TRANSFORMATIONAL EVALUATION

FOR THE GLOBAL CRISES OF OUR TIMES

Rob D. van den Berg

Cristina Magro

Marie-Hélène Adrien

EDITORS

IDEAS

INTERNATIONAL DEVELOPMENT EVALUATION ASSOCIATION

KNOWLEDGE   CAPACITY DEVELOPMENT   NETWORKING

TRANSFORMATIONAL EVALUATION

FOR THE GLOBAL CRISES OF OUR TIMES

EDITORS

Rob D. van den Berg
Visiting Professor, King's College London
Leidschendam, the Netherlands

Cristina Magro
International Evaluation Academy, Member of the Council
Belo Horizonte, MG, Brazil

Marie-Hélène Adrien
Universalia Management Group, Senior Associate Consultant
Montreal, Canada

INTERNATIONAL DEVELOPMENT EVALUATION ASSOCIATION

IDEAS

KNOWLEDGE   CAPACITY DEVELOPMENT   NETWORKING

Of Portals and Paradigms: Evaluation, Systems Thinking and the Pandemic

CRISTINA MAGRO AND ROB D. VAN DEN BERG

Abstract. This chapter proposes an exercise with systems thinking, taking the COVID-19 pandemic as a platform for learning, to illustrate the kind of reasoning, language and narrative that will help evaluators focus on key questions and approaches that are adequate. With this, the authors hope to help strengthen and spread the paradigm of systems thinking in evaluation. The authors argue that all social, economic, environmental, cultural and cognitive contexts are here to support evaluators dealing with systems thinking. After a presentation of systems thinking phenomena relevant for the exercise, the chapter takes readers on a journey through a broad, interrelated view of the experience with the pandemic and presents quick takeaways and consequences for evaluators and evaluation. Throughout the journey, the habits of a systems thinker are followed to gain insights and a natural flow of reasoning in systems terms.

Historically, pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next.

We can choose to walk through it, dragging the carcasses of our prejudice and hatred, our avarice, our data banks and dead ideas, our dead rivers and smoky skies behind us. Or we can walk through lightly, with little luggage, ready to imagine another world. And ready to fight for it. —Arundhati Roy (2020)

A Journey with Systems

In *Systems Evaluations for Transformational Change: Challenges and Opportunities*, we argue that:

> if evaluators are to contribute to transformational changes required by the increasingly widespread global threats we are facing, they need to become fluent in systems thinking; to be open to evidence and sources of knowledge from various areas; identify, among the rich diversity of approaches, tools and methods available, the ones relevant and significant for their tasks; to provide insight and understanding on how interventions made through projects, programmes, and policies work contributing either positively or negatively to the dynamic equilibrium of systems (Magro and Van den Berg 2019, 131).

Less than one year after this publication, evaluators encountered an unexpected opportunity to experiment with systems thinking, to realize how tangible it can be and to grant unprecedented relevance to the above claims – following Arundhati Roy – to break with the past and imagine a world anew, crossing a gateway between one world and the next.

Working with paradigm changes in science, anthropologist and sociologist of science Bruno Latour (1987; 1988; Latour and Woolgar 1986) emphasizes the value of observation and experience, history and context in the development, acceptance and consolidation of ideas. He focuses on the paramount role of context and emphasizes the non-linearity of scientific development. In one of his books, *The Pasteurization of France*, Latour (1988) argues that the success of Louis Pasteur's work – related to the spread of microorganisms and epidemics such as cholera – needs to be understood within the actual historical convergence of contexts. In Pasteur's time, these included the public hygiene movement, the medical profession and colonial interests. Without the conjunction of these elements, he argues, his scientific work would not have fully developed and, even if published, would

probably have remained unnoticed. The analysis he proposes is meaning-ful here, as we consider that the current context is extensively favourable for the evaluator's effective engagement in systems thinking and that the pandemic creates space for reflection about and experimentation with the way of perceiving things, the reasoning, language and narrative involved in systems thinking.

Systems thinking has steadily grown in evaluation over the last two decades, especially related to the Sustainable Development Goals (SDGs), climate and the environment, agriculture, gender and social systems. The SDGs present a shared vision of aspirations related to peace, people, planet, prosperity and partnership. Agenda 2030, in which the SDGs are embed-ded, calls for a transformation of our world. An immediate consequence of addressing such an ambitious, holistic and aspirational agenda, focusing on transforming social, economic and environmental systems, is the need to provide a way of reasoning that can treat it appropriately.

Blue Marble Evaluation: Premises and Principles (Patton 2020a) strengthens, in the compelling call it conveys, that being fluent in systems thinking is critical to addressing the SDGs and Blue Marble issues and to transforming evaluation itself. Patton joins a broad community alerting the world that the massive threats currently being experienced can no longer be neglected, nor can we postpone the quest for novel ways of thinking to approach them. In his blog Evaluation Implications of the Coronavirus Global Health Pandemic Emergency, Patton (2020b) recommends:

> **7. Engage in systems thinking.** If you have been putting off bringing systems thinking to your evaluations, *now is the time*. If you've already been bringing systems thinking to your work, *now is the time* to go deeper and demonstrate to those you work with the relevance and importance of thinking systemically about what is happening. Public health, community health, national health, global health, your fami-ly's health, and your personal health are all connected. This is micro to macro, and macro to micro, systems thinking. The state of public health is connected to the economy, the financial system, politics at every level, social well-being, cultural perspectives, educational inequities, social and economic disparities, public policy decisions, and evaluation. *Practice seeing the interconnections and their impli-cations for your work, your evaluations, and your life.* Celebrate the initiatives of young people worldwide to build a more sustainable and equitable future [emphasis added].

We concur with Patton that the time is now to transform the way we think as evaluators, as professionals and as citizens and to dive into what is still often referred to as *the new paradigm*. The context is fully favourable

and, more than that, demands transformational actions. Systems thinking requires sharp, reflexive, critical, dynamic ways of thinking in terms of generative mechanisms that lead us to understand the functioning of things.

