Integrating crisis learning into futures literacy – exploring the "new normal" and imagining post-pandemic futures

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Abstract

Purpose – *Crises are major events or periods faced by individuals, groups and society. This paper aims to explore the value of facilitating (un)learning in and from crises. Educators have a key role in building futures literacy (FL) for dealing with uncertainties, understanding emergence and responding to rapid, complex change. Integrating crisis learning as part of FL is important for enhanced anticipatory and crisis responses.*

Design/methodology/approach – *Adapting from causal layered analysis (CLA) methodology, experimental virtual futures workshops were designed and hosted during the coronavirus pandemic. Participants discussed COVID-19 crisis responses and imagined the "new normal". Sessions explored mindsets applied to make sense and derive meaning from the crisis, myriad ways of adapting to uncertainty, as well as lenses used to imagine post-crisis futures.*

Findings – *In the exploratory and participatory CLA exercises, participants shared on the COVID-19 pandemic and imagined post-crisis futures. Related hopes and fears concerned self, collectives and nature. Overall, despite the dramatic nature of crises, opportunities exist for learning and transformation. Educators play a central role in heightening awareness about the dynamics and nature of crises, and integrating crisis learning into FL, as important and transformative capabilities.*

Research limitations/implications – *In exploratory dialogues, the "new normal" was applied as a frame for uncertainty. The workshops were hosted during the COVID-19 pandemic as a specific type of crisis. The workshop design is intended to be replicable in various crisis contexts and for iterative rounds with diverse groups. Therefore, futures images exemplify context-specific crisis-time sentiments. The findings presented here do not aim to be generalizable. They are liable to change across different crises, as a crisis evolves and across diverse stakeholders.*

Practical implications – *Dramatic change and crisis events offer potential moments for development, advancement and transformation. Educators have an important role in facilitating (un)learning in and from crises, elevating FL and expanding futures consciousness. The CLA methodology can assist educators to engage with multiple facets, layers and dimensions of crises. By considering crises intently, educators can help in anticipating emergence, imagining and preparing for diverse alternatives.*

Social implications – *The contemporary world is volatile, complex and ambiguous volatile, uncertain, complex and ambiguous (VUCA), as revealed by multiple crises. Crises can spotlight new possibilities and horizons and may be possible turning points. The COVID-19 is an example of a crisis disruption, which provoked thinking and contributed to action about novel prospects. To realise transformative change however, it is important to integrate crisis learning as part of FL, and here educators are an important influence.*

Originality/value – *Integrating crisis learning into FL is proposed to improve responses to the rapid pace of change and uncertainty as well as to boost crisis preparedness. As part of this, there is value in applying and developing techniques such as CLA that help explore and question assumptions, to understand diverse, possible and transformed futures. This way, we can explore, imagine and expand new horizons.*

Keywords *Uncertainty, Education, Foresight, Transformation, Causal layered analysis, Crisis learning*

Paper type *Research paper*

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1. Introduction

Crises are major, events or periods, with many facets and phases, affecting individuals, groups and/or society. Crisis events and significant change can have dramatic, widespread impacts at multiple levels. Featuring these characteristics, the COVID-19 coronavirus pandemic emerged as a global crisis in 2020 with extensive ripple effects. After the disease outbreak, followed by a pandemic declaration, a prolonged state of uncertainty gripped and lingered. Societies faced an unprecedented public health crisis, requiring design, planning and implementation of crisis responses. Worldwide the crisis caused loss of lives, disrupting global trade, industry, education and work. In response, governments enacted strict emergency measures. There was widespread concern, fear and insecurity, polarised debates and political contestations often resulting from the social and economic toll of the pandemic. With little certainty of a return to normal, post-pandemic horizons stretched further. And with prolongation of the crisis, emergency measures, such as sudden border closures, travel restrictions, lockdowns and physical distancing, alongside novel epidemic waves and virus mutations, turned increasingly routine.

