



Article

## The Future of Thailand's Healthcare Workforce in Light of the Covid-19 Pandemic: A Retrodution Analysis

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### Abstract

*What alternatives can be imagined for the future of medical care in Thailand? The aim of this research is to draw lessons from the shortages in the healthcare workforce during the Covid-19 pandemic by analyzing these shortages using Critical Realism philosophy. Using retrodution as a methodology, this article explains how the causal links of the trends, individually and collectively, impact structure, agency and culture—enabling responses to healthcare policy. The results portray the continuous interaction and impact of structure, agency and culture, and highlight their tendential powers in saving Thai citizen during the health crisis. The results also provide insights into the context of institutions, organizations, and individuals for future plans and strategies.*

### Keywords

Foresight, Healthcare workforce, COVID-19, Wicked problems, Retrodution

### Introduction

“Wicked problems” are complex, difficult to solve, involve multiple causal factors, and are complicated by competing priorities and goals. One such problem involves solving the challenge of medical staffing as, across the globe, there are shortages of doctors, nurses, and other medical personnel. In the United States alone, doctor shortages are estimated to cause 7,000 deaths per year (Norton, 2021).

Thailand provides universal healthcare to all of its citizens through a system of public hospitals. Yet, Thailand faces pressure to maintain sufficient numbers of healthcare personnel due to increasing demands from an aging population and widening healthcare access inequalities in rural areas. Thailand's Minister of Public Health estimated in 2015 that Thailand needed “. . . 9,000 more doctors and 43,000 more nurses to address rural shortages.” Programs were adopted to address this need:

“However, despite significant progress, the combined population density of doctors, nurses and midwives in 2018 (35.7 per 10,000 population) was still lower than the sustainable development goal (SDG) target 3.c of 44.5 per 10,000 population; efforts to achieve the SDG target health workforce density are ongoing.” (Nittayasoot et al., 2021)

Additionally, the Covid pandemic created further demands for trained medical personnel (Boyle, 2021). Nittayasoot et al. (2021, p. 314) noted that “*A shortage of specialists, in particular intensive care nurses and critical care experts, became evident at the peak of epidemic.*”

What is the solution to the shortage of medical staff in Thailand and how does one find such a solution—especially, in light of the Covid-19 pandemic? The purpose of this essay is to illustrate the difficulty in answering such questions by reporting on a case study using Critical Realism (CR) theory—specifically, retrodution—as an

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interpretive methodology. While, at the same time, serving as a cautionary tale as to why it is wise to remain humble when facing a “wicked problem.” As noted by Fletcher (2017):

Critical realists seek to explain and critique social conditions. This makes it possible—indeed, desirable—to produce concrete policy recommendations and definitive claims for action on social problems. Although these recommendations will be fallible (or could have unexpected results under various social conditions), critical realists base their recommendations on the identified tendencies and causal mechanisms.

This essay begins with a review of CR theory.

## Review of Literature

### *Summary of CR as applied to future studies*

According to Bell (2003), critical realists reconceptualize knowledge as “conjectural knowledge,” meaning that they do not commit to the absolute certainty of laws, but attempt to explain social events with justified propositions. This leaves room for the possibility of false conjectural knowledge. In such cases, they admit that what they believed was wrong, but not that they were wrong to have believed it. (Musgrave, 1993).

Instead of ‘terminally true’ predictions, CR emphasizes ‘presumptively true’ predictions that are based on generative conditions. A perfectly sound prediction might later turn out to be false, given the changes in conditions. There are three things to keep in mind: (1) CR explicates conditional grounds, allowing for critical assessments of its formulations, (2) CR rigorously and critically investigates past and present facts on whether or not their validity will remain in future timeframes, and (3) CR realizes the present observation implicitly includes some retrodiction of the past and prediction of the future. If the subsequent knowledge turns out to be false, one is alerted to recheck one’s presumption from the past to the present.

### *CR, human resource management, and future studies*

Fleetwood and Hesketh (2016) argue that the scientific method often has a strong presence in the practice of Human Resource Management (HRM) and has been adopted as a base for policy planning. They further note that it is not science but rather scientism (aka positivism) that is the dominant paradigm. These two concepts have different implications for foresight practice.

Scientism is regarded by critical realists as having over-simplified concepts and an unreasonable expectation of the ability to apply “natural science” methods to the social sciences. Most influential is the Friedman economic models on prediction and their misconception of the “superiority” of science with formulations which can be tested empirically. A more widely accepting planning approach is based on empirical extrapolation which is limited to the empirical domains, thus neglecting the deeper structures and their mechanisms (Danermark, 2005). Yet, the internal changes people undergo should be central to HRM as people are continually evolving and creating direct impacts on the overall performance of the system. Human agency incessantly undergoes internal rationalization processes both independently and collectively. People’s behaviors, decisions, and interactions mutually and persistently determine organizational units (Archer, 2000).