This first section – a journey with systems – builds on our previous work (Magro and Van den Berg 2019) exploring conceptual tools to prepare for the journey with systems that comes next. The second, and most extensive, section – a personal journey – explores the Habits of a Systems Thinker[1], taking the pandemic as a platform for learning. On the way, we post 'road signs' indicating the habits of a systems thinker that we identify in the narrative to define, enrich and consolidate the reflexive experience proposed. Habits will often be applied simultaneously, but for clarity's sake, we treat them separately in this chapter. We will not translate this journey into the field of evaluation, because we want to show how systems thinking leads to and requires broader understanding and systemic expression. We want to operate with systems thinking to understand the experience of the pandemic, hoping you will cross this section with the joy of an explorer. Systems thinking offers a palette of visual resources to make explicit the reasoning and the mechanisms and processes involved. In spite of the clear utility of these graphic resources, in this chapter we want to emphasize attitudes and different reasonings that may be fostered to promote the transformation required towards systems thinking and, as a final goal, achievement of the SDGs. In the third and last section – transforming evaluation – we indicate consequences for evaluators and highlight what emerged from our exercise as potentially useful contributions.

We have previously defined systems as

> *dynamic units* that *we distinguish and choose to treat* as comprised of interrelated components, in such a way that the *functioning of the system*, that is, the *result of the interactions between the components*, is bigger than the sum of its components [emphasis added] (Magro and Van den Berg 2019, 144).

We claim, in the above quotation, that the functioning of a system is of utmost interest in systems thinking. One of the motivations for systems thinking is precisely to provide a way to deal with dynamic structures and

---

[1] Waters Center for Systems Thinking (https://waterscenterst.org/). Habits 1–14 in this chapter are quotations extracted from the several Waters Center tools updated in 2020. The numbering of the 14 habits is ours and yields internal references only, with no hierarchy implied. For your exercise and delight, you can seek to identify which habits are involved in each situation besides the ones we indicated along the chapter.

historical processes – that is, processes that happen over time. The quotation states that the functioning of a system results in the emergence of phenomena not reducible to the system's components. The system's structure (formed by components and interactions between them) determines its functioning and what emerges from it, which in turn is related to the historical path of interactions with the context, where behaviour is observed. The aphorism 'the structure of a system determines the behaviour of the system' synthesizes this understanding.

Systems function in a context and maintain a permanent flow of interrelations (here also referred to as 'interactions') with it throughout time in such a way that changes in the context can trigger changes in the functioning of the system, and changes in the system can trigger changes in the context. It all depends on the structure of the systems involved, which develop their history – a permanent flow of interactions – in a pairing mode or structural coupling with the context. System and context are always 'adapted' to each other in a complex, dynamic and contingent way. Examining the history of interactions of a system, systems thinkers indicate that a system's behaviour exhibits recurrent patterns over time. The distinction of these two domains of inquiry (system and context) in their permanent flow of interactions is crucial for clear reasoning with a systems perspective. Things become more challenging when the context is formulated in terms of systems, which, in turn, can have their own structures identified. In evaluation, this has been explored in many situations, for example regarding the interaction between social and economic systems and most explicitly between human systems (social, economic) and environmental systems (ecosystems, species systems). At the nexus between environment and development, this has led to the need to recognize environment and development as two evaluands that have different structures, timing, scaling and locations (Rowe 2012; see Uitto 2014 and Uitto, Puri and Van den Berg 2017).

One significant consequence of the way systems function, as above described, is that no system can be informed, instructed or forced, from the outside, to do what it cannot do. To say the least, the outcomes of any intervention vary because of the system's structure (components, their interrelations and patterns over time); because of its structural configuration at the time an intervention is implemented; because of its path of interactions with the context through time and contingent occurrences (e.g. as an outburst of a pandemic); because of the characteristics of the intervention itself and all relevant factors involved, which is then considered part of the context of the system.

Projects, policies and programmes traditionally rely on isolated, immediate, linear and causal relations and on the vision that, if properly designed and implemented, they will make the system move in the planned direction. Taking a systems view, though, evaluators are led to understand that this is not so. The appearance of unpredictable effects can be understood as ordinary signs of how the systems involved cope with the intervention, which may differ from what was planned. Moreover, in view of the demand for transformational changes, changes in one system may trigger changes in interrelated systems, which can account for transformations that are distant in space and time.

The systems thinking here explored is rooted in Humberto Maturana's work on neurophysiology of vision and autopoiesis, later developed as the biology of cognition and language (Maturana and Varela 1973; 1992). This systemic approach entails a complex interactive engagement between what we perceive, what we talk about and what we know, which leads to the collective crafting of a world in all its complexity rather than a breaking up of the world into silos and narrow fields of cognition. *The Habits of a Systems Thinker* (Benson and Marlin 2019), extensively used in this chapter as a transformational approach to learning, problem-solving and understanding the world, also supports this view. 'It's about seeing life in motion, recognizing that the big picture is rarely static, but almost always a web of factors that interact to create patterns and change over time' (Waters Center for Systems Thinking 2021).

Exploring Experience and Building Habits: A Personal Journey

There's nothing more practical than a good theory. —Lewin (1952, 169)

The COVID-19 pandemic has led each of us around the world to experience changes in our lives that have affected the way we interact with others, personally and professionally. Our movements through the air, in water and on the land were affected. Our ordinary routines were turned upside down, and the readiness to engage in everyday activities and pleasures was disturbed. Mundane tasks such as buying food, medication and household supplies;

Habit 1 of a Systems Thinker: Seeks to understand the big picture.

A Systems Thinker focuses on the forest as well as the details of any one tree.

exercising; obtaining medical care and tests; going for a haircut; fixing a leak in the kitchen; having the car washed were categorized into essential and non-essential activities. Only those classified as essential could continue to be performed, under strict rules, redesigned schedules and new hygiene protocols. Constraints of all sorts were experienced to avoid physical proximity with others – no shaking hands; visiting friends and family; going to school, temple, church, restaurants, theatres.