At a time when educational institutions need a new 21st century paradigm for addressing futures (Pouru-Mikkola and Wilenius, 2021), this paper discusses the value of crisis learning as part of futures literacy (FL). Educators have a key role in integrating crisis learning into FL, to enhance capabilities for anticipating, understanding and responding to emergence, rapid, complex change, uncertainties and crises. In the Philippines, for example, resilience education has been introduced to educational curriculum (Nanda and Raina, 2019). Towards pedagogical practice, we explore the value of applying and developing techniques such as causal layered analysis (CLA) for challenging assumptions, to empower and widen crisis responses and to imagine new horizons, heightening awareness of the transformative potential of crises.

A prominent feature of responses to the impacts of the COVID-19 crisis has been speculative debates and discussions of the potential of the crisis to propel a "New Normal". Multiple ideas, at many levels, sectors and different parts of society, have been provoked about novelties that might emerge in the wake of the crisis. The new normal points to something new happening, a new status of things or a new state of being, influencing the shape of futures. The new normal also implies that something of the "old" normal is not coming back.

Our hypothesis is that the new normal may be considered as a framing for responses to uncertainty and emerging futures as part of the COVID-19 pandemic specifically but also more broadly in societies challenged by rapid, unexpected and unforeseen change (Kaivo-oja and Lauraeus, 2018). As Sardar (2021) notes, the term has already been in use before the pandemic. Sardar also writes of "postnormal times" (2010), which refers to a liminal in-between period of ambiguity where old orthodoxies fade and the new has not yet emerged. In times of change, we look for a new normal that is secure, stable and sensible (Wann, 2010). In the prevalence of claims about change and emergence in the pandemic, however, explicit efforts aimed at exploring what the "new normal" could and should look like have appeared largely absent. This is a call for educators to engage with anticipatory analyses (Poli, 2017) and foresight practice (Hines, 2020). In investigating the post-COVID-19 new normal, the aim of this paper is to highlight the value of crisis learning as part of FL to enhance awareness and understanding of diverse futures (Miller, 2007, 2011, 2018). Given the salient role of crises in our contemporary world, we propose to situate crisis learning and FL across educational curricula.

To explore this further from a pedagogical perspective, experimental futures dialogues were hosted during the COVID-19 crisis. Applying a CLA approach, the dialogues aimed at generating more insights of the claims of the "new normal" and in particular the desires for a post-pandemic future. Personal crisis sentiments and responses, expectations and signals

of systemic change as well as images of the future were discussed. Importantly, in a time of crisis, these sessions provided a shared platform for alleviating uncertainty and encouraging futures agency. Erupting crises engage fears and hopes, can uncover underlying assumptions and open avenues for expanded imaginaries. Increasingly, it is clear we need to be more equipped to optimally respond to unexpected events, discontinuities and uncertainties concerning emergent futures. Our assertion is crises learning through a FL frame can enable necessary (un)learning, expansion of futures consciousness and positive transformation.

2. Analytical framework

2.1 Futures literacy

FL, as a specific kind of literacy, is the capacity to imagine and use futures and to explore the potential of the present to give rise to the future (Miller, 2007). FL is acknowledged as a universal capability of conscious anticipation – the ability to discern and understand different uses of the future and to diversify how and why futures imaginaries are used. It encourages a proactive mindset to make sense of current contexts, anticipating and imagining possible futures, while recognising the anticipatory assumptions and knowledge creation processes that inform the futures imagined. FL promotes conscious efforts to make sense and expand awareness of the dynamics of emerging situations (Slaughter, 1990). Further, FL embraces complexity by accommodating diverse attitudes and different modes of engagement with futures (Miller, 2011). FL recognises that there are different approaches and motivations for sense-making, meaning-making and futures thinking and the lens applied influences and determines the types of futures imagined and futures-oriented actions. That is, our assumptions, mindset and relationship to the future manifest in our actions (Pouru-Mikkola and Wilenius, 2021).