Workplaces, constituted by these emerging social and structural elaborations by human agency, cannot be analyzed as closed systems. Therefore, predictions based on formulas are not the most appropriate way to gain knowledge of such changing phenomena. Fleetwood (2016) further asserts that the ability to explain a phenomenon puts policy planners in a strong position to stipulate on the tendencies which are necessary for policy practices.

### *Retrodiction*

Critical Futures Studies does not aim for perfectly accurate predictions, but rather to problematize units of analysis, to question existing assumptions, and to explain their influential impacts on future events (Inayatullah, 2013). This fits well with critical realists’ belief that it is possible to make judgments regarding “sound” explanations of social events through criticism. Criticism, in this sense, means to demonstrate the “validity” of the explanation given.

Central to critical realism is the transcendental realism position developed by Roy Bhaskar (2013), who argued

that social reality and its properties and mechanisms exist independent of human knowledge. Nature and society continue to evolve regardless of the scientific investigation of them. Therefore, no structure, formation, or natural law depends on the human mind or our conceptualization of it.

Often, prediction and causation are narrowed to laws deduced from closed system experiments. However, society operates in open systems where those laws become confounded and it becomes impossible to accurately predict the future. Entities must not be analyzed as substances with qualities, but as powers that both produce effects and operate regardless of human realization (Bhaskar, 2013). Transcendental arguments are derived from the retroductive method by moving arguments “*from a description of some phenomenon to a description of something which produces it or is a condition for it*” (Bhaskar, 2009, p. 11).

### **Structure, agency, and culture**

Structure, agency, and culture have distinct properties and powers, which separate them from each other, but they continuously interact with, impose on, and resist each other to influence new events. Archer (2013) postulates that explaining social phenomena requires an ontological analysis of structure, agency, and culture. Conflating them is conceptually problematic, as it prevents the separate explanations of how social structures might influence the individuals and how the collective activities of the individual might impact future social structures. The interaction of these entities continually creates events which are manifested at the empirical level. The process of constituting a new entity with distinctive characteristics is conceptualized as an emergent reality.

“*Agents are particulars which are the centres of powers...By an agent I mean simply anything which is capable of bringing about a change in something (including itself)*” (Bhaskar, 1978, p.107). Agents have the choice to reproduce or change the circumstances, but their decisions are highly dependent on the cultural and structural conditions. And it is this interaction that shapes human life and society.

### **Research Question**

Foresight can be considered as an inquiry into the future by provoking critical thinking about current perceptions, not just to find solutions to existing problems. It helps us to reframe current perspectives and redefine ourselves and our situations. The goal is to draw attention to present thought and decisions that limit our perspective about the future, so we can see a new way forward to reach our desires. Based on this idea, this article offers the following research question:

What views are currently held regarding the causes of Thailand’s Covid-19 related medical personnel shortages?

### **Methodology**

“*CR analysis ultimately relies on a strategy of inference called ‘retroduction’* (Fletcher, 2017, p. 182). Price (2021) opposed the irrealist-interpretivist view of social science, warned about its impact on policy formulation, and proposed the logic of retroduction to deal with wicked problems. Retroduction is used to figure out “*how the world must have been for something to be the way that it is*” (p. 109). Fletcher (2017) noted, “*The goal of retroduction is to identify the necessary contextual conditions for a particular causal mechanism to take effect and to result in the empirical trends observed.*”

Grounded in science, retroduction chooses the most likely explanation for a phenomenon by considering the results of empirical investigations and the soundness of hypotheses when choosing among competing explanations. Policy scientists generally are traditionally viewed as superior in understanding social facts, allowing them to dominate policy framing. However, the CR approach empowers both scientists and lay people to create transparency in their interpretive processes of social facts, enabling equal and democratic power, as “*the truth is, in a sense, apolitical*” (Price, 2016, p. 121).

Retroduction, proposed as a methodology to reach an understanding of causal mechanisms, consists of the following steps (Price, 2016):

**Data Collection and Diagnosis:** Describe the problem as it is, without referring to existing theories and or indicating any future projection.