After a while, many no longer complied with the protocols and protested for their rights to come and go, alien to the complexity and unpredictability of the contagion and the disease itself, and the consequences, in the long run, of losing control of looming outbursts. As flexibilization began, protocols were reviewed according to new observations and experiences. The virus spread rapidly in countries such as Italy, the United States, Brazil and India, especially during the first half of 2020. The second wave emerged in September and October, worse than the first, while, in general, the behaviour of citizens and the government regarding the pandemic remained the same.

Habit 2 of a Systems Thinker:
Observes how elements within systems change over time, generating patterns and trends.

A Systems Thinker sees change over time as the dynamics of a system.

At the same time, people acquired new habits and developed new skills, sometimes making enduring transformations in their lives. New talents emerged in the kitchen, in the garden, in households and in families. Some became musicians or painters; others redirected their lives for good. Technology contributed with effective solutions, in a 'tech-celeration' (Standage 2020) that favoured adoption of various technological behaviours. QR codes appeared in restaurants, bars and cafés in substitution for printed menus and bills, which go from hand to hand and could be a vehicle of contagion. Ticket counters and pass readers activated by hand wave were made available for the same reason. Virtual spaces to keep our minds fresh, to work and to learn increasingly occupied our locked-down lives. Teachers reinvented classrooms and education and, without any previous knowledge, quickly adjusted their practices to virtual spaces. Despite unintended effects that

Habit 3 of a Systems Thinker: Identifies the circular nature of complex cause and effect relationships.

A Systems Thinker sees the interdependencies in a system and uncovers circular causal connections.

early studies have described, indicating how stressful virtual contacts could be (Sander and Bauman 2020), people progressively diversified their use, including for informal daily situations and to meet with relatives and friends. E-commerce flourished around the world, with more people learning to buy online and more businesses adjusting to the new reality. Telemedicine became common in many parts of the world, modifying the configuration of, for example, psychotherapists' clienteles, potentially allowing for worldwide enrolment. With the appearance of COVID-19, the use of telemedicine and technological novelties and subsequent innovations exploded.

   As the West struggled with massive contagion and cruel death statistics, Japan kept the number of COVID-19 cases relatively low through 2020. Explanations of all kinds were offered – including the lifelong habit of the Japanese to protect their mouths and eyes when they are sick, a sense of citizenship and a fear of judgement if they transmitted the virus because they neglected to follow safeguards. In an interview for the journal *Diplomacy*, a Japanese Foreign Policy Forum vehicle, a professor from the Department of Virology of the Tohoku University Graduate School of Medicine, Dr. Oshitani Hitoshi (2020), explained that a systems approach differentiated Japan from Western countries in their disease response. 'Japan's strategy was "to see the forest to understand the whole"', instead of focusing on the trees. The Japanese strategy can be summarized in four points, as follows:

   1.   *Awareness and early observation, enlarged view, focus on interrelations and on the dynamics of the spread.* Japanese authorities and scientists reacted immediately to the appearance of the first cases and focused on clusters (not on individuals) as potential sources of contamination and outbreaks. China detected the first cases by the end of 2019, and in Japan, 11 individuals with a travel history to China were identified as having the disease from January to early February 2020. At the time, an estimate of several tens up to a hundred infections was made. The wave that emanated from this first cluster, composed of tourists moving around Tokyo, Osaka and Hokkaido sightseeing and congregating with others, was controlled by mid-March. A second wave began in early February through international travellers (often for work or business), with 300 confirmed cases coming from Europe, the United States, Southeast Asia and Egypt and estimates of some 1,000 to 2,000 cases. Because restrictions on circulation were not imposed until

the end of March, infected people moved around the country, resulting in a large outbreak.

Whereas Japan had already had two waves by March, Western countries did not identify a second wave until September to October because they focused on infected individuals, not clusters. Two waves were also observed in Europe but did not lead to focused treatment or specific measures to limit infections.

2. *Focus on the context, patterns, trends of infections and behaviour over time.* Japanese authorities concentrated on identifying and understanding the clusters and their dynamics in the context they moved, tested and monitored the clusters' contexts and tolerated some degree of low transmission rates, allowing them to address the origin of high transmission rates.

> **Habit 4 of a Systems Thinker: Checks results and changes actions if needed: 'successive approximation'.**
>
> A Systems Thinker intentionally gathers information to assess progress before changing actions.

3. *Reliance on scientific understanding of the new virus and the infection processes.* Japan sought to understand the characteristics of this specific virus and its flow of transmission. As long as the authorities could prevent clusters where one infects many, most chains of transmission would decrease. As early as 17 February 2020, Japan issued a guide with instructions on how to behave during the pandemic to avoid contagion and what to do upon the appearance of the first symptoms, discouraging early running of citizens supposedly infected to clinics, where people would be together in small spaces usually with poor ventilation and in close contact with others.

> **Habit 5 of a Systems Thinker: Pays attention to accumulations and their rates of change.**
>
> A Systems Thinker clearly identifies elements of the system that accumulate and change over time at measurable rates.

4. *Learning from experience and consideration of mental models influencing behaviour.*

I think that Western countries and Japan, or even Western countries and Asia, have fundamentally different ways of facing COVID-19, or even infectious diseases in general, including historical and cultural backgrounds. [I mentioned earlier that the] Western response was to identify cases and completely eliminate the virus. There is a notion of *completely annihilating the evil.* One way that is apparent is that not only politicians, but even many academic experts have used war metaphors to talk about COVID-19... I guess Japan and other Asian societies have developed a relationship with infectious diseases that contains a sort of resignation, as we had accepted living together with microbes (Hitoshi 2020).

Habit 6 of a Systems Thinker: Considers how mental models affect current reality and the future.

A Systems Thinker is aware of how beliefs and attitudes influence the way a system behaves.