As Mangnus et al. (2021) note, two questions feature centrally in FL:

Q1. How are futures conceptualised and framed?

Q2. What methods are applied to imagine and shape these futures?

These FL premises and questions informed the design of our exploratory participatory CLA exercises for understanding crisis situations. Applying an FL framing in designing our CLA participatory exercises, assisted in examining crisis responses, probing imaginaries and underlying assumptions of post-crisis futures and understanding implications for crisis-time actions. The intention of such exercises is to add value to ongoing interpretations of crises and impacts, lessons learned and emergent potential for transformation. In our crisis case, to explore and discuss the "new normal", we aimed to contribute to broader understanding of diverse futures images of a post-COVID-19 world, driving hopes and fears, expectations as well as emerging configurations.

Mayo (2020) argues that "humanities inability to imagine alternative ways of knowing and understanding" is resulting in epistemological and cultural crises. In this context, FL is a vital capacity for futures-oriented transformation (Miller, 2018) calling for developing futures thinking competencies and capacities of foresight and preparedness; enhancing strategic long-term planning capabilities; casting anticipatory intelligence onto systems and agency; and realising emergence potential with adaptive agility. Introducing FL to educational curricula at schools and universities (Bishop, 2018), but also across civil society, private sector and/or public administration alike, may serve universality, integration and leaving no-one behind, as a lever for realising sustainable futures. Educators can bridge the principles of futures studies with prevailing disciplinary knowledge (Klay and Campos, 2021). For example, in Finland, all master's level students in Turku School of Economics have an obligatory introduction course to futures studies, where they co-create together on a particular futures topic.

2.2 Crisis awareness and learning from crises

Contemporary societies currently face different types of crises (financial, poverty, climate change, etc.), resulting from a range of systemic pressures. A crisis is an emergency event or a testing period that presents a serious threat, which can lead to critical instability and uncertainty affecting individuals, groups and/or society (Boin and 't Hart, 2006). Crises reveal that the future is rarely a simple extrapolation from the present (Urry, 2016). They can cause cognitive, emotional and psychological strain and call for improvised responses (Tyszkiewicz, 2018). In principle, there is a time before, during and after a crisis. Crises can present opportunities for learning that trigger meaningful transformation (Deverell, 2009), as the start of something new. However, there is a need to increase knowledge on the intersection and relationship between crises and learning (Boin *et al.*, 2005, p. 134). Learning from crises is not automatic. We highlight the role of FL and the value of futures dialogues in crisis awareness and learning from crises.

Futures studies acknowledges that nothing exact can be known about the future, which has not yet been realised, but diverse alternative futures can be imagined and explored regarding possibility, probability and preferability (Amara, 1981). Instead of a pre-determined path, there are multiple futures that are open, even in times of crises, and we each have a stake and can contribute to shaping change and realising the transformative potential of futures. Futures can also be a surprise, especially in an increasingly volatile, uncertain, complex and ambiguous world, of volatility, uncertainty, complexity and ambiguity (Kaivo-oja and Lauraeus, 2018). Indeed, surprises can be one description given to the new normal (Heinonen *et al.*, 2017). In this context, futures dialogues offer a way for enhancing sense-making and meaning-making across diverse vantages and viewpoints.

Each crisis has its specific dynamics. As a global shock, the COVID-19 crisis has caused widespread impacts, forced adaptation and propelled novel patterns of behaviour. Crises can also cascade into multiple crises. In light of the pandemic and other crises, multiple claims to a new normal have been elicited. How do we make sense of these claims? Is the "new normal" a chance for a "reset", an opportunity to re-design some of our social, technological or environmental systems? Is it perhaps a gimmick and a contrived catchphrase for the moment? Whether it means something new will emerge, or it is just a mirage and illusion, the "new normal" hints at aspirations of futures that independently merit further investigation. In a global pandemic, what futures have been imagined for a post-crisis world? Importantly, how can we anticipate and better prepare for collective shocks and unexpected, even unimaginable crises of the future?