**Data Analysis and Diagnosis:** Consider the processes that have led to the problem (or its absence) in context.

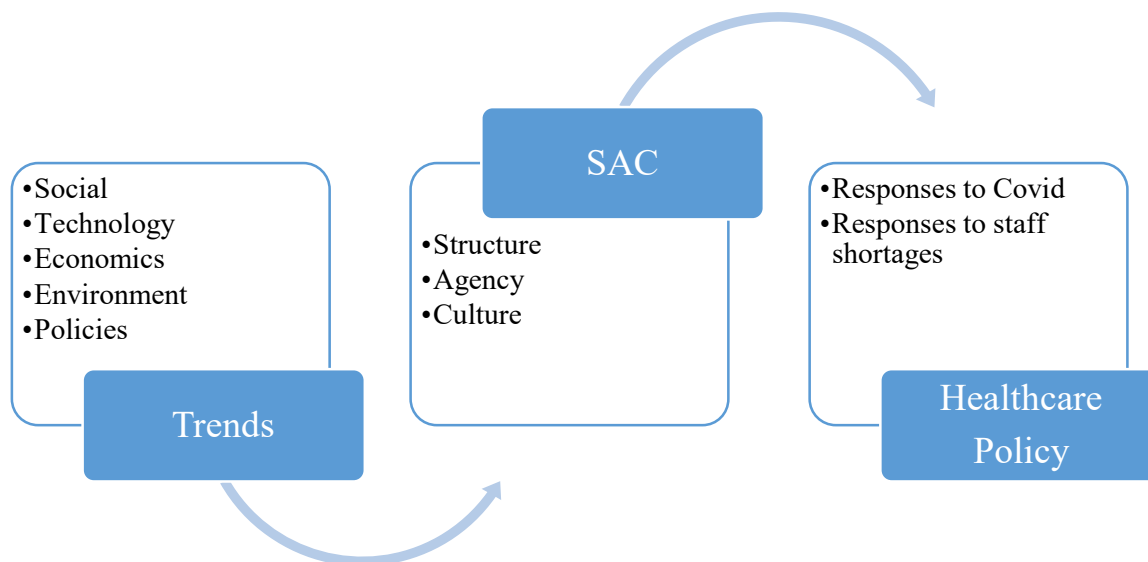
**Explanation of the problem using retrodiction:** Elaborate on how to attain intervention objectives, but apply retrodiction if the existing theories are not fit to explain the issues.

**Elimination:** Compare theories to eliminate weak ideas—leaving only sound explanations.

**Action:** Advocate the appropriate action suggested above and eliminate obstacles that keep one from reaching the goals.

**Correction:** Iterative feedback allows agents to adjust their actions in the event of unintended consequences, potentially leading to better theory – i.e. praxis.

To aid our analysis, a respected medical-related organization in Thailand provided us with interviews and other data from experts in the field. The organization, however, requested to remain anonymous. The experts worked in multiple sectors such as hospitals, pharmacies, sub-district health offices, and tech start-ups. Newspaper and academic journal articles were relied upon for additional information. From the interview transcripts and articles, data was extracted under four categories: trends, structure, culture, and agency. They were grouped in a way to show connections. The trends were grouped by STEEP: social, technology, economics, environment, and politics (see figure 1).



**Figure 1:** An Abbreviated Model of the Healthcare Situation

**Results**

COVID has become a real wicked problem, as it continues to develop new variants since first detected; thus, extending the global pandemic and straining Thailand’s health systems. The complexity of the problem does not lie simply in the ramifications of Covid’s impact on public health, but also on the unpredictable reaction of the people within the multitude of interconnected systems—social, economic, political, and medical.

Archer (1995) postulates that the contexts of action are conditioned by structural and cultural emergent properties. To investigate this, our analysis focused on (1) the pre-existing constructions (physical structures, rules, and/or regulations) that automatically and enduringly constitute the cultural system and (2) the internal relationship of both physical or human resources that generate causal powers within the relationships themselves. This dynamic

process is considered to create the causal mechanisms that generate the ‘situational logic’ for agency to determine whether to reproduce or transform the institutional field and strategies within (Friedland and Alford, 1991). It is important to remember that structure, agency, and culture are continuously affecting each other in mutual causal relationships (see figure 2).