Dr. Hitoshi says that attitudes, beliefs, ideas and perceptions are components of the structure of systems and affect their behaviour; that is, they affect both their perspectives and actions. The frame of mind described in the above quotation shows how the Japanese are coping with the pandemic, how they have historically done so and how they will probably behave in the future, having learned from trends and patterns experienced with time.

Japan learned lessons from past outbreaks, especially from the 2009 H1N1 influenza pandemic. In 2009, people rushed to get tested, having to remain for hours in waiting areas characterized as closed spaces, crowded places and places that forced close contact (the three C's of the Japanese strategy). In 2020, the understanding that chaotic testing could make things worse led authorities to move even further away from identification of individual cases, instead focusing on clusters and massive spread.

A dramatic contrast with the West is worth mentioning. A recent book on the Spanish flu (Schwarcz and Starling 2020) highlights that difficulties and mistakes experienced during the new coronavirus pandemic could have been avoided had we considered lessons from what we experienced one century ago. Some examples are the paralysis of the economy; the fragility of public health systems; the extra burden on Black and poor people; the increase in social inequalities; the ineffectiveness of silver-bullet solutions such as hydroxychloroquine and ivermectin and the effectiveness of face masks, hand washing and social distancing.

By January and February 2020, and as time passed, strings of inter-related events unfolded in front of our eyes. Each of us witnessed events mutually affecting each other in various ways, in amazing feed-back loops, dragging ourselves, our neighbours and our societies into uncertain and unpredictable situations. Think how many times you planned and postponed a trip or a vacation or asked yourself when you could go out with friends again. Think how your beliefs regarding viruses, infections, contagion, your rights, your feelings about the suppression of your daily freedom and the dynamics of your emotions in isolation from others affect how you experience the pandemic and the decisions you take.

> **Habit 7 of a Systems Thinker: Makes meaningful connections within and between systems.**
>
> A Systems Thinker sees how concepts, facts, and ideas link together, which can lead to new learning, discoveries, and innovations.

In short, *think of yourself as a system*, and grant to your structure the production of the behaviour you exhibit at each moment in time, per the flow of your life story in the contexts within which you interacted and the current inter-relationships with which you are engaged. Keep on reflecting and maintaining your stream of thought as close to you as possible, focusing on yourself, checking how interdependent you are with the multiple inter-relationships that you establish with systems in your context and they establish with you. Reflect on how the flow of your behavioural patterns is forming new patterns and trends and a whole new situation is emerging. It could not be otherwise. You and your circumstances are fully contingent phenomena.

> **Habit 8 of a Systems Thinker: Considers short-term, long-term and unintended consequences of actions.**
>
> A Systems Thinker looks ahead and anticipates not only the immediate results of actions but also the effects down the road.

'Which system are we talking about in this rather personal exercise?' you may ask. 'Whatever system you want to define as a unit to reflect upon at this moment', we would reply. You determine the size and complexity of the system based on your interests, your capabilities and the problem or concern at stake.

> **Habit 9 of a Systems Thinker: Recognizes that a system's structure generates its behaviour.**
>
> A Systems Thinker focuses on system structure and avoids blaming when things go wrong.

Habit 1 of a systems thinker proposes that we question how to balance the big picture with important details that may be raised. In other words, depending on how precise your question or problem is, the big picture can have more- or less-defined contours from the beginning, although none of the attitudes we have indicated here could be dispensed with, no matter how early you define the system you want to consider. Still, while reflecting, resist the urge to jump to conclusions. If you decide to deal with systems, you deal with complex units, and quick solutions are likely to fail. All phenomena that complex systems exhibit are complex and not immediately evident.

Now, how have scientists discussed SARS-CoV-2 and COVID-19? As of 29 January 2021, the World Health Organization (WHO) had officially reported 100,819,363 confirmed cases and 2,176,159 deaths, which indicates a global pandemic of unprecedented magnitude[2]. Accordingly, the new virus and the disease have received unusual attention from scientists; by the same date, there were 62,005 PubMed-indexed articles, with more than 6,000 publications in less than one month[3]. Since the virus was first reported in December 2019, 'the pace of investigation and publications makes SARS-CoV-2 the most-studied virus in history' (Baumgarth et al. 2020, 2342).

> **Habit 10 of a Systems Thinker: Considers an issue fully and resists the urge to come to a quick conclusion.**
>
> A Systems Thinker takes the necessary time to understand the dynamics of a system before taking action.

Baumgarth and colleagues (2020) indicate that communication of scientific work, especially on such a complex, extensive pandemic, is not trivial. Current communication has been accompanied by misunderstandings, leading to a lack of trust in science and to criticism that all biomedical areas of interest to the pandemic need to be reinvented. For example, scientists perceive that expressions of a nuanced approach to a particular question, such as the declaration that 'process X is poorly understood' or that 'there is a lack of detailed knowledge about something', indicate mature, high-integrity work, providing a sound rationale for studying the details in depth. On the contrary, the general public may perceive such statements as

---

[2] Available at https://covid19.who.int/.

[3] Available at https://tinyurl.com/3cz49p4e.

indicating lack of expertise, which can lead to panic and denialist behaviour and can divert scientists from relevant discussions.

The pandemic has challenged epidemiologists, infectious disease specialists, immunologists, cardiologists, neurologists, intensive care personnel, medical doctors, biochemists and all. This pandemic offers the opportunity to acknowledge and to seek understanding from several fields to interpret a situation and to learn how to manage uncertainty and unpredictability. In addition, after 11 months, the approach to the disease at hospitals and clinics has changed, for much has been learned since its identification. Nevertheless, it is also correct to say that the context of the pandemic – with massive communication often resulting in quickly and widely spread and poorly interpreted information – has not helped populations follow rational precepts and protocols. Questionable results and alarmist news articles have filled the void generated by the inability of the scientific community to convey experimental results swiftly to the public, which is the proper way to discuss and advance science. This has hampered efforts to contain transmission, hindered development of therapeutics and furthered mistrust in vaccines, as Baumgarth and colleagues anticipated (2020, 2342–2343).