3. Methodology and data

As a crisis, the global pandemic provoked diverse reactions and responses based on multiple contextual and personalised factors and issues. Adapting the CLA methodology (Inayatullah, 2004, 2009; Inayatullah and Milojević, 2015), exploratory participatory exercises were designed, to engage with diverse definitions of the "new normal" and the various lenses applied to make sense and derive meaning from risks and opportunities presented by the crisis. The exercises aimed to highlight myriad ways of adjusting to change and uncertainty and the diverse as well as shared criteria concerning preferred futures. That is, how our own condition and experiences shape assumptions and interpretations of uncertainty as well as perceptions of emerging futures.

CLA can be applied for analysing complex issues, problems or any multifaceted phenomena. CLA allows delving deeper through four levels at varying temporal scales: litany, causes, worldview, metaphors and myths. Litany entails problem definition and public description of issues according to available data. Causes indicate causal dynamics, social causes and systems shaped over many years that underpin the problem and focal issue. Worldview(s) consist of paradigms, mental models, culture and values. Metaphors

and myths connect to societal, even civilizational aspects, as archetypes; although often difficult to recognize, these are an essential component of responses to change and futures imagination. As Lévi-Strauss (1964) states "myths think in us", emphasising the unconscious influence of myths on cognition. In a similar vein, metaphors can amplify certain actions and emotional responses to circumstances faced.

Our exploratory futures dialogues during the COVID-19 pandemic aimed at generating more information of crisis sentiments and claims to the "new normal". Two experimental pilot workshops were co-created and hosted when the crisis had already lasted for over a year and was fresh in the experience of participants. As per our educational and professional setting, we engaged foresight practitioners for the sessions. The first workshop was with 14 foresight practitioners at an International Futures Conference hosted from Finland; the second was a Futures Methods Workshop hosted from South Africa, with 11 participants [1].

Emblematic of the crisis at hand, the workshops were organised virtually. In both instances, groups were provided with four assignments (in Zoom breakout rooms, using Jamboard, a collaborative online workspace tool) addressing the different CLA layers, to discuss the new normal:

1. At the litany level, each participant was requested to reflect on their experience and share sentiments, thoughts and feelings about the COVID-19 crisis. The objective was to surface personalised responses to uncertainty.

2. Groups then discussed key implications and lessons learned from the crisis at the causal and worldview levels, in terms of perceived collective best/worst impacts for business/industry, communities/society, states, regions and the world. The timeframe provided was 20 years.

3. Next, participants each shared and discussed emerging images and imagery of "new normal" futures in 20 years, in 2041. Recognising that imagery conveys metaphors and myths, these futures images were related to and representative of the metaphor and myths CLA level.

4. Finally, groups explored the transformations described, articulating shared and divergent concerns and hopes for a preferred "new normal".

4. "New normal"

The presented findings from the written and visual documentation, after thematic analysis, are organised according to the four-step session structure.

4.1 Crisis sentiments

For the first assignment – crisis sentiments and thoughts and feelings of the COVID-19 pandemic at the litany level – participants mentioned:

■ disruptions, uncertainty, disconnection, fear and stress;

■ attention to public health, wellness and well-being;

■ indirect cross-sectoral impacts of the pandemic on work routines, jobs and unemployment, including technology growth in virtual connections, as well as political, economic and social issues, such as value chain fragility, anti-lockdown protests and undermining democracy;

■ benefits such as changes in routine, more time and "a different rhythm in daily life" as well as appreciation of nature; and

- reprioritisation for purpose and meaning, such as avoiding unnecessary meetings, questioning the need to travel, heightened cooperation and collaboration and exploring improved engagement models.

