THROUGH THE COVID-19 LOOKING GLASS: COPING SKILLS FOR STEM EDUCATORS IN THE TIME OF A PANDEMIC AND BEYOND

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Abstract. *The 2020 pandemic led to the immediate lockdown of schools and universities worldwide with far-reaching implications for educators and learners. Individual stories of lockdown and isolation are documented using direct quotations from discussion forums, emails, live chats, and structured journal entries from the Blackboard learning management system. A 'qualitative sense' of a common narrative of turmoil and success within this 'new [ab] normal' is established. Educators' contrasting accounts of uncertainty and hope are highlighted. The notion of anticipatory anxiety as a result of social lockdown restrictions is covered in terms of its impact on mental health and wellbeing, with special reference to the neuroscience that underpins this phenomenon. Strategies for the management of stress-related autonomic nervous system activation, as well as for building resilience and coping skills in classrooms, are highlighted, along with the need to address issues of cognitive dissonance and fatigue caused by increased online/blended teaching demands during uncertain times. The online format was found to be potentially impersonal and cold without the essential 'human factor'. Despite technology in education there has to be human and social interaction, as well as support online. The most benefit was derived from live sessions and social interaction.*

Keywords: *mental health, well-being, progressive education, psycho-social issues, coping strategies*

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Introduction

Mental health and well-being as a result of the pandemic, lockdown, closure of schools, and the sudden move to an online format, are still largely unchartered waters, or as yet developing factors, in the educational context. Research in this field is currently emerging and there is already some agreement that mental health and well-being is severely impacted by the subsequent isolation and constant change required in all spheres of life. The lived experiences of a cohort of educators within the educational space in a developing country context, relating to the impact of the forced lockdown on both educational and psychological well-being, can go a long way to providing answers to the topical questions that arise. The integration of cognitive-behavioural theories and techniques, positive and social psychology tools, and principles of neuroscience and STEM (Science, Technology, Engineering and Maths) education, to navigate the agile wonderland we find ourselves in, are proposed as possible solutions to some of these new educational, psychological, and social challenges. These strategies are considered within the context of the increasingly globalised STEM educational context, which falls under the banner of the 4th Industrial Revolution.

Towards the end of 2019, the novel SARS-CoV-2 corona virus was initially identified by the World Health Organization in Wuhan, China (WHO, 2020). This virus has subsequently been named COVID-19 by the WHO and the outbreak was declared a Public Health Emergency of International Concern on 30 January 2020. The exponential rate of the spread of the disease took the world by surprise leading to the pandemic declaration by the WHO on 12 March 2020 (WHO, 2020). Most nations were ill-prepared for this phenomenon (Peckham, 2020). At the time of writing (last update 16 November 2020), the pandemic had over 54,9 million confirmed cases worldwide and over 1,3 million deaths (Coronavirus Update Live, 2020). Almost 38,2 million people have recovered. The term 'the new normal' and the social media campaign '#togetheralone' are dauntingly unsettling and resonate with the metaphor from Alice's adventures in Wonderland (Carroll, 1865). Educators may feel they have become metaphorically lost, or 'down the rabbit hole' of COVID-19, leaving them unsure of themselves, and having to adjust continuously.

Esteemed academic and educator, Punya Mishra (2020), summed up the initial educational situation and the opportunity it presents as a result of this pandemic as follows (see www.punyamishra.com):

> The 'dark cloud' of the coronavirus crisis continues to cause havoc worldwide and seems a generation-defining event. In education, this crisis has forced schools and universities to close, pushing often unprepared institutions to move teaching and learning online. The already stressed educational ecosystem now faces unprecedented difficulties that will fall disproportionately on students of low socioeconomic status and marginalized groups. This situation continues to worsen and is expected to persist for months or even years before normalcy occurs. This disruption, however, provides us with an opportunity to reimagine learning and teaching so as to create an equitable and humanistic learning eco-system for all. Barriers and structures that have resisted much needed change are now in disarray, offering the chance for transformative improvements.