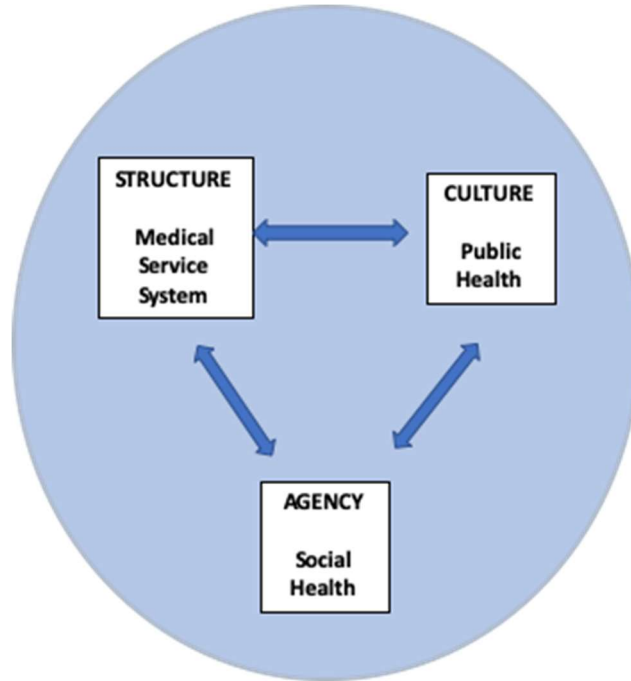


Figure 2: The SAC Relationship

**Structure**

For a realist “... knowledge about a state of affairs can never be taken for that state of affairs” (Archer, 2017, p.134). Understanding social reality requires us to look beyond causations, beliefs, or rational choices. CR analysis directs our attention to how structure (institutions, rules, regulations, and policies) facilitates the interaction of human resources, emergent properties, and stakeholders to reshape and reproduce itself. The data revealed several important structural elements, including the structure of the current medical system and Bangkok’s independent system (see table 1).

**Table 1:** A Partial List of Structural Elements

<b>Medical Service System</b> <ul style="list-style-type: none"> <li>• National Health Security Office</li> <li>• Social Security Office</li> <li>• Controller General</li> <li>• Legislation</li> </ul>
<b>Decentralization</b>
<b>Investments to Increase Numbers of Medical Personnel</b>
<b>HR Management and Database</b> <ul style="list-style-type: none"> <li>• Doctors</li> <li>• Dentists</li> <li>• Pharmacists</li> <li>• Nurses</li> <li>• Management</li> <li>• Network</li> </ul>
<b>Existing Policy</b> <ul style="list-style-type: none"> <li>• Reducing Inequalities</li> <li>• Medical School Excellence</li> </ul>
<b>Information Overload</b>
<b>Bangkok Medical System</b>
<b>Increased Operating Costs</b>

One of Thailand’s main contributors to GDP is tourism, roughly at 6 to 7 percent in 2020. The Covid-19 pandemic and the government’s decision to close down the country created economic hardships on Thais, causing a sharp rise in unemployment and household debt (Tantra, 2020). The government struggled to find a middle-path between economic well-being and health for the entire population. The Thailand Development Research Institute (TDRI) indicated that the government was overconfident, causing it to mismanage disease control and overlook the uncertainty of vaccine supplies. As a consequence, Thailand was plunged into a health and economic crisis (Post Reporters, 2021).

Also, it is helpful to know that Thailand’s health care system operates on many levels: central, regional, provincial, district, sub-district, and community (village). This network, with connections from village to provincial levels, is designed to control disease efficiently. However, the capital of Bangkok’s 160 hospitals is independent from the main system and the Ministry of Health with different governance structures. It operates as a special administrative organization and directly elects its own representatives (The World Bank, 2012). Despite its large number of hospitals and health service centers, disease control measures and regulations often lose some of their effectiveness due to the lack of connections between them (ศึกษาภาพท้องถิ่น ผู้โรคระบาด | "รัฐบาลอย่าทำทุกอย่างคนเดียว" | The Active, 2022).

**Culture**

A good deal of the health care support during COVID could be attributed to Thailand’s culture. Although this factor might not be readily apparent or easily observed, its causal power was at work, leading to self-organized volunteer groups aiding the chaotic and understaffed medical facilities. According to the Ethnographic Futures Research (EFR) conducted by Ketudat (1990), Thai people are adaptive, as the culture is rooted in openness, freedom, tolerance, and selective borrowing. His claims still have validity when reflecting on the cultural power that encouraged collectivism and volunteerism during the peak of the pandemic.

The data revealed several important cultural elements, including social media and Thailand’s culture of volunteerism, collectivism, and hierarchy (see table 2).

**Table 2:** A Partial List of Cultural Elements

Public Health Attitudes and Beliefs
Prevention and Promotion of Healthy Lifestyles
<ul style="list-style-type: none"> <li>• Mindset</li> <li>• Primary Care</li> <li>• Dependency on Imported Medical Supplies</li> <li>• Rural Health Needs</li> </ul>
Social Media
<ul style="list-style-type: none"> <li>• Fake News</li> </ul>
Volunteerism, Collectivism, and Hierarchy

During the early stages of the pandemic in 2021, when the cases in Thailand remained low, the Covid-19 spokesperson for Thailand’s Ministry of Public Health, pointed to Thailand’s traditional cultural greeting, the *wai* (which is done without body contact) as the main explanation for this low number (Beech, July 16, 2020). As the pandemic progressed, other cultural factors played a role in the crisis. For example, despite the respect for authority and hierarchy in Thai culture, the sluggishness of the official response motivated some personnel to think outside of the box and find creative ways around existing structural barriers to provide health care in the inundated health service centers of the Bangkok metropolitan area.

