

A Comparative Analysis of Canada and Taiwan:**A Human- Versus Techno-Driven Approach to the Pandemic****By: Leah Pottinger****Abstract**

Many Asian countries have experienced previous epidemics and developed proactive strategies that helped mitigate the risk of COVID-19. As an island country situated near China, Taiwan learned from the country's unexpected experience with the 2003 severe acute respiratory syndrome (SARS) epidemic. When SARS spread into the country, Taiwan was underprepared and became the centre of a SARS outbreak. From this experience they learned an important lesson: a techno-driven response strategy allowed Taiwan to immediately react to an unknown virus in China at the end of 2019. The use of technology helped with border control, COVID-19 tracing and the allocation of resources during the pandemic, while supporting transparent communication about the pandemic using a compassionate messaging strategy (Tworek, 2021).

Canada's human-driven approach led to a disorganized crisis response strategy between the different provinces. Further analysis of the conflicting data and unaligned messaging show the spread of misinformation about COVID-19 resulted in distrust towards the Canadian government (Hansen & Cyr, 2020). The findings indicate that an immediate techno-driven approach to crisis communication during a pandemic will result in early containment and tracing (Wang et al., 2020), with the data collected contributing to a human-driven risk communication strategy which creates trust among Canadians and the government.

Keywords: Risk communication, COVID-19, SARS, techno-driven, human-driven

Research Question

What lessons can Canada learn from Taiwan's techno-driven pandemic approach?

Different approaches to the pandemic have been applied to help mitigate the effects of the COVID-19 pandemic. Western countries have adopted a human-driven approach, while many Asian countries have implemented a techno-driven approach to crisis management (Kummitha, 2020). While pros and cons exist for both strategies, according to the World Health Organization (WHO), an immediate response to crisis management leads to early containment (Khan et al., 2021) and the collection of data to be used in effective communication strategies:

Taiwan has exemplified the importance of clear, consistent and compassionate communications to meet people where they are. Taiwan's communications prowess stems from multiple interlocking approaches to communication, all of which Canada could emulate at the municipal, provincial and federal levels. (Tworek, 2021, p. 2)

Taiwan has had the advantage of learning from past pandemics to incorporate a surveillance system, reporting and big data into the country's techno-driven approach. Now Canada must follow their lead to develop a crisis management strategy with improved risk communication.

In this paper, I argue that integrating a techno-driven approach to risk mitigation would have benefited Canada during the onset of COVID-19. Canada can use the COVID-19 experience and learn from Taiwan to create a proactive, techno-driven approach that incorporates human-driven messaging strategies as a forward-looking risk communication strategy.

Literature Review

The following literature review contextualizes a techno-driven approach compared to a human-driven approach early in the COVID-19 pandemic. The literature is organized by country, beginning with a study by Chen et al. (2021) that explores Taiwan's risk communication strategy development from the country's SARS learnings, followed by an analysis by Wang et al. (2020) of Taiwan's immediate COVID-19 response through technology. The last article switches to a

study by Hansen and Cyr (2020) that explores Canada's human-driven approach early on in the pandemic.

Yen et al. (2021) outline the unexpected effects SARS had on the under-prepared Taiwanese people and provide necessary background information to support the thesis of this paper. The researchers explain that like COVID-19, SARS originated in Wuhan, China and quickly jumped the border into Taiwan. The early response was slow, so "when countermeasures were taken to control the epidemic, the initial efforts suffered weaknesses including lack of adequate inter-organizational coordination, an unclear chain of command, inefficient resource allocation, poor risk communications, and disrupted information flows" (Yen et al., 2014, p. 186). Taiwan learned from previous pandemics to develop crisis management strategies that prepared them for future issues emerging.