The future after COVID-19 is at best, uncertain, but there is a strong feeling in academic circles that one cannot simply go back to the way things were before. As Carroll's character Alice says: "*It's no use going back to yesterday because I was a different person then*" (Alice's adventures in Wonderland – Lewis Carroll, 1865). The narrative and symbolism of Lewis Carrol's Wonderland regarding a parallel imaginary world is used throughout this paper as a metaphor for the visionary parallel world that has manifested in education with both online and face-to-face teaching. Educators and learners have dropped down the metaphorical rabbit hole due to COVID-19 and there is a need to approach this new world with positivity and innovation. Looking ahead as educators and researchers one needs to be aware of both the good and the bad. There is a need to hold on to what is beneficial and progressive for education, while at the same time we need to learn from the errors and shortcomings of current educational endeavours, while re-imagining both face-to-face and online formats.

The Research Problem

In a time of abnormal crisis, educators are able to take certain decisions regarding practices, and the educational decisions made today will lay the foundation for the Post COVID-19 era. Fortunately, researchers and educators are able to guide these decisions and change the course of history as vicarious witnesses and participants. There is no precedent to draw on, so it is possible to create the narrative for the educational history books of the future and for this reason there is a need to document progress in papers such as this. The best way to share experiences from the educational world is through carefully selected quotations from people who are living through this crisis. For this reason, the focus of this generic qualitative study is exactly that… to document the COVID-19 crisis *in situ* from the perspectives of those educators who are experiencing this first-hand. As researchers, one can draw on these observations and learn from them in order to contemplate a post COVID-19 world of education where the after-effects of the crisis and an anticipated second universal wave are imminent. This second wave includes a mental health component as a result of the trauma and prolonged stress associated with the uncertainty of the pandemic. Accordingly, the first research question to be addressed in this study is: How do educators experience the changing educational landscape as a result of the pandemic?

It is well-documented that stress and trauma impact on the ability to solve problems, think logically, and process information simultaneously. These, in turn, tend to adversely affect academic performance, particularly in STEM subjects (Beilock, 2008; Rice et al., 2015). Pascoe et al. (2020) document that the first onset of depression in young people is often preceded by major life stressors. LeBlanc (2009) has added that elevated stress levels can impede performance on tasks that require divided attention, working memory, retrieval of information from memory, and decision making. These effects appear to be determined by the individual's appraisal of the demands and resources of a situation, the relationship between the stressor and the task, and factors such as coping styles, locus of control, and social supports. This is particularly pertinent to the teaching of Mathematics and Science (Lautenbach & Randell, 2019) and in situations where the autonomic nervous system (the "primitive" brain) reacts to perceived threats from the environment - in this case a deadly virus - by effectively taking over control of the rational and logical brain, when the environment is registered as unsafe.

Unfortunately, whatever stress and mental health issues existed prior to COVID-19 seem to have been subsequently exacerbated by lockdown, and social distancing protocols that left many isolated and effectively

preventing any escape from challenging social and mental health issues. It is these issues, and their causal factors that we explore in this study. For example, an increase in domestic violence or abuse cases was reported by the department of social development and child welfare, with the cause of this increase being attributed to many factors, including the stresses of not being able to earn an income, or weather pay-cuts, or increased work pressure, or even job losses, and sheer overcrowding at home in some cases, due to Lockdown and COVID-19. Unfortunately, it seems that schools are often the only decent meal they will get, or the safe heaven or escape for some children who experience violence, conflict, and abuse at home. Lockdown effectively trapped these children within their trauma, with no imminent escape, as well as removing their usual social resources. A second research question that is addressed is: How do educators experience stress and mental health issues as they navigate the pandemic and associated changes to their teaching lives?

In summary, in this paper some of the challenges faced by educators who have lived through this unprecedented time of disruption are reported through their reflections, their fears, and their joys. Many other aspects of this crisis that ultimately lead to stress and anxiety are highlighted. Possible ways in which to compensate for these factors are provided through brief discussions around meaningful quotations that add to the collective narrative of coping in a pandemic.