Collectivism, common in Asia, is a social psychological concept that prioritizes groups over individuals. This cultural concept was demonstrated by mask-wearing and hand sanitization being seen as a way to protect others rather than simply protecting oneself. Thai people largely followed the guidelines, as they often wanted to ensure the safety of an extended family with elderly people in the household (Quinley, 2021).

Volunteering and giving to charity are characteristics of Thai society. During the pandemic, Thai laws, regulations, and prohibitions created obstacles to cooperation between Bangkok and other areas of the country. Despite there being underserved patients in rural areas, some rural doctors decided to make their way to Bangkok as volunteers to help care for those living in the city. News headlines sparked public movements to make donations for field hospital construction, provide lunch boxes for healthcare workers, and supply food and herbal medicines for people with limited access to government healthcare. There were many forms of donations from a variety of organizations. For example, there were free cremation services provided by Buddhist temples in Pathumthani. Zendai provided food and daily supplies for home isolation cases. The Issaeachon Foundation supported deeply impoverished families with food donations. The Duang Prateep foundation renewed its role of supporting densely populated community areas by providing daily food supplies, testing for Covid, setting up isolation areas, and running the community field hospital that served impoverished communities and migrant workers. The vulnerable groups, who have limited access to government healthcare systems, were largely supported by these non-profit, non-governmental organizations (Quinley, 2021).

In rural areas, the Village Health Volunteers (VHV) acted as the front line to screen the people entering their community (Tantrakarnapa, et al., 2022). Remote rural areas have a low number of health workers for each district, so they often look to the Village Health Volunteers to provide accurate health information, community guidelines, and health monitoring systems to the community. Their success can be attributed to their credibility and efficiency when communicating health policy to the community members. Thai culture is highly integrated, despite having minority areas with diverse cultural and religious practices. As an example, the Muslim community has changed from hugging and shaking hands to waving and touching one’s own chest as a form of greeting (The Coronavirus Disease 2019 Situation by Emergency Operations Center, Department of Disease Control, 2022). Community

members seek approval from their leaders and neighbors, trained VHV can lead each community in harmony with the various policies (เปิดใจ "อสม." บัณฑิตการสาธารณสุขโคโรนา-19 ของชุมชน, 2022).

**Agency**

CR theorize a human agent as “*someone who is partly formed by their sociality but also has the capacity partly to transform their society*” (Archer, Brock, Carrigan & Scambler, 2016, p. 22). Society provides a contextual reality by which agents are shaped and molded. A distinctive analysis of structure and agency clearly reveals the interplay of structure, culture, and agency and, more importantly, how society is being reproduced or changed by them. The data revealed several important agency elements, including the changing medical demands of Thailand’s population and the strong civic mindedness of Thais (see table 3).

**Table 3:** A Partial List of Agency Elements

Social Health
Health Literacy
Good Governance
Thai Population <ul style="list-style-type: none"> <li>• Aging Population</li> <li>• Increase in Mental Health Problems</li> </ul>
International Residents and Medical Tourism
Strong Civic Minded Society In Bangkok
Health Professionals <ul style="list-style-type: none"> <li>• Trends</li> <li>• Integration with Other Sectors</li> <li>• Fluid Workforce</li> <li>• Robotic Technology</li> <li>• Freelance Employment</li> </ul>
Cross Training
Automation

Frustrated and disappointed by a worsening health crisis, volunteer groups in Bangkok, started by ordinary citizens, jumpstarted programs to support the health sector in providing care for infected patients. They relied on social media to communicate with others and adopted technology to keep track of patients’ conditions. Their functions also included connecting patients to healthcare providers and rescuing people in critical condition.

Covid-19 posed constraints on people that prevented them from quickly forming groups as physical contact, such as in-person meetings, was discouraged. Additionally, the Covid situation changed often and suddenly-calling for the creation of new plans. The pandemic also collapsed the timespan available for society to be constructed and reconstructed, not simply between individual minds, but by the collective real actions of doctors, patients, and ordinary citizens, as they moved through the course of everyday life.

Village Health Volunteers are considered one of the key success factors in disease control outside of Bangkok (United Nations, 2022). CR helps us to view this process as evolving and constantly set in motion. Although they have contributed to the success of health system delivery in Thailand for over three decades, they are sometimes subject to mismanaged information. Past performance does not always guarantee present or future success. In open systems, VHV are subject to contradictory information from various media sources, among which they often adopt as their main references. Additionally, the personal interpretation of the situation by each individual can cause



further confusion and ultimately impact the adoption of preventive measures (Vicerra, 2021). Other emergent challenges to health promotion are the local belief systems of communities and the personal temperament and judgment of individuals (Lyttleton, 1996).

