adhere to personal freedom norms. Of course, the biggest counterargument to this process is that an ethical choice through this framework can make the population's lives worse.

The eastern response, in contrast, heavily resembles consequentialist thinking. In this case, the eastern decision makers chose the measures necessary to prevent the largest consequences or at least minimize the amount of damage to humanity (Sinott-Armstrong, 2019, para. 2). This ethical framework allows for more drastic choices to be made since only the net Good from the choices matters in the decision-making process. Therefore, these countries imposed stricter lockdown, mask requirements, and contact tracing in order to control the COVID-19 pandemic (Newfield, 2020, para. 3). However, this ethical framework does not allow for personal choice or increased weight to one's loved ones, family, or other decision-making factors (Sinott-Armstrong, 2019, para. 3). Only the good of the group is considered, and that can seem unfair to many.

Where does that leave us?

Who got it right? It is hard to say. A human life is invaluable, and considering otherwise is arguably ethically wrong. A South Korean research team compared the projected two-year impacts different COVID-19 containment methods would have on the city of Seoul. This research showed that the aggressive contact tracing methods employed in the country saved 7.7 thousand lives compared to a city-wide lockdown (Argente et al., 2020, p. 1). They also compared the aggressive contact tracing model with one that would have less invasive privacy costs attributed and showed that the aggressive method decreased deaths by 20 percent when

compared with the less invasive method of partial disclosure (Argente et al., 2020, p. 9). However, countless lives were upended with many businesses receiving no customers due to the information being shared, and this partial disclosure method projected over 266 percent lower economic losses (Argente et al., 2020, p. 9). The paper states that they “do not attempt to measure the cost of the loss of privacy from disclosure of COVID-19 cases”, but will reconsider their proposal once more data can be collected (Argente et al., 2020, p. 16).

The partial disclosure method is a good starting place for any future governments battling a pandemic and making emergency policy decisions. From the deontological perspective, the policy fits nicely within the rules frameworks of western governments, and from the consequentialist perspective can minimize the loss of life in a community. This way, the method chosen can be tailored to a group’s ethical norms and can still be effective pandemic prevention.

CONCLUSIONS

In conclusion, COVID-19 had an unprecedented effect on life in the 21st century. Decisions made today will have ripple effects throughout the human experience. Everyone needs to make tough decisions during a pandemic, and analyzing the needs of groups of people will help illuminate the most practical and ethical forms of prevention. These forms of prevention should consider the impact that shared private information can have on a persons' life and ambitions before being placed into effect. Governments of the world should keep these lessons in mind when making future policy decisions and implementing cutting edge technology.

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