Research Methodology

This study is based upon a generic qualitative inquiry, which was carried out in various postgraduate modules within the Faculty of Education at the University of Johannesburg, at the time of the initial lockdown and the subsequent isolation periods. Participants were all postgraduate students at Honours or Masters level, and they were all qualified teachers, except for a few Masters students who had expertise in education and training in the private sector. Purposeful sampling of entire module cohorts was adopted as a sampling strategy. All modules at the time of this study were presented completely online. All participants were appropriately informed of the procedures and their signed consent was obtained as per university ethical guidelines.

In mid-March 2020, this specific cohort of teachers and STEM researchers were completing various modules when the pandemic led to the immediate lockdown of schools, universities, and most of commerce and industry. The Masters programme was already fully online, but the Honours programme had only been presented in a bended mode up to that point in time (with regular face-to-face lectures enhanced with online interaction) and had to be converted to a fully online module. Due to the structured nature of the reflection tasks that were included in all modules as part of the assessment strategy it was possible to obtain regular updates on the situation on the ground as participants grappled with the complexities of navigating the sudden demand to change to a fully online mode of teaching within days.

Data were collected with the necessary permissions from module interactions in the online environments. Sources of data included discussion forums, structured reflection tasks (a journal function in BlackBoard), WhatsApp support groups, the chat functionality in the live online sessions (Blackboard Collaborate), and emails from participants. Discussion forums were also used by students to express views and share opinions. All text was scrutinized for meaningful comments and contributions and direct quotations were listed verbatim.

Direct quotes from these sources were collated and initially sorted into groups with similar content which ultimately became the main themes of this paper. This thematic analysis is a well-known and useful qualitative technique. The most powerful and relevant quotations were then selected from these groups of text to represent the broader themes that we share below as an integral part of the qualitative narrative we present to highlight the points we wish to make.

The emerging narrative of lockdown based on themes derived from the data

The first theme to emerge from the qualitative data was the issue of equity. Issues of equity are a hot topic at the moment in developing economies as they struggle to find a solution for the digital divide which has now become even more apparent due to the pandemic. In the South African context in particular, the first sub theme to arise from the analysis of the data is the topic of 'access to technologies.' It is easy to assume that technologies could potentially help to overcome the crisis caused by lockdown restrictions. The opposite is, of course also a reality. A participant in this study summed this up very well: "*It is unfortunately the most vulnerable of our society*

that will struggle because the only way to really keep in contact with learners is through technology." This divide manifested as polar opposites in South Africa, where on the one hand, some schools were able to 'go online' within 48 hours of the State's announcement of the lockdown restrictions, with their teachers having to rapidly adapt to teaching online from the 'comfort' of their homes; whilst on the other hand, some under-resourced schools were still struggling with basic resources such as running water, sanitisers and electricity. In these latter schools, learning and teaching all but stopped. So, while some teachers were reeling to adapt their pedagogies to the online space, others were struggling with more basic needs. One quote that had the greatest impact on the authors of this article was "*would you rather have 10Gb of data, or bread for 5 days?*" This, and similar social justice issues in the unique cultural setting in South Africa and other developing countries, are fundamental to social change (Leibowitz & Bozalek, 2016). Furthermore, all of this occurs within the anticipation of disastrous infection and death tolls which inevitably leads to stress and trauma as experienced by many of the participants in this qualitative inquiry.

It was during lockdown that many educators came face-to-face with the reality and demands of teaching online, despite making use of a variety of technologies, tools, and Apps. Some of their experiences are documented in this section as emerging narratives supported by direct quotations from their contributions in the modules. Even though online activities and resources were novel and well-structured in some cases, with schoolwork being uploaded for the week onto online platforms of various kinds, some participants still struggled to structure their new academic programme and felt overwhelmed. This is the second definitive theme to emerge from the data. They found that their students also needed extensive scaffolding for the simplest of tasks, like planning their schoolwork. Some of these children were unable to stay abreast of the teaching, especially once they had fallen behind. Without the benefit of immediate teacher feedback to correct mistakes and answer questions, they started to flounder in mathematics and science particularly. Some thrived - but many also did not - and there was a reported increase in academic dishonesty. Teachers were hard-pressed to remember their own- and their learners'- levels of stress, within this abnormal situation.