An example of rapidly spreading information in the beginning of the pandemic concerns the very nature of the disease. COVID-19 was initially – and continues to be – characterized as an acute respiratory problem. A few months later, when more cases were observed, pronounced lymphopenia was noted in severe cases – leading to an imme-

> **Habit 11 of a Systems Thinker: Surfaces and tests assumptions.**
>
> A Systems Thinker actively tests theories and surfaces assumptions, perhaps with others, in order to improve performance.

diate characterization of COVID-19 as a hematologic (circulatory) disorder. A bit later, when cases indicating neurological disturbances appeared, the reference of the disease changed again. Later, it was summarized as a *systemic disease*. With time, refined, agreed-upon formulations appeared, but this is not a topic for us here. What is relevant in this moment is not the 'scientific final word' about COVID-19 but the development of a scientific understanding of the virus. Different characterizations of the disease were initially mutually exclusive, without paying attention to the simultaneous or secondary appearance of associated disorders. In this sense, the description of the disease as systemic addresses issues worth noting, such as the possibility that systems thinking gives us to approach a phenomenon in its multiple aspects and from multiple perspectives at the same time, even if

they seem paradoxical at first. Moreover, it helps us acknowledge that the variety of symptoms and configurations of this disease in different people depends on the structure of the organism when the infection occurs and its functioning through time, together with the viral load.

> **Habit 12 of a Systems Thinker:**
> **Changes perspectives to increase understanding.**
>
> A Systems Thinker increases understanding by changing the way they view aspects of the system.

From the perspective of global systems, such as the global economy, and prevalent neoliberal politics that broadly determine contemporary life dynamics, how can we perceive the development of the pandemic? Criticisms of neoliberal politics, market-driven economies and societies focused on individualism increased in intensity when the impact of the pandemic became clearer. On 3 April 2020, the *Financial Times* (2020) acknowledged that the coronavirus exposed frailties in current economic and social models, and the Editorial Board advocated for reforms:

> Radical reforms – reversing the prevailing policy direction of the last four decades – will need to be put on the table. *Governments will have to accept a more active role in the economy.* They must see public services as investments rather than liabilities and look for ways to make labour markets less insecure. *Redistribution will again be on the agenda; the privileges of the elderly and wealthy in question. Policies until recently considered eccentric, such as basic income and wealth taxes, will have to be in the mix* [emphasis added].

The proposals are surprising, considering that the *Financial Times* is a strong voice of the neoliberals:

> If there is a silver lining to the Covid-19 pandemic, it is that *it has injected a sense of togetherness* into polarised societies. But the virus, and the economic lockdowns needed to combat it, also shine a glaring light on *existing inequalities – and even create new ones.* Beyond defeating the disease, the great test all countries will soon face is *whether current feelings of common purpose will shape society after the crisis* [emphasis added].

The call for strengthening a sense of togetherness and the observation that something new in this direction may have been injected during the pandemic recalls Schwarcz and Starling's (2020) narrative about how attitudes of Brazilians during the Spanish flu contrasted with their attitudes

during the current pandemic. At the time of the Spanish flu, after a period of lockdown, the owner of many movie theatres in Belo Horizonte, one of the Brazilian state capitals, decided to reopen, claiming that radical protection measures were unnecessary and highlighting his financial losses. He promoted the first show after the lockdown and argued that the spirits of the population needed to be raised in times of a pandemic. What he did not foresee was the strong reaction of the population, who proposed boycotting the shows; as a result, the movie theatres had no audience until the influenza was gone. In contrast, in 2020/21, a common scenario in Brazil, France, Spain, the Netherlands, Denmark and many other countries is protests against social distancing and in favour of market opening and the right to go to crowded parties, bars and beaches. What the *Financial Times* editors suggest is happening, therefore, seems not to be the case. We could indicate the influence of mental models in this behaviour as well – a more individualistic mental model with a reduced sense of togetherness seems now to be dominant in many parts of the world.

The pandemic has exposed inequalities of all sorts. According to Human Rights Watch (2020), in the United States, the outbreak has highlighted economic inequalities and the fragile social safety net that leaves vulnerable communities to bear the economic brunt of the crisis. Although the virus infects people from all social classes, the poor are the most affected because of long-standing segregation according to income and race, limited economic mobility, poor facilities and the high cost of medical care. These observations can be extended around the planet. In countries like Brazil, the disease is prevalent among Blacks, Indigenous people, the poor and those living in crowded spaces and in areas without basic sanitation. The opening of markets placed an extra burden on those who depend on overcrowded public transportation to travel from home to work and back, expanding the chances of contagion. A cruel inequality derives from the digital segregation of Black and poor people observed in Brazil and other countries. When classes occur primarily virtually, a significant number of children and young adults enrolled in school have remained without schooling for the whole period (Mari 2020).

Many other global challenges related to the SDGs, such as unemployment; hunger; disruption of formal education; growth in domestic violence;

> **Habit 13 of a Systems Thinker: Recognizes the impact of time delays when exploring cause and effect relationships.**
>
> A Systems Thinker understands that often cause and effect are not closely related in time.

emergence or deepening of psychological disturbances and collapse of public health systems, the economy and the finance systems, have arisen. These dramatic occurrences can be systemically understood as the behavioural paths these systems are taking, after changes in their context of interactions and in their structures.

> **Habit 14 of a Systems Thinker: Uses understanding of system structure to identify possible leverage actions.**
>
> A Systems Thinker uses system understanding to determine what small actions will most likely produce desirable results.