Wang et al. (2020) provide a framework of Taiwan's immediate response to the COVID-19 pandemic following the identification of the virus. The researcher explains that given the country's previous pandemic experience, on Dec. 31, 2019, Taiwan officials began boarding planes from Wuhan to evaluate passengers for fever or symptoms (p. 1341). The polling of Taiwanese citizens to understand their perspectives to establish a clear and compassionate communication strategy, while also providing timely and concise COVID-19 information effectively, will aid to support the thesis of this paper.

Hansen and Cyr (2020) reviewed the response to the first few hundred COVID-19 cases by analyzing Canada's human-driven approach in comparison to the techno-driven approach of other countries (p. 1). The researchers structure the article by identifying the key terms of human- and techno-driven approaches to pandemics and analyze the methods in coordination with the World Health Organization's (WHO) recommendations. Instead of compiling a

comprehensive assessment of Canada's earliest COVID-19 cases, as recommended by the WHO, Canada instead focused on protecting privacy and relied on volunteers for data collection. The researchers explain that countries significantly affected by past pandemics chose a techno-driven approach to combat the spread of COVID-19.

Learning from Mistakes: Taiwan's History with Pandemics

To better understand Taiwan's proactive pandemic response for COVID-19, a review of the country's past pandemic history must be analyzed. As a bordering country to China, "Taiwan has been on constant alert and ready to act on epidemics arising from China ever since the severe acute respiratory syndrome (SARS) epidemic in 2003" (Wang et al., 2020, p. 1341). Similar to COVID-19, the appearance of SARS was first reported in China (CDC, n.d.) and quickly spread to Taiwan's capital city, Taipei. Taipei rapidly became a SARS epicenter, resulting in 347 deaths (Yen et al., 2014, p. 186). The onset of SARS revealed significant gaps in Taiwan's preparedness for dealing with unforeseen medical crises.

When SARS was first identified, Taiwan's reaction was slow and showed a lack of a pre-crisis strategy (Coombs, 2019). Once SARS had already spread into Taiwan and "when countermeasures were taken to control the epidemic, the initial efforts suffered weaknesses including lack of adequate inter-organizational coordination, an unclear chain of command, inefficient resource allocation, poor risk communications, and disrupted information flows" (Yen et al., 2014, p. 186). The researchers explain that a lack of clear and efficient communications about the epidemic contributed to the increasing infection rate in the country. The article describes that the SARS experience led to a reformed crisis management strategy by the Taiwan Centre for Disease Control (TCDC) to ensure the effective handling of future crises.

To mitigate the risk of future epidemics, the TCDC initiated an improvement of the

county's control strategy, aligned with the WHO's recommendations (Yen et al., 2014). Tworek (2021) explains that "Taiwan's success was not simple, but built on deep-seated reforms enacted after many missteps during the SARS crisis" (p. 2). To ensure a rapid response, Taiwan streamlined processes into a reformed strategy that included revising the surveillance system for early detection of symptoms, reporting and improving educational programs and messaging (Yen et al., 2014). Taiwan's eventual use of preventative measures during SARS, such as fever screening to measure body temperatures, helped containment efforts later in the epidemic (Chen, 2021), but early detection and clear messaging would have helped mitigate the crisis in Taiwan.