Unprecedented shutdown of education systems meant schools were constantly adjusting to conform to the latest research indicators – an agile but unnerving approach amidst so much adjustment and change. Participants reported that motivation and monitoring via WhatsApp helped to introduce accountability and a much-needed human connection, enabling them to reach out to those falling behind or becoming more and more 'invisible', online, over the weeks of isolation. Many participants felt that teaching to 'circles/icons on screens' was as disconcerting as the disappearing Cheshire cat from Wonderland.

As lockdown progressed, in some cases teacher expertise began to be valued more as parents grappled with their children's distractibility and sense of overwhelm without the formal structure of the school environment in these online spaces. On the other hand, some parents called for a reduction in school fees without considering the increased workload of teachers who were hard pressed to transform their practices to an online mode and still align with principles of best practice. Teachers frantically created online learning tasks from scratch, which took triple the time, whilst struggling to engage all the children in varied situations of connectivity and access to devices. Ambivalent parent, management, and learners' responses left teachers with a disconcerting sense of needing to strive harder, yet of feeling insecure, or "not good enough". STEM teachers were still fortunately in demand, but many teachers, especially those in non-STEM subject areas (such as sport, art, music, and drama to name but a few) also faced the possibility (and sadly for some, the reality) of contracts not being renewed, or being immediately cancelled. The most commonly reported issue was that both teachers and learners missed the shared "back and forth" energy that can only be generated in a lively classroom context, and which could not quite be replicated in the online space.

It has become all too clear from this pandemic, and the resulting strategies to facilitate education online, that the world needs responsible technological and social change. Both of these needs have been exposed worldwide by COVID-19, but even more so in developing countries. New social media and educational technologies may provide the world with the ideal and timely opportunity for inclusive, global-scale problem-solving around the main sustainable development goal challenges (Sachs, 2012). These sustainable development goals (SDGs) as proposed by the UN Millennium Project (2005) are well-illustrated in a recent Commonwealth of Learning report (Van der Westhuizen, 2016) where an overview of these issues in the developing world is provided with special reference to online assessment. Despite these earlier calls to action, it is worrying that it has taken a pandemic to motivate many education institutions into using online networks, tools, and apps for collaboration, teaching and

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assessment. One of the participants put this into perspective by stating *"It pains me that we had to wait for a virus to change our system from traditional to virtual teaching. Education reform is long overdue. I hope policy makers and global leaders realize the importance of online teaching."* It is, however, heart-warming that many innovations and success stories have come from educators on the ground where they have energised learning and assessment in their new online spaces. Finding new ways to collaborate, communicate and share have become the focus: *"I read it isn't about social distancing, it is about physical distance and social solidarity. I like that! This disruption is forcing people to be creative in finding ways to communicate, share and connect with each other."*

A new world economy, post covid-19, is extremely likely, and the way that new STEM graduates will have to engage with their chosen careers after formal education depends largely on the decisions, educators make today (Kennedy & Lautenbach, 2020). The realities of the pandemic have, however, resulted in some instances of stress and trauma in educators and learners that cannot be ignored. The trauma of living through a pandemic has for the most part been overlooked, but there are some cases where studies in this domain have been conducted which may guide researchers and educators as they navigate these uncharted waters.

Discussion: The realities and challenges of stress and trauma as a front-line worker in a pandemic

Educators can definitely be seen as front-line workers during the pandemic. They are at the interface between the educational institutions and the learners on the ground, so to speak. Mental health practitioners in Italy and other countries claim that educators also need to be equipped with appropriate strategies to be able to cope with situations such as the COVID-19 pandemic (Compare De Girolamo et al., 2020). A recent study of Italian health care workers involved in the COVID-19 pandemic were exposed to high levels of stressful and traumatic events (Rossi et al., 2020) and it was found that these front-line workers express substantial negative mental health outcomes, including stress-related symptoms and symptoms of depression, anxiety, and insomnia. In China, they found a similar trend among Chinese health care workers exposed to COVID-19. Women who were nurses in Wuhan and front-line health care workers, were found to have a high risk of developing unfavourable mental health outcomes and were in need of psychological support or interventions (Lai et al., 2019). Most STEM educators who have now been called back to schools after the first weeks of lockdown find themselves in the extended role of 'essential services' – particularly in the local context - as teachers returned to a face-to-face situation along with a blended programme to cater for both learners at school and those learners who had not returned to school (from mid-June 2020). For many teachers, they returned with mixed emotions – some with much relief and excitement, but many with fear and uncertainty.