Understanding the structural aspects of this pandemic identifies key issues that provide a dire warning for the future emergence and spread of zoonotic diseases (that transfer from animals to humans). This includes the historical, grave exploitation of the environment; biodiversity loss; deforestation; dietary habits and agricultural defences. The connections between these structural aspects cannot be disregarded or set aside as unimportant. On the positive side, the experience has provided an opportunity for new indicators to support the SDGs and a green restoration (UNEP 2020). Navaratnam-Blais (2020) highlights a potentially fruitful convergence of two agendas that has emerged in organizations – fight climate change and deepen digitization:

> These two agendas will exist in something of a symbiotic relationship; digitization will allow companies to meet their decarbonization targets, while the pressures of climate change will help create the business case for accelerated investment into digital transformation. In October of this year, for example, we at Source Global Research published a report, based on a survey of 150 senior US executives, exploring how various organizations intend to use professional services firms to help them mitigate their exposure to climate risk and achieve their decarbonization targets. When those executives were asked what specific steps their businesses could take that would make the greatest contribution towards those objectives, the most popular answer – by quite some margin – was 'finding innovative ways to incorporate green technology into our operations'.

In systems thinking terms, if his observations and hopes are confirmed, the tech-celeration that is taking place during the pandemic may be producing further effects and establishing new interrelationships between systems that were not before linked.

We are all undoubtedly capable of enlarging and unfolding this complex, interrelated network, contributing with personal, contextual and diversified perspectives on the enormous fabric that constitutes our life experience. 2020 – and it seems that the same will continue during 2021 and 2022 – has whipped the planet overwhelmingly, with contingencies that depend on individual characteristics; social, cultural and economic backgrounds; politics and history. All in all, 2020 has provided an extraordinary experience, at the same time collective and individual, in which it is clear that we are learning how to live with uncertainty and unpredictability. Although the experience of lack of control and predictability has often been painful, it demands our immediate attention, inspiring us to asking appropriate questions and reformulating our common way of reasoning.

Quick Takeaways

With what we know about SARS-CoV-2 and the COVID-19 pandemic, and with adoption of a systems thinking perspective, numerous practical learning examples and approaches for ongoing concerns, at all levels, could be immediately pointed out:

1. Experience has shown that, when lockdown restrictions are relaxed because of a decrease in transmission, an increase in new cases follows. The recurrence and escalation of this vicious circle threatens economies and societies and must be stopped. This phenomenon can be referred to as the circular nature of complex cause-and-effect relationships. Time delays may affect them, requiring that we acknowledge that, in systems, cause and effect may not be closely related in time and not even in space. This sort of phenomenon can also be treated as feedback loops, shedding light on recursiveness. Recursiveness appears when we seriously consider the flow of time – or history. It means that each new action taken, for example a lockdown, will fall on a market already weakened by a previous lockdown, deepening further economic frailties. New actions do not fall on the initial state of the system.

2. Systematic consideration of the dynamics of systems and interrelationships with the context alerts us that the focus on flows of interrelationships as historical processes is crucial. In the case of the pandemic, the focus on high contagion potential yields to a variety of possible solutions that will work only if local habits, culture and beliefs are taken into consideration.

- Regarding recovery of urban circulation and reopening of markets, places and attitudes that require or involve close contacts, crowded places and closed spaces need to be avoided. Architectural solutions allowing for cross-ventilation could be found for originally closed spaces such as temples and classrooms, for example.
- Regarding vaccination campaigns, setting priorities requires the consideration of various interrelated factors, that are highly contextual and dynamic. The process of establishing the target clusters themselves involves a close examination of the dynamics of the society, a clear understanding of the concerns of national authorities and the population, an assessment of the resources available and an overview of demographics. One size does not fit all. Examples from various countries can guide, but not determine, what is appropriate for different systems' structures and dynamics. Throughout the world, governments have exhibited different concerns, which then result in different priorities setting as, for example:
  - *to stop the flow of the contagion:* in this case, those who must go out to work every day could be considered immediate priorities. This was done in Indonesia;
  - *to reduce deaths:* in the beginning of the pandemic deaths occurred mainly among elderly people, and because vaccines were scarce, some countries opted to immunize the elderly living in nursing homes. What was not considered was that reinfections could occur and caretakers would come and go every day, keeping the potential for infection the same. Moreover, in unequal countries like Brazil, Blacks, Indigenous people and the poor, who lack the resources to pay for a nursing home, who have lower life expectancies than whites, were left unattended although they are among the most vulnerable groups which were, then, unattended;
  - *to immunize the most vulnerable groups first.*
3. Outreach campaigns to raise awareness of the effects of an individual's attitudes on the community as a whole, and vice versa, are paramount, because a chain of interrelated events occurs as a consequence of each individual's performance. Following safe practices can help avoid the collapse of health systems and institutions, keeping hospital facilities and intensive care units available to treat extreme cases, reducing deaths and burden on the health

care system and enabling the opening of markets and flexibiliza-
tion of social interaction in the medium term. This awareness can
build collectively through beneficial virtuous circles.

4. Given that COVID-19 may have long-term effects, individu-
    als who were infected may see their productivity decrease after
    discharge, and their need for specialized care increase, which
    burdens the family, the country economy, health care system and
    social well-being. Population immunity (also called herd immu-
    nity) requires that 70 per cent to 80 per cent of the population
    be infected or vaccinated. Therefore, controlling the pandemic
    by letting the population become infected is not a good option,
    considering the possible medium- and long-term consequences
    for individuals, their families and the country. According to the
    WHO, the United States, the country with the most deaths and
    identified cases by January 2021, has detected 25,354,044 cases[4]
    in a population of 330,053,524 (U.S. Census Bureau 2021). This
    amounts to only 7.6 per cent of the population. Before the distri-
    bution of vaccines, the country experienced an extremely serious
    situation, having to deal with a percentage of infected people
    which is much lower than what is required for population immunity.
    Although it is a huge challenge to produce and distribute vaccines
    for 70 per cent to 80 per cent of the population, stimulating the
    spread of the virus would mean that the country would need to
    undergo many more waves of infection to achieve herd immunity,
    with unforeseen short, medium and long-term consequences.