The pandemic instigated both negative and positive feelings. Negative, unsettling feelings (alienation, denial, fatigue, anxiety and depression) dominated. At the same time, positive feelings entailed closeness to community and neighbours, gratitude, and joy in seeing empathy in collective efforts to help during difficult times. The crisis also provoked mindset changes and spaces for re-framing, such as dreams of a move to the countryside or "grieving the future we thought we had". As certain pre-crisis routines seemed obsolete, there was curiosity of post-pandemic life.

4.1.1 Systems – lessons learned from COVID-19 by 2041. For the second assignment – discussing casual implications and systemic lessons learned from COVID-19 – groups shared numerous ideas and suggestions, compiled here into six themes: community and collaboration; work and travel; innovation and use of space; futures skills and uncertainty; future changes; as well as hope, doubt and future questions.

On *community and collaboration*, interconnection, solidarity efforts and cooperation on crisis actions have shown how "people need people" and further "our planet is a partner not a resource". As "everyone has a different experience of the same events" due to their higher exposure vulnerable groups need to receive better protections. Resilience could be enhanced by having distributed capabilities and decentralised systems and funding of community projects. An important lesson is that trust is a precious commodity.

Discussing *work and travel*, old ways of doing things were underscored as amongst key barriers to change. Although uptake of technology in the crisis was rapid, there were vastly different levels of online access and distance work opportunities in different industries, social classes, regions and countries. Consequently, varying levels of adaptation and coping emerged with differential and disparate impacts across contexts.

Inputs on *innovation and use of space* focused on future built environments especially sustainability and greening urban areas. Participants speculated on the extent of the shock in slowing down urbanisation and conserving the environment, by highlighting the dangers of zoonotic infections, as a result of human environments encroaching on natural habitats. Futures of wet market regulation were imagined, including cities with functional greenery such as city gardens, to cater for greater self-sufficiency and food security. Aspirations for more public spaces for safe encounters as well as innovation in food and travel were expressed.

On *futures skills and uncertainty*, the crisis was described as a wake-up call to pay attention to early warning signs of critical disruptions, as "the sooner you act the better". Learning to live with uncertainty, being prepared for surprises and quickly adapting were emphasised as important points in "understanding open and unsecure futures".

Concerning *future changes*, "appreciation of the systemic and structural nature of change" was a key lesson identified by workshop participants. Rapid digitalisation, virtual reality, reformed work lives with new business models and increased online surveillance were indicated as emerging features from the COVID-19 crisis. Improved investment and availability of vaccines worldwide were also mentioned as possible future changes.

As for *hope, doubt and future questions*, the participants were unsure of the ability to learn from crises, respond to inequalities and observed diffusion patterns. Of particular concern are implications for climate change responses, as a looming future crisis. Some shared lessons included the need for foresight, to "plan despite disruptions" as well as learning to "go with the flow" and to "be okay in the moment" by keeping a wide perspective.

4.1.2 Images of "new normal" in 2041. At the level of metaphors, groups shared diverse images of futures in the year 2041 (Figure 1). These images deal with:

| **Figure 1** | Possible images of the future in 2041, expressed as metaphors |

- the role of nature, culture and arts, as well as technology;

- divides and deeper polarisation, at least partly, due to COVID-19 and its global implications;

- fungal networks where everything is connected but also bounded;

- walls where those "within" seek security against "others";

- murmuration of birds where everyone takes part and changes roles as needed; and

- a multiplicity of new normals, where "normal is a myth".

4.1.3 Hopes of transformations by 2041. Building on the metaphors and images shared, imagined, preferred futures by all groups concerned the individual, collective and nature.

For individuals, even leaders, it is hoped each will learn to ask for help and to be vulnerable. Additionally, valuing people over profit, more empathy, compassion and respect for others were emphasised. Technology was suggested as a tool for overcoming barriers and facilitating connectivity, with new interactive solutions as remedies to loneliness. Well-being and mental health were considered central and important to address at workplaces and schools.