Taiwan's Techno-Driven Approach to COVID-19

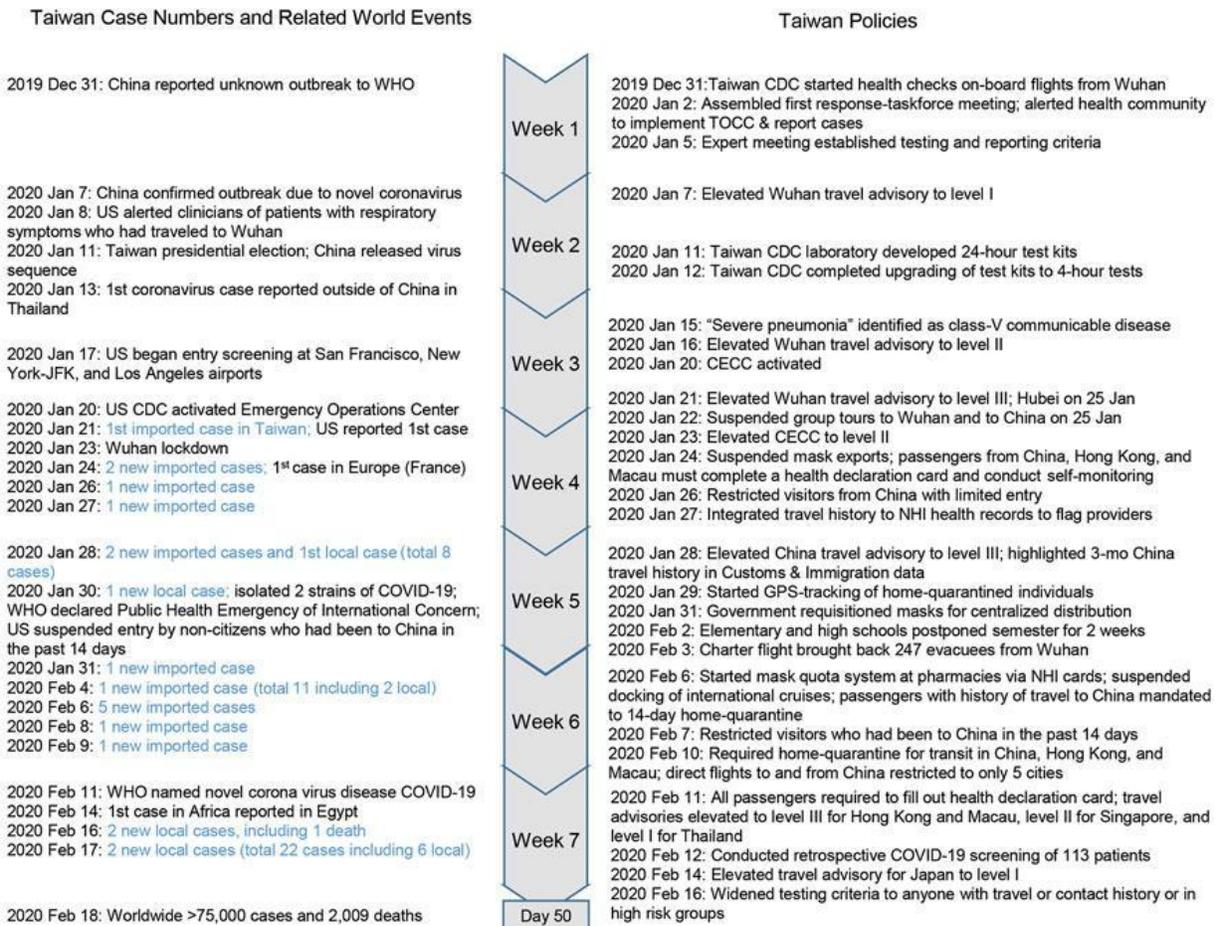
Given Taiwan's previous epidemic experience, the onset of COVID-19 revealed an immediate techno-driven response strategy based on the country's past learnings. In comparison to a human-driven approach, "a techno-driven approach relies on top-down initiatives that mandate widespread use of smart technologies, and it includes measures such as contact tracing apps and data collection surveillance" (Hansen & Cyr, 2020, p. 1). The researchers explain that the same day that China reported the unknown outbreak to the WHO, Taiwan's TCDC immediately implemented border control measures including passengers filling out health questionnaires and integrating data from the national health and immigration registries to identify infectious risk based on flight origin. The article outlines Taiwan's proactive approach to halting exports of medical supplies and boosting domestic production, with the assistance of military personnel, early in the pandemic. A cloud computing system integrated a rationing system for medical supplies through a central distribution centre (Hansen & Cyr, 2020). Taiwan's techno-driven approach allowed for immediate employment of the country's crisis management strategy.