5. Technological solutions have provided significant support during
    this first experience with a pandemic of this magnitude, to the
    point that this process was coined 'tech-celeration' (Standage
    2020). Scientists such as Dr. Hitoshi (2020) alert us that additional
    surges are likely to come, perhaps involving new viruses. Incentives
    and clear policies to expand access to the Internet, to produce and
    finance digital devices for reasonable prices to cover more popula-
    tions, especially the poorest and most vulnerable, can be designed
    and implemented. The inequalities that COVID-19 has exposed
    and exacerbated may be dramatically amplified in the medium to
    long term, leading to further economic and social collapse, with

---

[4] Updated map available at https://covid19.who.int/table?tableChartType=heat.

consequences for the planet itself if immediate attention is not paid to contain this process.

6. The urgent call to transform the relationship between humans and their environment, living and non-living, has become even more urgent during this pandemic. The disruption of the equilibrium of the planet during the Anthropocene era has as one of its consequences the appearance of strong, new viruses of animal origin with high infection potential. Evaluators can strongly support goals and interventions aimed at reversing the imbalance of the Anthropocene and promote the transformations required.

7. Finally, as Patton (2020b) recommends, systems thinking should be systematically embraced in evaluation, and we should become real fact checkers.

> **11. Model systematic evaluative thinking.** The media are filled to overflowing with opinions about what's working and not working, what's been done well and poorly, and who's to blame and who gets credit. Everyone is an evaluator. But we are professional, systematic evaluators. Evaluate for yourself – with skill, care, and thoughtfulness – what's working and not working to mitigate the crisis. Be prepared to render judgments as appropriate based on cumulative evidence, but also be prepared to demonstrate evaluative thinking when evidence is inadequate, when judgments are premature, and when the facts are uncertain. Refrain from expressing uninformed or premature judgments and urge others to do likewise.

Transforming Evaluation with a Paradigmatic Change

Exploring the habits of a systems thinker in light of the COVID-19 pandemic can reveal numerous themes that are of concern in development and evaluation, such as resilience, adaptiveness, sustainability and transformation. It can offer alternatives for transforming evaluation, reframing its object and the evaluation criteria and revealing a way out of dilemmas that evaluators face, especially considering the commitment to achieving the SDGs (Ofir et al. 2019).

Patton's blogs (2020b; 2021) make recommendations to evaluators facing the current global health emergency that can be expanded to evaluators' work beyond the pandemic crisis. His recommendations are made from a systems perspective and can be identified through the journey

with the systems thinkers' habits. As we list takeaways from the journey, it becomes clear that, to be fluent in systems thinking, it is necessary to uphold the full potential of systemic evaluation approaches (see e.g. Patton 2020c) and that the Principles for Effective Use of Systems Thinking in Evaluation (SETIG 2018), which are in line with the reasoning expressed through our journey, are useful in a dynamic, interrelated, indivisible way.

To take the system and the context into account often seems like a huge task that involves complications besides complexity, is impossible to complete and is arbitrary and biased in its reach and understanding and hopelessly amateurish. It is true that uncertainties exist and that, in some cases, data are unreliable, unverifiable and not much better than guestimates, but this is often the case at the intervention level as well. Interventions aimed at transformational change need to have information and data on and insight into the systems that are targeted; otherwise, they are set up for failure.

An important issue is the use of criteria to decide whether an intervention managed to set transformative change in motion and, if so, whether that change was for the better rather than making things worse. It is clear that the Development Assistance Committee (DAC) criteria were not formulated for interventions in the context of systems change, let alone transformational change. Patton (2020c) indicates how a systems imperative would translate into new criteria to help make evaluations relevant for transformational change while pointing out that the traditional DAC criteria, although redesigned, support business as usual and do not meet current global needs. There is a lively, ongoing debate on the matter worth joining that focuses not only on the global crises of our times, but also on social justice, human rights, exploitation, conflict and violence.

As evaluators, we are used to starting an evaluation by providing validated data regarding a country, a region or a locality, including historical perspectives. What we need to do for transformational change is to provide similar data and insight for the system that is supposed to be changed, whether it is a market system, the interaction between human activity and an ecosystem or any other well-identified system that needs to transform. National bureaus of statistics, as well as many global databases of international organizations and a plethora of research and science programmes at universities around the world, contribute to our understanding of key systems and their contexts but do not substitute for clear systems reasoning. We advocate that the habits of a systems thinker be used to explore these sources to start an exploration of transformations that societies should strive for. This should become an integral part of the new paradigm of a transformed evaluation for transformation.

Note

This chapter was finalized when Humberto Maturana passed away on 6 May 2021. For all those seeking innovative ways to understand our present and build a better future we recommend his ideas.

Acknowledgements

References

Baumgarth, Nicole, Janko Nikolich-Zugich, F. Eun-Hyung Lee et al. 2020. Antibody responses to SARS-CoV-2: Let's stick to known knowns. *Journal of Immunology* 205: 2342–2350.

Benson, Tracy, and Sheri Marlin. 2019. *The habit-forming guide to become a systems thinker*, 2nd ed. Pittsburgh: Waters Center for Systems Thinking.

Financial Times. 2020. Virus lays bare the frailty of the social contract. Radical reforms are required to forge a society that will work for all.

Hitoshi, Oshitani. 2020. Infectious disease response – to see the forest, not just the trees: What differentiated Japan from the Western countries? *Diplomacy* 58, 5 June.

Human Rights Watch. 2020. US: Address impact of Covid-19 on poor. Virus outbreak highlights structural inequalities. https://tinyurl.com/yj8k5r4x

International Science Council. 2017. Report: A guide to SDG interactions: From science to implementation. https://tinyurl.com/wlyx7yw

Latour, Bruno, and Steve Woolgar. 1986. *Laboratory life: The construction of scientific facts*, 2nd ed. Princeton: Princeton University Press.