Collectively, more inclusive and tolerant communities mean nobody would be left in isolation. Equity and justice beyond national and continental borders were identified as core to addressing health issues, ending poverty, delivering basic education and multi-level political collaboration. Empathy and trust were considered as helpful especially for vulnerable groups and enriching intergenerational conversations and common knowledge. Infrastructure, social design and localisation were underscored as necessary for increasing employment opportunities within communities and facilitating mobility and access.

Nature-based aspirations for the future included a decrease in overconsumption, dietary changes, healthier ecosystems and waste management, the valuation of biodiversity, collective consciousness and appreciating non-material experiences. Actions required are to value nature and decrease our carbon footprint.

The hopes for 2041 mostly focus on how we can transform to sustain what we value and the associated actions. Participants pinpointed a shift from self-centred consumerism, polarisation and conflict towards appreciation of nature, community and family through trust and by being respectful even in disagreements.

5. Discussion

In contemporary society, faced with multiple types of uncertainty, crises disrupt continuities and even challenge the status quo. Crises provoke introspection, reveal unaddressed issues, vulnerabilities and questions about the future (Deverell, 2009). Although uncertainty is heightened, crises also offer a way of learning, exploring and understanding diverse futures. We consider learning from crises to heighten awareness of crises, as a type of a pattern of emerging futures (Wilenius, 2017). At times of crises, attention to hope is

particularly necessary (Bodinet, 2016). In related exercises, re-designing metaphors and myths may assist in reframing imaginaries "for a new future to successfully emerge" (Inayatullah, 2015), like with Kamara (2016) who studied the Ebola crisis in West Africa.

The COVID-19 discourses entailed blame, surprise/denial, exceptionalism, individual and community resilience and alternatives of global solidarity, planning and social inclusion (Milojević and Inayatullah, 2021). But can crises catalyse changes? It is interesting to reflect what prospects are presented to fill the void as part of the "new normal". Useful questions include, do our post-crisis futures images assist us to shape the futures we wish for? To what extent do these images impede or facilitate a preferred "new normal"? How do these images influence our approach to interacting with the multiple possibilities of a "new normal"?

Educators have a focal role in building capabilities that enable coping with, shaping and living in uncertain futures. At times of crises, opening up to a broad range of futures, to challenge existing frames of reference, at any age and group (Pouru-Mikkola and Wilenius, 2021), is particularly important. Gidley (2016) highlights the need for a new, futures-orientated approach to education that prepares learners for global uncertainty, accelerating change and unprecedented complexity. Our interest is in engaging uncertain emergent futures to explore, imagine and shape what a "new normal" could be.

As important moments of learning and transformation, in recovering from crises we may build on lessons learned to bounce forward (Hyvönen and Juntunen, 2020) into new futures. Although not generalisable, the findings here reflect context-specific crisis sentiments. Overall sentiments shared indicate that crises and transformations call for empathy and altruism (Inayatullah, 2020). The exploratory study was conducted with foresight practitioners, however this thinking can benefit everybody. The learning approach, including the participatory CLA methodology design, can be advanced, as they are intended to be replicable across diverse groups and settings.

6. Conclusions

Education has a role in building capabilities to anticipate, prepare and respond to change, emergence and uncertain futures including crises. Crises such as the COVID-19 pandemic, are a catalyst to heighten awareness about crises and enhance crisis learning, as a component of FL. In educational practice, participatory approaches for crisis learning, such as the use of CLA, can help question assumptions. Unless assumptions are genuinely questioned, novel ideas may remain obscured and the status quo largely unchallenged without realising a "new normal". Further, examining imagery of crises and uncertainty can unveil worldviews and prevailing myths, to imagine and explore new horizons. Imagination and creative responses can expand futures consciousness, assisting in shaping and creating the futures we wish for.