## Discussion

According to Bell (1996, p. 51), “*For futurists, society is a complex web of written and mostly unwritten individual and organizational decision trees and time schedules that are intricately woven together and synchronized as people pursue their projects in collaboration with others.*” And, when people are involved, prediction becomes difficult. Ultimately, competing and changing cultural worldviews will add to the difficulty in managing problems, as Morgan (2020, p. 84) noted:

*We will continue to struggle until a new balance is achieved between existing and newer worldviews. Our systemic problems will remain unaddressable until new worldviews and their co-emerging social forms establish new social structures, and balance with older ones. Conflict between worldviews is our wickedest problem because it prevents us from acting to manage ever-worsening wicked problems.*

Plans and strategies are shaped by the deep structures that emerges from hierarchical and bureaucratic relations (Lukes, 1974). If one focuses simply on surface-level empirical evidence, one would be viewing personnel only as it was viewed in the past. But, by viewing the entire dynamic and underlying causal layers, one is able to understand how trends drive each entity of SAC and how the hierarchy of the structure will enable or block future changes.

Although a given set of structures would be assumed to create a particular dynamic, other structures at different levels might regenerate or hinder their effects. The Covid pandemic evidently pushes us to re-examine existing healthcare protocols. It reveals the untapped potential of healthcare workers, such as lab-technicians, pharmacists, and even veterinarians who could be trained to help in vaccine inoculation. Doctors who normally did some administrative work were stripped of that role to focus on diagnosing patients and prescribing medicines. Volunteers, who possessed the capacity to contribute to the healthcare system, were motivated to exercise their power and they transformed the healthcare system in a short amount of time. Ordinary citizens were forced to adopt new technologies and new service channels to access healthcare. The transformations took place quickly due to the nature of the crisis. Thailand would benefit from redefining its healthcare systems to accurately reflect the volunteers, NGOs, formal charity institutions, and informal (ad hoc) groups in order to tap into all of the available resources in a timely manner. The government’s formal recognition of these informal groups could increase the efficiency of the healthcare system.

CR is suitable for futures studies, not just because it offers a novel method by which to view things, but rather because it offers guidelines and starting points for the appraisal of established methods. Critical realists believe that policy formulation should be based on science (Price, 2021). “*Retrodution-based science is not only philosophically more correct but also beneficial to democracy*” (Price, 2016, p. 110). The healthcare system in Thailand relies on a large network of communities with local knowledge. CR, with its reliance on retrodution, reduces the distance between scientists and laypeople and embraces input from multiple stakeholders within the system. Reducing this distance could be instrumental in the maintenance of future public health in normal times and during crises.

The morphogenesis construct of SAC, with its redefining of the mediation of structure to agency, could serve as a tool to test the theoretical foundations within a strategy (Miller and Tsang, 2011). It could also provide insight into the tendential powers of how the formulated strategies will be adopted and played out within the system. Additionally, an important contribution would be its ability to contextualize strategy to reveal the complexity of institutions, organizations, and individuals, encouraging researchers to be more serious about re-investigating the illusion of “causation” (Herepath, 2014).

## Conclusions

CR based foresight views SAC as fluid, operating in open systems, and constantly changing. The temporal aspect of this view creates a perception of social reality as a generative process, producing emergent properties. Although structures, such as organizations or institutions, can be viewed as solid entities; they, in fact, are continually upheld by the constituents of agency with reflexive power. Therefore, the future is not determined, as it is contingent upon the emergent power of agency which, despite being conditioned by the pre-existing structures, still possesses latent power towards transformation. Retrodution serves as a challenge to the “official futures,” creating space for alternative futures—which can serve both as contingency plans and disaster relief (Inayatullah, 2013b)—thus, enabling the healthcare sector to rethink organizational structures and workforce roles during future pandemics.

On March 31, 2022, Covid cases in Thailand were on a steep increase. More than 2.1 million Covid-19 cases were officially recorded with 21,000 deaths. Thailand was saved by a strong network of civic volunteers in Bangkok and by Village Health Volunteers in rural areas. But the government still has not adequately addressed the problem at its root causes as there is an urgent need for better access to healthcare among rural areas. The solving of such inequalities in healthcare may be one of the hardest problems to solve (Tepperman and Thompson, 2001). The future of healthcare workers, and healthcare itself, while relying on the generosity of volunteerism, should not depend on it solely. Instead, the government needs to look deeply into the issues and understand how the dynamics of the existing structures are posing constraints and opportunities for enabling the system to change for the better. According to Correia and Willis (2021):

Critical realism is a philosophical standpoint that can enable understanding of the nature of a syndemic and thus support policymaking during crises. Its standpoint is the need to distinguish between ‘reality’ and ‘cognition’ in the sense that the former is a consequence of the second.