Latour, Bruno. 1987. *Science in action: How to follow scientists and engineers through society*. Los Angeles: Sage.

Latour, Bruno. 1988. *The pasteurization of France*. Cambridge, MA: Harvard University Press.

Lewin, K. 1952. *Field theory in social science: Selected theoretical papers by Kurt Lewin.* London: Tavistock.

Magro, Cristina, and Rob D. van den Berg. 2019. Systems evaluations for transformational change: Challenges and opportunities. In: *Evaluation for transformational change: Opportunities and challenges for the Sustainable Development Goals*, (eds.) Rob van den Berg, Cristina Magro and Silvia Salinas Mulder, 131–152. Exeter, UK: IDEAS.

Mari, Angelica. 2020. Negros e pobres sofrem com exclusão digital durante a pandemia. *Revista Forbes* 27 Maio. https://tinyurl.com/yy2q96by

Maturana, Humberto, and Francisco Varela. 1973. Autopoiesis: The organization of the living. In: *Autopoiesis and cognition – the realization of the living. Boston studies in the philosophy of science, vol. 42,* (eds.) Humberto Maturana and Francisco Varela. Dordrecht: Reidel Publishing.

Maturana, Humberto and Francisco Varela. 1992. *The tree of knowledge: The biological roots of human understanding.* Boston and London: Shambhala.

Navaratnam-Blair, Fergus. 2020. Sustainable transformation: Why climate change and the digital agenda are more closely linked than ever. *Information Age* 12 November. https://tinyurl.com/y2r8r6oq

Ofir, Zenda, Gerald Singh, Emilie Beauchamp et al. 2019. *From monitoring goals to systems-informed evaluation. Insights from SDG14.* IIED Briefing Paper 11. https://tinyurl.com/yy3gmmbe

Patton, Michael Quinn. 2020a. *Blue Marble Evaluation: Premises and principles.* New York: Guilford Press.

Patton, Michael Quinn. 2020b. Evaluation implications of the coronavirus global health pandemic emergency. https://tinyurl.com/t6th337

Patton, Michael Quinn. 2020c. Evaluation criteria for evaluating transformation: Implications for the coronavirus pandemic and the global climate emergency. *American Journal of Evaluation* 39 (4): 527–542. https://doi.org/10.1177/1098214020933689

Patton, Michael Quinn. 2021. Lessons about evaluating responses to the pandemic: Insights from the World Food Programme Developmental Evaluation. https://tinyurl.com/yk5scrvg

Rowe, Andy. 2012. Evaluation of natural resource interventions. *American Journal of Evaluation* 33: 384. https://doi.org/10.1177/1098214012440026

Roy, Arundhati. 2020. The pandemic is a portal. *Financial Times* 3 April. https://tinyurl.com/saed22p

Sander, Elizabeth, and Oliver Bauman. 2020. Five reasons why Zoom meetings are so exhausting. *The Conversation.* https://tinyurl.com/y65klnuf

Schwarcz, Lilia Moritz, and Heloisa Murgel Starling. 2020. *A bailarina da morte: A gripe espanhola no Brasil.* Rio de Janeiro: Companhia das Letras.

SETIG (Systems in Evaluation Topical Interest Group of the American Evaluation Association). 2018. Principles for effective use of systems thinking in evaluation practice.

Standage, Tom. 2020. Ten trends to watch in the coming year. A letter from Tom Standage, editor of *The World in 2021.* https://tinyurl.com/y6jsjug2

Uitto, Juha I. (ed.). 2014. *Evaluating environment in international development.* London: Routledge. https://doi.org/10.4324/9781315814025

Uitto, Juha I., Jyotsna Puri, Rob D. van den Berg (eds.). 2017. *Evaluating climate change action for sustainable development.* Springer Open. https://tinyurl.com/y5eh3e3c

UNEP (United Nations Environment Programme). 2020. COVID-19 response. https://wesr.unep.org/

United States Census Bureau. 2021. U.S. and World Population Clock. https://www.census.gov/popclock/

Waters Center for Systems Thinking. 2019. Habits of a systems thinker. https://tinyurl.com/3yw5vz8b

Waters Center for Systems Thinking. 2021. What is systems thinking? https://tinyurl.com/3mw4mhsn

The COVID-19 pandemic has demonstrated the enormous challenges humanity is facing. It has been facilitated by other crises as climate change, biodiversity loss, economic exploitation, and increased inequity and inequality. The UN Agenda 2030 and the Paris Agreement on climate change call for transformational change of our societies, our economies and our interaction with the environment. Evaluation is tasked to bring rigorous evidence to support transformation at all levels, from local to global. This book explores how the future of the evaluation profession can take shape in 18 chapters from authors from all over the world, from North and South, East and West, and from Indigenous and Decolonized voices to integrative perspectives for a truly sustainable future. It builds on what was discussed at the IDEAS Global Assembly in October 2019 in Prague and follows through by opening trajectories towards supporting transformation aimed at solving the global crises of our times.

By combining practical experiences with perspectives drawn from new initiatives, this book offers invaluable insights into how evaluation can be transformed to support transformational change on the global stage.

Indran A. Naidoo, Director of the Office of Independent Evaluation of IFAD

Across continents, educational systems, and historical complexities, this book builds up the language we all should speak about our field. A mandatory read for all young evaluators.

Weronika Felcis, Board member of EES and Secretary of IOCE

After reading these chapters you will have a sharper look at what is relevant when managing or doing an evaluation, and you will notice that 'business as usual' will no longer be an option.

Janett Salvador, Co-founder of ACEVAL, Former Treasurer of ReLAC

This book offers original, visionary discourse and critical perspectives on the challenges evaluation is facing in the post COVID-19 pandemic era.

Doha Abdelhamid, Member of the Egyptian Academy of Scientific Research and Technology

INTERNATIONAL DEVELOPMENT EVALUATION ASSOCIATION

IDEAS

KNOWLEDGE   CAPACITY DEVELOPMENT   NETWORKING