Note

1. Organised by the Finland Futures Research Centre and the Institute for Futures Research.

References

Amara, R. (1981), "The futures field: searching for definitions and boundaries", *The Futurist*, Vol. 15 No. 1, pp. 25-29.

Bishop, P. (2018), "The case for foresight education", *World Futures Review*, Vol. 10 No. 3, pp. 190-192, doi: 10.1177/1946756718784584.

Bodinet, J.C. (2016), "Futures of hope: the importance of positive futures images at the community college level", *World Futures Review*, Vol. 8 No. 4, pp. 172-179, doi: 10.1177/1946756716654693.

Boin, A. and 't Hart, P. (2006), "The crisis approach", in Rodriguez, H., Quarantelli, E.L. and Dynes, R. (Eds), *Handbook of Disaster Research*, Springer, New York, NY, pp. 42-54.

Boin, R.A., 't Hart, P., Stern, E. and Sundelius, B. (2005), *The Politics of Crisis Management: Public Leadership under Pressure*, Cambridge University Press, New York, NY, doi: 10.1017/CBO9780511490880.

Deverell, E. (2009), "Crisis as learning triggers: exploring a conceptual framework of crisis-induced learning", *Journal of Contingencies and Crisis Management*, Vol. 17 No. 3, pp. 179-188, doi: 10.1111/j.1468-5973.2009.00578.x.

Gidley, J.M. (2016), *Postformal Education. A Philosophy for Complex Futures*, Springer, Cham, doi: 10.1007/978-3-319-29069-0.

Heinonen, S., Karjalainen, J., Ruotsalainen, J. and Steinmüller, K. (2017), "Surprise as the new normal implications for energy security", *European Journal for Futures Research*, Vol. 5 No. 12, pp. 1-13, doi: 10.1007/s40309-017-0117-5.

Hines, A. (2020), "When did it start? Origin of the foresight field", *World Futures Review*, Vol. 12 No. 1, pp. 4-11, doi: 10.1177/1946756719889053.

Hyvönen, A. and Juntunen, T. (2020), "From 'spiritual defence' to robust resilience in the Finnish comprehensive security model", in Larsson, S. and Rhinard, M. (Eds), *Nordic Societal Security: Convergence and Divergence*, Routledge, pp. 154-178.

Inayatullah, S. (2004), "Causal layered analysis: theory, historical context, and case studies", in Inayatullah, S. (Ed.), *The Causal Layered Analysis (CLA) Reader: Theory and Case Studies of an Integrative and Transformative Methodology*, Tamkang University Press, Tamsui, pp. 1-52.

Inayatullah, S. (2009), "Causal layered analysis: an integrative and transformative method", in Glenn, J. and Gordon, T. (Eds), *Futures Research Methodology, Version 3.0*, The Millennium Project, Washington, DC.

Inayatullah, S. (2015), "Ensuring culture does not eat strategy for breakfast: what works in futures studies", *World Futures Review*, Vol. 7 No. 4, pp. 351-361, doi: 10.1177/1946756715627373.

Inayatullah, S. (2020), "Can education transform? Contradictions between the emerging future and the walled past", *Futures & Foresight Science*, Vol. 2 No. 1, p. e27, doi: 10.1002/ffo2.27.

Inayatullah, S. and Milojević, I. (2015), *CLA 2.0: Transformative Research in Theory and Practice*, Tamkang University Press, Tamsui.

Kaivo-Oja, J.R.L. and Lauraeus, I.T. (2018), "The VUCA approach as a solution concept to corporate foresight challenges and global technological disruption", *Foresight*, Vol. 20 No. 1, pp. 27-49, doi: 10.1108/FS-06-2017-0022.

Kamara, K. (2016), "Ebola: in search of a new metaphor", *Futures*, Vol. 84 No. Part B, pp. 193-200, doi: 10.1016/j.futures.2016.03.017.