Uncertainty as to the future, both globally and in the individual, is creating much stress and attenuating underlying wellbeing or mental health issues. According to Stephen Porges, the father of Polyvagal Theory, psychologists and neuroscientists draw attention to the human nervous system's need for social connection, and the powerful opportunity for co-regulation by others, even in an imperfect way, using an online space (Relational Implicit & Somatic Psychotherapy, n.d.). The lived experiences of STEM educators in this study are presented in the following section along with discussions around issues that emerged from the participant discussion forums (online) and bi-weekly guided journal reflections in the programme. These anecdotes may help to shed light on some of the more human side of the experiences that emerged during this period of lockdown.

Teaching online during this time of forced isolation exposed a multitude of challenges and success stories. Of course, the whole Covid-19 pandemic has been more than a shock to some teachers but despite this, some still see the potential for educational reform*: "Little did I know that one day there will be a global crisis that will force everyone to embrace online learning."* Unfortunately, in the local developing context, many educators, pre-Covid-19, had minimal online experience and limited competency to teach online. Moving to a fully online space in such a short period of time created a number of challenges. Some saw this more as a positive than a negative: *"On the positive side, it has thrown the world into a digital frenzy where even the "die-hard no-tech-dinosaur- teachers" in our learning ecosystem, were forced to engage their learners in the digital sphere."* The move towards using online tools for various functions, including education, has definitely grown: *"Throughout this country and the world, digital learning has grown in leaps and bounds. According to NBC, Zoom's daily users spiked to 200 million in March, up from 10 million in December."* Despite these worldwide trends, there were reports from the participants that some of these 'die-hard' traditional educators refused to use online tools and teaching techniques, even if training was provided. Many government school teachers and learners took an extended holiday. On a positive

note, some schools embraced the opportunity. They took advantage of free subscriptions to online tools and services for a few months: *"It is encouraging how companies are providing free subscriptions to products to assist parents and teachers with remote learning. Cisco Webex is providing free video call accounts and I am hoping to have online classes with my Grade 12s."* Others signed up for tools such as Microsoft Teams, or G-Suite, accessing Classroom, Flipgrid, Jamboard, and add-ons like Pear Deck, Screencastify, Padlet, and Edpuzzle, for Google Slides/docs. One participant noted: *"I know many schools are using Microsoft Teams successfully. Again, these are schools with resources".* Of course, others stayed in the comfort zone of *"watch this video on Youtube and complete the worksheet I have emailed".*

Nonetheless, technological innovations bring challenges to the developing world which are further exacerbated by logistical issues related to student access to devices, connectivity, or the sheer remoteness of the rural settings in which some of the children live. One participant spells out the plight of many poorer students rather poignantly: *"My concern is for the thousands of learners who are disadvantaged by not being connected to the online world."* Another points out the differing realities that various groups may experience during this time: *"While I am cushy in my middle class, awash in the privileges bestowed upon me by virtue of my race and socio-economic standing, many people are not protected by high walls and green gardens."* Another adds *"With the choice between imminent hunger, and an abstract virus, they have no choice but to venture out, and risk their lives, to collect a grant or find a meal."* The true disparities are highlighted even better here: *"we are not all in the same boat… we are in the same storm, but not in the same boat."*