Alongside Taiwan's fast, techno-driven response to an unknown outbreak in China, the

Taiwan government launched a transparent messaging strategy focused on humour and educating the general public. The “humour over rumour” communication strategy helped debunk pandemic rumours while providing the correct information about COVID-19 (Tworek, 2021). To increase dialogic communication with the Taiwanese people, the TCDC “answered individual concerns on Facebook, Line and a telephone hotline,” the research explained and “by May 2020, over 2.2 million people had subscribed to the account” (p. 3). The article outlines how transparent messaging helped build trust toward the Taiwan government early in the pandemic. The earned trust of the Taiwanese people helped the TCDC create two-way communication and stop the spread of misinformation about the pandemic.

An important ethical consideration is the possible suppressant nature of a techno-driven approach to dealing with a pandemic. Kummitha (2020) explains that “while [the] Techno-driven approach may be more effective in imposing law and order, and offer techno-driven objective governance, it may also curtail human freedom, enhance censorship and raise ethical questions” (p. 3). However, it is evident that Taiwan’s use of a techno-driven approach for early detection and containment of COVID-19, alongside a compassionate messaging strategy, helps to mitigate the ethical concern. According to Kummitha (2020), Taiwan’s inclusion of an educational system to encourage citizens to learn about COVID-19 indicates the use of a human-driven approach and a techno-driven approach. A timeline of key dates early in the pandemic helps understand Taiwan’s techno-driven approach to policy (see Figure One).

Figure One: Policy Decisions and Use of Information Technology to Fight COVID-19, Taiwan (CDC, 2020)



Canada’s Human-Driven Approach to COVID-19

Similar to Taiwan’s initial response to SARS in 2003, Canada lacked alignment among provincial governments resulting in significant gaps in tracing and considerable variation between provinces. The lack of alignment and insufficient tracing initiatives created public health guidelines confusion. Hansen and Cry (2020) explain that “early in the pandemic, press conferences often lacked clarity, problems of uniform messaging between provinces and the federal government were noted, and releases of aggregate case statistics were inconsistent in timing and details” (p. 6). The researchers explain that instead of compiling a comprehensive

assessment of Canada's earliest COVID-19 cases, as recommended by the WHO, Canada instead focused on protecting privacy and relied on volunteers for data collection.

There are pros and cons associated with a human- and techno-driven approach to the pandemic. The benefits of a human-driven approach focus on the protection of human rights and educating the public (Kummitha, 2020); however, "Canada's early decentralized 'human-driven' approach resulted in inefficient testing, suboptimal disease containment, and an inadequately mobilized health care system" (Hansen and Cry, 2020, p. 6). Canada's disjointed reaction to COVID-19 indicates poor crisis management due to the absence of a pre-crisis response strategy (Coombs, 2019). While COVID-19 risks were evident, the unorganized and slow reaction rate contributed to escalating risks into a national crisis. Canada's lack of pandemic experience compared to Taiwan has become evident as COVID-19 has unfolded.

Conclusion

The research in this paper indicates that a techno-driven approach is beneficial to the early proactive prevention of a pandemic. Based on Taiwan's previous experience with SARS, the country had a historical baseline of testing and preventative measures to develop its risk mitigation strategy as soon as China announced the first COVID-19 case. Now that Canada has experienced a pandemic of this magnitude, I argue that it is an opportunity to build a postcrisis, techno-driven approach to develop a baseline for future risk mitigation. While it is essential to continue protecting Canada's citizens' privacy, testing measures are becoming commonplace and expected among Canadians. An immediate response to future risk, combined with a transparent communication strategy, will aid Canada in preventing the spread during a pandemic and allow the country to get ahead of the crisis. Immediate and concise action will also lead to collecting fulsome scientific data used in national risk communication efforts. Reliable data will lead to

trust-building among Canadians and the government.

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