Thailand should heed the lessons learned from Covid-19 and carefully plan for the next pandemic as Thailand cannot afford additional disruptions to its tourism-based economy. Experts warn that additional pandemics will arise (Penn, 2021)—for example, there is some concern over monkeypox (Bickel, 2022). The insights gained from CRT can help Thailand be prepared for such crises.

## References

- Archer, M. S. (1995). *Realist social theory: The morphogenetic approach*. Cambridge University Press.
- Archer, M., Brock, T., Carrigan, M., & Scambler, G. (2016) *Structure, culture and agency: Selected Papers of Margaret Archer*. Routledge.
- Asia Exchange. (2022). *Collectivism in Thailand during the pandemic*. <https://asiaexchange.org/blogs/collectivism-in-thailand-during-the-pandemic/>
- Beech, H. (July 16, 2020). “No one knows what Thailand is doing right, but so far, it’s working.” *New York Times*. <https://www.nytimes.com/2020/07/16/world/asia/coronavirus-thailand-photos.html>.
- Bell, W. (1996). The sociology of the future and the future of sociology. *Sociological Perspectives*, 39(1), 39-57.
- Bell, W. (2003). *Foundations of futures studies; Human science for a new era*. Transaction Publishers.
- Bhaskar, R. (2009). *Scientific realism and human emancipation*. Verso.
- Bhaskar, R. (2013). *A realist theory of science* (revised edition). London: Verso.
- Bhaskar, R., Frank, C., Hoyer, K. G., Naess, P., & Parker, J. (2010). Interdisciplinarity and climate change. *Transforming knowledge and practice for our global future*, 1.
- Bickel, N. B. (2022). “Monkeypox: It may be the ‘next pandemic,’ but it’s different than COVID.” *Michigan Public Health News Center*. <https://sph.umich.edu/news/2022posts/monkeypox-it-may-be-the-next-pandemic-but-its-different-than-covid.html>.
- Boyle, G. (2 July 2021). Doctors: Bangkok in covid crisis. *Bangkok Post*. <https://www.bangkokpost.com/learning/advanced/2142303/doctors-bangkok-in-covid-crisis>.

- Choowattanapakorn, T. (1999). The social situation in Thailand: The impact on elderly people. *International Journal of Nursing Practice*, 5(2), 95-99.
- Correia, T., and Willis, K. (2022). Applying critical realism to the COVID-19 pandemic to improve management of future public health crises. *The International Journal of Health Planning and Management*, 37(2), 599–603. <https://doi.org/10.1002/hpm.3376>
- Danermark, B. (2002). *Explaining society: Critical realism in the social sciences*. Routledge.
- Danermark, B., Ekstrom, M., & Jakobsen, L. (2005). *Explaining society: An introduction to critical realism in the social sciences*. Routledge.
- Ddc.moph.go.th. (2022). *The Coronavirus Disease 2019 Situation by Emergency Operations Center, Department of Disease Control*. <https://ddc.moph.go.th/viralpneumonia/eng/file/situation/situation-no112-240463n.pdf>.
- Fleetwood, S., and Hesketh, A. (2006). Prediction in social science. *Journal of Critical Realism*, 5(2), 228-250.
- Fletcher, A. J. (2017). Applying critical realism in qualitative research: Methodology meets method. *International Journal of Social Research Methodology*, 20(2), 181–194. <https://doi.org/10.1080/13645579.2016.1144401>
- Friedland, R., and Alford, R. R. (1991). Bringing society back in: Symbols, practices, and institutional contradictions. In W. W. Powell and P. J. DiMaggio (Eds.), *The new institutionalism in organizational analysis*. University of Chicago Press.
- <https://tnnthailand.com>. (2022). เปิดใจ "อสม." ข้อมปรการด้านหน้าสู้โควิด สิโรของชุมชน. <https://www.tnnthailand.com/news/tnnexclusive/89932/>.
- Inayatullah, S. (2013). Futures studies: Theories and methods. *There's a future: Visions for a better world*, 36-66.
- Inayatullah, S. (2013b). Learnings from futures studies: Learnings from Dator. *Journal of Futures Studies*, 18(2): 1-10.
- Jitramontree, N., and Thayansin, S. (2013). Social welfare for older persons in Thailand: Policy and recommendation. *Journal of Public Health and Development*, 11(3), 39-47.
- Ketudat, S. (1990). *The middle path for the future of Thailand: Technology in harmony with culture and environment*. Honolulu: Institute of Culture and Communication, East-West Center; Chiang Mai, Thailand: Faculty of the Social Sciences, Chiang Mai University.
- Leavitt, N. (May 11, 2015). Thailand seeks to address shortage of rural health care providers, *Harvard T.H. Chan School of Public Health News*. <https://www.hsph.harvard.edu/news/features/thailand-seeks-to-address-shortage-of-rural-health-care-providers/>.
- Lu, J. G., Jin, P., and English, A. S. (2021). Collectivism predicts mask use during COVID-19. *Proceedings of the National Academy of Sciences*, 118(23).
- Lukes, S. (1974). *Power: A radical view*. Macmillan.
- Lyttleton, C. (1996). Health and development: Knowledge systems and local practice in rural Thailand. *Health Transition Review*, 6, 25–48.
- Maaravi, Y., Levy, A., Gur, T., Confino, D., and Segal, S. (2021). “The tragedy of the commons”: How individualism and collectivism affected the spread of the COVID-19 pandemic. *Frontiers in Public Health*, 9, 37.
- Menon, V., and Padhy, S. K. (2020). Ethical dilemmas faced by health care workers during COVID-19 pandemic: Issues, implications, and suggestions. *Asian Journal of Psychiatry*, 51, 102-116.
- Miller, K. D., and Tsang, E. W. K. (2011). Testing management theories: Critical realist philosophy and research methods. *Strategic Management Journal*, 32, 139–158.
- Morgan, T. (2020). Solving the wickedest problem: Reconciling differing worldviews. *Journal of Futures Studies*, 24(4): 83-94. DOI: 10.6531/JFS.202006\_24(4).0008
- Musgrave, A. (1993). *Common sense, science and scepticism: A historical introduction to the theory of knowledge*. Cambridge University Press.
- Nittayasoot, N., Suphanchaimat, R., Namwat, C., Dejburi, P., and Tangcharoensathien, V. (April 1, 2021). Public health policies and health-care workers' response to the COVID-19 pandemic, Thailand. *Bulletin of the World Health Organization*, 99(4): 312–318. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8085624/>.