Even after a single week of lockdown, participants were talking about what they called "the new normal". One claimed: *"We have successfully made it through week one of a pandemic lockdown and are facing a new week of uncertainty and roller coaster emotions as we struggle to adjust to this new-normal."* Some found this transition a little easier: *"The world's 'new normal' was already our normal and not the shock it was to others."* Others shared this notion of being well-prepared: *"At the moment I am very comfortable with online learning since it is something that I embraced before I was forced to embrace it."* Of course, the reality of teaching online also depends on the attitudes of those who are supposed to be taught: *"Unless the learners are self-disciplined, it will be a struggle."*

The demands of the 'new [ab]normal' (our emphasis) on the newly online teachers were apparent, and comments about the lack of time to get things done illustrates the demands of the new online teaching mode: *"The lockdown is being received with mixed emotions as I thought it would provide the needed relief to do some catch-up reading but instead, it has forced me to use my time ensuring all learners, parents and staff are engaged digitally throughout the day."* The theme of technology "taking over" their lives emerged: *"Previously I felt that online teaching and assessing would not play such a big part in my life, but it has now become my life."* Another adds *"I am still very unsure about my abilities to teach a successful online class as reading about it and talking about it in theory is quite different than the real-life experience of it."* Even teachers, who for various reasons did not have to teach online, commented on the demands placed on their spouses in the field: *"So, here I am, confined to my house, with no teaching responsibilities, watching my teacher-husband battling day after day to do what is expected."* Many reports of unrealistic demands from schools have unfortunately led to many examples of unsound pedagogical practices: *"As teachers we were told to put together enough content so that our learners would not forget the basics that were taught in the first term of 2020."* Other teachers were instructed to replicate the physical timetable online and to be online teaching during their scheduled class times. Of course, this only happened in some well-resourced schools while most government schools were simply non-functional. Unrealistic demands from some independent schools (which are, of course, run as a business) forced many local teachers to simply do what they were told – some even admitting that their jobs depended on it. The loss of the actual classroom's back and forth prosody and energy during teaching was experienced with what many refer to with language such as 'devastating', 'overwhelming' and 'exhausting.'

Besides the many unrealistic demands and time-consuming activities that occurred online, there are also many reports of fatigue, stress, and anxiety in varying measures. The term 'Zoom fatigue' has emerged during this time of lockdown (Fosslein & Duffy, 2020). This fatigue refers to the exhaustion of being 'plugged in' to live classroom meets as well as constant asynchronous online teaching. Participants have mentioned repeatedly that the online interaction requires more energy and self-regulated learning than when sitting in a physical classroom or a business meeting. Most educators have mentioned that extra energy is required to engage and connect with others in this online mode. Zoom meetings, or any meeting facilitated online with MS Teams, Webex, Google Hangouts, or Learning Management System tools like BlackBoard Collaborate Ultra, force participants to focus

more intently on conversations in order to absorb information. Having to engage in a "constant gaze" makes one "uncomfortable and tired "(Fosslein & Duffy, 2020). Some educators report that turning off your own image is less distracting, for example. Most agree you need to actively find time away from the devices to replenish energy and rest. Sleep in particular is reported to be difficult, as is maintaining focus, when working purely online.

'Cognitive dissonance' is another concept that has arisen in popular discussions which has arisen around fears of burnout during this potential second (mental health) wave, with the nervous system geared for social connection, but confused by the visual connection, alongside the gap of no 'actual' neuroceptive connection. The brain cannot sense the others on the screen and is confused by this 'dissonance'. There are many reports of feeling physically 'uncomfortable' (from sitting in front of the screen with a poor posture) but it is essential to note here that neuroscience points out how this screen posture position actually also silently mirrors the body's 'fear posture', which signals imminent danger to the human reptilian brain, activating it, for fight/flight/freeze (Levine, 2020). This part of the autonomic nervous system, which is the human threat detection and response system, governs fight, flight, and freeze, and is activated in this context by the invisible threat of the Covid-19 virus, leaving us in anticipation of the stress, grief, and trauma within and around us. It, therefore, makes complete sense to us, to target this 'body' activation, first, by teaching strategies for self-regulation. *Simple breathing patterns, postural adjustments* and *stretches*, with human interconnectedness, whether online or face to face, can significantly reduce vulnerability and stress related responses. Some report that using mindfulness meditation Apps seem to offer much needed guidance and respite for many educators and learners alike. In fact, a study in Italy, amidst the worst of their viral wave, found that despite the obvious potential for the development of post-traumatic stress disorder, the above-mentioned practices meant that there was actually less perceived stress and a better sense of resilience and coping (Polizzi et al., 2020).