Klay, W.E. and Campos, P.D. (2021), "Teaching futures studies from disciplinary and student perspectives", *World Futures Review*, Vol. 13 Nos 3/4, pp. 237-249, doi: 10.1177/19467567211030378.

Lévi-Strauss, C. (1964), *Mythologiques I*, Plon, Paris.

Mangnus, A.C., Oomen, J., Vervoort, J.M. and Hajer, M.A. (2021), "Futures literacy and the diversity of the future", *Futures*, Vol. 132, p. 102793, doi: 10.1016/j.futures.2021.102793.

Mayo, L. (2020), "The postnormal condition", *Journal of Futures Studies*, Vol. 24 No. 4, pp. 61-72, doi: 10.6531/JFS.202006_24(4).0006.

Miller, R. (2007), "Futures literacy: a hybrid strategic scenario method", *Futures*, Vol. 39 No. 4, pp. 341-362, doi: 10.1016/j.futures.2006.12.001.

Miller, R. (2011), "Futures literacy – embracing complexity and using the future", *Ethos*, Vol. 10, pp. 23-28.

Miller, R. (2018), "Introduction: futures literacy: transforming the future", in Miller, R. (Ed.), *Transforming the Future: Anticipation in the 21st Century*, Paris: UNESCO, London and Routledge, New York, NY, pp. 1-11.

Milojević, I. and Inayatullah, S. (2021), "Narrative foresight and covid-19: successes and failures in managing the pandemic", *Journal of Futures Studies*, Vol. 25 No. 3, pp. 79-84.

Nanda, R. and Raina, S.K. (2019), "Integrating disaster risk reduction in school curriculum: a vision statement by a joint working group of university and medical teachers", *International Journal of Disaster Risk Reduction*, Vol. 33, pp. 495-497, doi: 10.1016/j.ijdrr.2018.09.011.

Poli, R. (2017), *Introduction to Anticipation Studies*, Springer, Cham, doi: 10.1007/978-3-319-63023-6.

Pouru-Mikkola, L. and Wilenius, M. (2021), "Building individual futures capacity through transformative futures learning", *Futures*, Vol. 132, p. 102804, doi: 10.1016/j.futures.2021.102804.

Sardar, Z. (2021), "Afterthoughts: transnormal, the 'new normal' and other varieties of 'normal' in postnormal times", *World Futures Review*, Vol. 13 No. 2, pp. 54-70, doi: 10.1177/19467567211025755.

Slaughter, R.A. (1990), "The foresight principle", *Futures*, Vol. 22 No. 8, pp. 801-819, doi: 10.1016/0016-3287(90)90017-C.

Tyszkiewicz, M. (2018), "Practicing for the unimaginable: the heroic improv cycle", in Dudeck, T.R. and McClure. (Eds), *Applied Improvisation*, Methuen Drama, London, pp. 117-138.

Urry, J. (2016), *What is the Future*?, Polity Press, Cambridge.

Wann, D. (2010), *The New Normal: An Agenda for Responsible Living*, St. Martin's Press, New York, NY.

Wilenius, M. (2017), *Patterns of the Future: Understanding the Next Wave of Global Change*, World Scientific, London, doi: 10.1142/q0083.

Further reading

Inayatullah, S. and Black, P. (2020), "Neither a black swan nor a zombie apocalypse: the futures of a world with the covid-19 coronavirus", available at: https://jfsdigital.org/2020/03/18/neither-a-black-swan-nor-a-zombie-apocalypse-the-futures-of-a-world-with-the-covid-19-coronavirus/ (accessed 19 March 2022).

Sardar, Z. (2010), "Welcome to postnormal times", *Futures*, Vol. 42 No. 5, pp. 435-444, doi: 10.1016/j.futures.2009.11.028.

Stern, E. (1997), "Crisis and learning: a conceptual balance sheet", *Journal of Contingencies and Crisis Management*, Vol. 5 No. 2, pp. 69-86.

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