

How Covid-19 Pandemic Might Lead to Appreciating Pedagogies Driven By The Multiplicity of Intelligence: A Case of the Ugandan Experience

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ABSTRACT

While the Covid-19 pandemic has devastated education institutional programmes and activities for the last one year, it might also present opportunities for new knowledge and paradigm within education. In this paper, we discuss the Covid-19 pedagogies and their effect on the traditional educational system anchored on logic and universality. To do this, we start by highlighting the Covid-19 pandemic and how it has impacted education especially in low-resourced contexts and then give a historical overview of the conceptualisation of intelligence. The historical overview underscores how over centuries, the concept of intelligence has been influenced by the left-brain teaching and learning strategies and how this has impacted how teachers teach and the entire teaching and learning system. By explaining the cultural and social aspects of intelligence, we underscore the multiplicity of intelligence as opposed to its unidimensional conception. We then expound on how Covid-19 pandemic has widened opportunities for new conceptions of intelligence within education through introducing new ways of teaching and learning which are student-centred, community and local resource focused, further justifying the need for creativity and innovation. We conclude that while the Covid-19 pandemic has presented serious challenges to educational programmes, it has also presented opportunities for new conceptions of intelligence and the need to appraise the modern epistemology which has characterised education in low-resourced contexts for centuries.

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Keywords:

Intelligence, philosophy of education, Covid-19 pedagogies

INTRODUCTION

Globally, Covid-19 has affected education of about 1.3 billion learners due to school closures (UNESCO, 2020). In Uganda, 15,126,167 learners and about 5000 teachers are affected (Ministry of Education and Sports, 2020). Whereas the efforts have been put in place including home-schooling, use of self-study materials, virtual teaching using radios and Televisions (Ministry of Education and Sports, 2020), the situation still indicates a need for a realignment of the education system and approaches to meaningfully address the Covid-19 related challenges in teaching and learning as well as embracing the learning opportunities arising from the pedagogical innovations and approaches used during the Covid-19 pandemic. While the pre-covid-19 period was mainly characterised by linear models of teaching and learning (Fahmy & Lagowski, 1999) in which teaching and learning were systematic, often confined in particular places and with pre-determined input and output relationships, the closure of schools due to Covid-19 has popularised new models of teaching and learning suggesting non-linear approaches, highlighting new insights and

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innovations to the pedagogical landscape. School leaders, parents, teachers and students alike have now started engaging in other approaches including blended teaching, home teaching, virtual teaching and learning and self-paced learning. The emergency of these (seemingly) new approaches to teaching and learning have revealed the importance of skills and competencies which the linear pre-covid-19 approaches had overshadowed. For instance, the importance of the family and the community in nurturing a holistic individual capable of social networking is now being highlighted (Conton, et al., 2020). Instead of sitting in front of a teacher for programmed hours, students now must contend with issues of self-paced learning and social interaction with communities which is essential to learning but mostly ignored by teachers and the linear education system (Hurst, Wallace, & Nixon, 2013). To both the teacher and the student, the situation presents challenges and opportunities related to the new capabilities which they require to navigate the situation. This situation has posed fundamental questions which educators, philosophers of education, psychologists and epistemologists ought to consider reflecting upon. How do teachers, parents and families perceive intelligence after some of the children beginning to portray unique behavioural tendencies and or talents? Could it be an opportune moment to consider new forms of intelligence – a multiplicity of intelligence? Could it be an opportunity to appraise our traditional educational systems which have for a long time relied on a classic scientific paradigm, which conceives intelligence in a linear model where logic and external control are the characteristics (Pushkin, 1996)? Could the Covid-19 pandemic be an opportunity for schools and families to appreciate the multiplicity of intelligence, according to learners with greater freedom to explore new horizons? To reflect on these questions, we give a brief history of the concept of intelligence, we then explore how the Covid-19 pandemic, and the associated pedagogies could be an opportunity to consider the conception of the multiplicity of intelligence.

The history of the concept of intelligence: Pre-Covid-19 pandemic period

The idea and concept of intelligence can be traced back as the Biblical times. In the book of Wisdom which is dated to the 1st Century BCE, the author links righteousness to being wise. If wisdom is the ability to use one's knowledge and experience to make good decisions and judgments (Oxford Advanced Learners Dictionary, 2005), then righteousness can be closely linked to the concept of intelligence. This school of thought was inherited from the Greek tradition – mainly Platonic. Plato provided foundations to the western conceptualisation of intelligence through his teachings about the physical body and the immortal soul, and still prominently upheld by world religions including Judaism, Christianity, and Islam, thus making such thoughts about intelligence very influential to educators, philosophers, historians, and scientists (Princiotta & Goldstein, 2015). More structured conceptions about intelligence, however, can be traced from the Galton (1869), the 19th Century psychologist, especially from his work on "hereditary genius". Following Galton's (1822-1911) studies on intelligence, the French psychologists published their second and most famous series of tests for the diagnosis of the grade of intelligence of children in 1908 (Binet & Simon, 1916) which has influenced education to the present time. The work of Binet and Simon on intelligence was largely influenced by the positivist paradigm in which intelligence is conceived a universal and hereditary trait and with overly features of intellectualism which can be attributed to Immanuel Kant. The Binet and Simon's intelligence test focuses on the ability