The second wave we refer to above is thus not the actual physical or viral infection, but relates to mental health and wellbeing. Language used by educators at this time alludes to the fact that they are in various stages of activation. For example, during this time, linguistic metaphors abound as to being "*at the mercy of the elements*", often including words such as 'anchor', 'storm' and 'tsunami'. We argue that it is this creative communication, or sometimes the lack of it, that leads to alternating extremes, or waves, of solidarity and resilience, anticipatory stress, further isolation, and even despair in some cases. Despair at the lack of commitment from higher powers during this time also seems to frustrate the educators on the ground: *"it's common for authorities to talk about things they don't implement. Everyone is talking about the fourth industrial revolution, but no one is consulting scholars to create a curriculum that resonates with the 4IR.* Another notable observation was: *Independent institutions like universities are aligning their training programs and resources with the 4IR - in schools the government is not doing that. The government seems to be doing nothing?"* According to Bessel Van der Kolk, feelings of helplessness and hopelessness arise from the sense of anticipating a disaster (NICABM, 2020), which feels a little like watching an approaching disaster such as an earthquake, or a tsunami. The only difference here is that the pandemic is invisible, even though the deaths related to it are not. Previous research has ensured that we already have a documented array of responses to pandemics, including elevated chronic anxiety and posttraumatic stress, as well as stories of resilience and recovery (Polizzi et al., 2020). There is a lot that we can learn from this research on coping strategies that can inform our current management of distress and help us to deal with similar experiences during the current lockdown. Some therapeutic associations such as the National Institute for the Clinical Application of Behavioral Medicine or the Somatic Experiencing (SE®) Community refer to distress caused by Covid-19 as Anticipatory Grief, as per the Kübler - Ross Grief stages (Shock, Anger, Depression, Bargaining, and Acceptance). The deaths faced in other countries and the economic impact of the South African Lockdown process have set the stages of such anticipatory 'grief' in motion. Communities face this grief differently, and their subsequent resilience and coping is largely influenced by the attitude taken in response to this.

Even in developing contexts, young people in particular have struggled with the loss of everyday routine and social contact with their friends. Even the "school-haters" look forward to being around their friends again and claim that they need face-to-face mediation to learn optimally. This is also true in highly resourced schools, despite excellent online programmes that were put in place during lockdown. Despite some trepidation around spreading the virus, navigating the temperature screening, and wearing face masks all day, routines have resumed at many schools where teachers and students alike report that they prefer the real human, social connection of being at school. This social interaction 'co-regulates' the teachers and learners. This is understood by trauma scientists like Stephen Porges (Relational Implicit & Somatic Psychotherapy, n.d.), Peter Levine (2020), and Bessel

Van der Kolk (2015) as a neuroscientific phenomenon, wherein the co-regulation and connection mentioned above can be seen to be clearly mediating the 'mental health wave'. Educators and employers alike can find a helpful way to support their colleagues, themselves, and those under their care, through tapping into mind-body skills, strategies and training around mindfulness meditation, loving-kindness practices, as well as acceptance-and-commitment tools and tasks. Polizzi *et al.* (2020, p.62) suggest that these skills could "*help individuals make meaning, build distress tolerance, increase social support, foster a view of our deep human interconnectedness, and take goal-directed value-driven actions in midst of the CoVid-19 pandemic.*"