- Norton, A. (March 23, 2021). Shortage of primary care doctors is costing American lives. *U.S. News and World Report*. <https://www.usnews.com/news/healthnews/articles/2021-03-23/shortage-of-primary-care-doctors-is-costing-american-lives>.
- Penn, M. (2021). "Statistics Say Large Pandemics Are More Likely Than We Thought." *Research News*. <https://globalhealth.duke.edu/news/statistics-say-large-pandemics-are-more-likely-we-thought>.
- Pongutta, S., Kantamaturapoj, K., Phakdeesettakun, K., and Phonsuk, P. (2021). The social impact of the COVID-19 outbreak on urban slums and the response of civil society organisations: A case study in Bangkok, Thailand. *Heliyon*, 7(5), e07161.
- Post Reporters. (July 19, 2021). Pinpointing the problem. *Bangkok Post*. <https://www.bangkokpost.com/business/2151035/pinpointing-the-problem>.
- Price, L. (2016). Using retrodution to address wicked problems. *Crisis system: A critical realist and environmental critique of economics and the economy*, 109-129.
- Quinley, C. (December 13, 2021). The COVID outbreak and a culture of volunteerism in Thailand. *National Geographic*. <https://www.nationalgeographic.com/culture/article/the-covid-outbreak-and-a-culture-of-volunteerism-in-thailand>.
- Srichuae, S., Nitivattananon, V., and Perera, R. (2016). Aging society in Bangkok and the factors affecting mobility of elderly in urban public spaces and transportation facilities. *Iatss Research*, 40(1), 26-34.
- Suwanrada, W. (2008). Poverty and financial security of the elderly in Thailand. *Ageing International*, 33(1), 50-61.
- Tantrakarnapa, K., Bhopdhornangkul, B., and Nakhaapakorn, K. (2020). Influencing factors of COVID-19 spreading: a case study of Thailand. *Journal of Public Health*, 1-7.
- Tepperman, L., and Thompson, E. (2001). Fuzzy issues in the future of healthcare: What futures studies can teach us. *Journal of Futures Studies*, 5(3): 37-58.
- The Active. 2022. สักยภาพท้องถิ่น ผู้ไร้กระดาษ | "รัฐบาลอย่าทำทุกอย่างคนเดียว" | *The Active*. <https://theactive.net/read/covid19-decentralisation-and-central-control-ep2/>.
- United Nations. (2022). Village Health Volunteers: Unsung heroes for Thailand's health crisis. <https://sdgs.un.org/partnerships/village-health-volunteers-unsung-heroes-thailands-health-crisis>
- Vicerra, P. M. M. (2021). Knowledge-behavior gap on COVID-19 among older people in rural Thailand. *Gerontology and Geriatric Medicine*, 7, 2333721421997207.
- World Bank. (2012). Central-Local Governments in Thailand. Washington: World Bank

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