to use words fluently, ability to read and write, the repetition of words and numbers and puzzle tests which largely limits the concept of intelligence to the cognitive domain at the expense of psychomotor and affective domains. The predominance of the cognitive domain was upheld by Charles Spearman's (1927) in his definition and theory of a single, broad, general intelligence factor (g). Spearman's theory builds on the premise of a general factor (g), which is assumed to be unitary and a major cause of differences in an individual person's cognitive ability which is largely measured by one's abstract or analytical thinking skills (Kaufman & Singer, 2004; Sternberg, 1985). This postulates that analytical thinking skills are a measure of intelligence and whoever does not possess these skills is not intelligent. This makes intelligence a unidimensional construct. Thurstone's (1938) In his theory of primary mental abilities, Thurstone (1938) criticised Spearman's theory of a single general factor and instead proposed that intelligence is based on seven mental factors namely, verbal comprehension, spatial relation, word fluency, inductive reasoning, numeric ability, perceptual speed and associate memory. Although Thurstone disagreed with Spearman on what constitutes intelligence, they both concur on conceiving intelligence as a cognitive operation, universal and hereditary, thus dismissing the possible influence of cultural, social, and environmental factors on an individual's intelligence. By dismissing non-hereditary factors, it raises a question about a situation in which an individual might fail in one context and yet succeed in another. Does this render the individual intelligent in one context and stupid in another? How does it account for the Covid-19 pandemic situation in which learners who were successful in school before the pandemic failed to adapt to the new learning styles during the pandemic? How about those who were seemingly failures in school before the pandemic and yet very adaptive during the Covid-19 pandemic?

Though not exhaustive, Cattell's (1963) attempt to give a solution to the above puzzle. He suggested a hierarchical two-factor model of intelligence – fluid intelligence (g_f) and crystallised intelligence (g_c). He did not disagree with Spearman and Thurstone on what constitutes intelligence but rather on how it can be categorised. He defined fluid intelligence as a deliberate but flexible control of attention to solve novel and on-the-spot problems that cannot be solved using previously learned materials, schemas, habits and scripts. He then defined crystallised intelligence as one's ability to apply the learnt material, schemas or habits. Like his predecessors, Cattell's model underscores inductive reasoning, logical reasoning and quantitative reasoning all of which resonate with the pre-Covid-19 pandemic period – which presents intelligence as an exclusive concept of the mind. More recently, other theorists have questioned the conception of intelligence as an exclusive concept of the mind. Gardner (1993) in his famous work "the Frames of Mind" has argued that the human mind is capable of a multiplicity of bits of intelligence, challenging the traditional view of intelligence as a single capacity that can be measured by one construct. He suggested nine forms of intelligence namely logical (mathematical), musical (Rhythmic), naturalistic, intrapersonal, visual, kinaesthetic, interpersonal, linguistic, and existentialist intelligences. This introduces observable and practical aspects to the concept of intelligence, going beyond the cognitive capacity of an individual and including most of the skills and competencies an individual requires to navigate the daily realities of life, such as the Covid-19 pandemic.

Covid-19 pandemic pedagogies and the multiplicity of intelligence

In the wake of the Covid-19 pandemic, educational institutions and teachers had no option but to adapt to the new pedagogical approaches, which we refer to here as 'pandemic pedagogies'. In Uganda, this took both official and unofficial forms at different educational levels starting with pre-primary through the institutions of higher learning or universities. At the level of institutions of higher learning, the government through the National Council for Higher Education (NCHC) required all institutions to teach adapt an Open Distance and e-Learning (ODEL) model which assumes that each student can be optimally supported by modern electronic technologies and other digital facilities (Ngubane-Mokiwa, 2017). However, this was not the case for most students as well as the institutions. In some cases, students had to be supported through alternative ways including home-schooling, newspapers, radio and television programmes. These alternatives were also adapted by the Ministry of Education and Sports for primary and secondary schools as official pedagogies during the Covid-19 pandemic. At any level, these pedagogies were not exempt from challenges related to students' access to lessons, and study materials. The challenges were compounded by the competing activities the students were engaged in during the pandemic and the environment and situation in which they lived. Most of these innovations can be categorised as remote learning whether formal or informal.

With remote learning in place, students have had to change roles from passive recipients of information to actively participating in a process that emphasizes discovery (Morgan, 2020). This has, in most cases, been facilitated by use of the Information and Communications Technology (ICT) as a pedagogical tool, enabling students to actively search, organise, present, and share knowledge and ideas. For Morgan: "Instead of using technology to present information to students, teachers can provide them with opportunities to do projects, use digital tools to collect information and work with peers to create presentations as they share ideas" (Chen, 2010, Morgan, 2020).