Acceptance and Commitment Therapy, or ACT, (Harris, 2006) also works with focussing on the thoughts and feelings we can control versus the situations beyond our control. For example, the 'leaves on a stream visualisation' works by imagining that we place our thoughts on a leaf and watch them float away downstream. Acceptance, which allows us to feel a sense of resilience despite dealing with painful thoughts and fears, arises from principles such as cognitive 'de-fusion'. Human beings an 'down-regulate' (reduce the intensity) of the anxiety and stress responses, through practices of gaining a sense of 'expansion and acceptance', allowing meta-perspective, whilst also maintaining 'contact and connection with the present moment.' With ACT, individuals ultimately find a way to be an 'observing self', deciding on what is important to them (similar to the gratefulness themes of mindfulness meditation schools), then they choose small "committed "actions to regain their sense of control and coping (Harris, 2006). This is reminiscent of the nine Mindfulness Meditation Principles of Kabat-Zinn (Minds Unlimited, 2013), including concepts such as seeing things as if for the first time ("*the beginner's mind*)", being the impartial witness ("*non-judging*"), being less performance driven ("*non-striving*"), "*acceptance*" of things as they are, "*letting go*" of thoughts, feelings or situations, having "*trust*" in your own intuition, and the "*patience*" to allow things to evolve in their own time, whilst showing "*gratitude*", and displaying "*generosity of spirit*".

So as psychosocial issues as a result of COVID-19 emerge as a topical issue related to palliative care (Worldwide Hospice Palliative Care Alliance, 2020), the question arises… what will students look back on as they emerge from the 'rabbit hole' of 2020? Will they remember the Zoom lectures, Google Hangout meets, or collaborate sessions? It seems more likely that they will remember the way you, as educator, handled the online transition for them and how you positively influenced their learning by modelling resilience, connection and coping. Mostly, they will remember your genuine human compassion and your caring connection during this time. They will remember you for the kind of person you are online, and whether or not you treated them fairly. Mostly, they will remember times of hope, and healing, within the learning….

Conclusions

There is a general consensus among educators in the developing context that the world of education will not be the same: *"This is a global phenomenon affecting nearly half the world population. I am certain that after this lockdown, teaching and learning will not be the same again."* Educators currently find themselves on the cusp of potential global change. Continuing with the Wonderland metaphor, when Alice asks the Cheshire cat which way she should go, the cat responds: "*that depends a good deal on where you want to get to.* There are no immediate answers to these, and many similar questions in education, but at least there is already evidence of a desire and drive to make appropriate changes – in both physical and conceptual spaces. In the words of one of the participant educators: "*The shift online has highlighted challenges related to ICT in education. I feel truly privileged to be a change maker - to make a real impact in our learning ecosystems and support our colleagues in embracing learning in the 4IR."* No matter what the outcome of this extended period of change in education brings – findings show that educators are currently hopeful that there will be a positive move at least, towards a more blended approach post Covid-19 which takes into account the need for social and human interaction. This is even more relevant in developing countries where asynchronous learning is posited as a solution for a lack of connectivity, but lacks the social elements that are essential for meaningful social interactions and deep learning. Synchronous learning activities seem to allow for a better human connection and narrows the transactional distance between educator and learner, but they too have to contain elements which will encourage, motivate and inspire learners to go online and to meaningfully engage in the learning tasks.

As with mental health practitioners and other frontline workers worldwide, educators also need to be equipped with appropriate strategies to be able to cope and to develop skills and strategies to mitigate the potentially harmful consequences of quarantine, isolation and dealing with constant change. It is this constant

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need for adjustment to change imposed on educators by school management, colleagues and parents that seems to emerge from the data as their main cause of stress and performance anxiety. Demands change for these educators on a daily basis, ranging from times that they have to be present at school or online, the tools they are expected to use online, the demands from parents who feel they are not seeing enough work, and learners feeling overwhelmed by the variety of tools and sources of information.

The pedagogy associated with teaching online has also been identified as a factor that deserves more attention in future attempts at remote teaching. Aspects related to assessment deserve the most attention. Educators can only hope that there will be a change from the score-driven, (over-) assessments and monotonous rote learning of pre-COVID-19 schooling. There is also hope for, and evidence of, new kinds of learning that will align best with new methods of assessment. Educators now have the opportunity to reimagine their own educational wonderland as a consequence of the chaos of COVID-19, to ensure more learning equity and meaningful transformative improvements. Measures to support educators' mental health and wellbeing amidst tremendous flux and uncertainty need further investigation.

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