The period has also witnessed an increase in *unofficial pedagogies* in terms of indigenous learning. During the Covid-19 pandemic, students have had varied opportunities by staying for a sustained time with their families and communities. These opportunities included being exposed to indigenous knowledge such as that related to health issues, environment, agriculture, and food production among others. For instance, as students stayed with their families and communities, they were exposed to the local herbal treatment of covid-19 and other diseases and exposure to indigenous knowledge of agriculture, cookery, animal husbandry. Such knowledge has often been rendered invisible (and despised as backward), but it became the only source of survival in times of lockdown. Within the agriculture arena, indigenous intensive farming techniques and urban farming enabled indigenous communities to navigate through the Covid-19 lockdown period.

An essential aspect of indigenous knowledge generation can be viewed from the coping mechanisms which students had to espouse. For example, students had to cope with new issues around distance learning, learning at home, participating in family and community activities which not only became learning moments for them but also and more importantly revealed critical forms of intelligence which neither the parents nor teachers had ever imagined.

Key emerging competencies among students revolve around information gathering in ways that are interactive, involving not only communicative but also analytical skills just as working with others which requires various soft skills such as listening, empathy, building and working in teams to create synergy; creating and delivering presentations that require not only the traditional logic, but also the art of persuasion, rhetoric and creative use of the whole brain/person. This includes musical intelligence, imaginative and artistic skills, and other (usually redundant) features of the right brain. These forms of intelligence relate to the learning styles most characteristic of the right hemispheric cognitive styles that are indispensable for generating solutions to problems since its functions have been described as creative and divergent (Rubenzer, 1982). The functions of the right brain sharply contrast with Spearman's theory of intelligence and instead highlights the conception of multiple forms of intellectual capacity beyond the IQ to include effective vocational, social, and artistic skills and other abilities which an individual requires to navigate life situations. By completely ignoring social and emotional aspects of human ability, the traditional educational system based on the left brain dehumanises the person perceiving the human mind as a thinking organ within a larger body just like a "Ghost in the machine" (Ryle, 1949). This renders teaching and learning mechanical and less human activity yet, what students learn in school should ideally enable them to ably function as members of society who impact and are impacted by the same society.

The traditional education privileges the thinking processes over the thinker. Instead of education being a tool for holistic learning, it is an inhibiting factor – since human learning is not just about thinking but also doing, collaborating with others, feeling, and working with one's emotions. Holistic learning requires an ecological process, going beyond mental abilities. This resonates with Gardner's (1983, 1999) theory of Multiple Intelligence in which he proposed the nine separate intelligences: linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, interpersonal, intrapersonal, naturalist, and existential. He underscores that intelligence is a multidimensional construct and it should enable one to solve problems within a given context. Therefore, intelligence is not only an abstract rational thinking capacity but also includes one's ability to navigate his/her life contextual situations. He defines intelligence as "the ability to solve problems or to create products that are valued within one or more cultural settings" (Gardner, 1983, p. x). Although the traditional educational system has for a long time privileged the functions of the left brain, anchored on a universally given 'transcendental rationality', standardized, uniform, orderly reality, Covid-19 pedagogies have revealed the necessity of turning to the functions of the right brain predominantly focused on art, dance music, physical education and the affective domain which is generally involved in aesthetic judgement (Rubenzer, 1982).

Covid-19 has clearly revealed the weaknesses of the traditional educational systems that are anchored on linear input-output models. The challenges and sometimes failure of education institutions, teachers, parents, and learners to continue the learning process or even applying the accumulated knowledge to the Covid-19 related challenges clearly vindicate the issue. Sternberg's (1997, 1985) concept of successful intelligence explains how the concept of intelligence should go beyond the prediction of school grades to account for success in all settings of a person's life. He defined intelligence as "the ability to achieve one's goals in life, given one's social-cultural context; by capitalising on strengths and

correcting or compensating for weaknesses in order to adapt, shape and select environments through a combination of analytical, creative and practical skills” (Sternberg, 2005 p.189). The aim of this paper was to expound on how Covid-19 pandemic might provide and widen opportunities for new conceptions of intelligence within education. The central question guiding the study was, how might Covid-19 pandemic provide opportunities for new conceptions of intelligence?

Study Methodology

To answer the above research question, the study employed literature and narrative analysis. The analysis of literature was used to explain the historical perspectives of intelligence and how the conception of its multiplicity has been shared by scholars’ overtime. Narrative analysis on the other hand was used to dive into the richness of the formal and informal stories related to people’s life, including the researchers’ experiences during the Covid-19.

Cultural and social aspects: the plurality of intelligence

Holistic learning calls for teaching strategies that balance between the left and right brain hemispheres as the strategies that do not balance the two hemispheres will contribute to the lopsided development of an individual (Rubenzer, 1982). To achieve this balance, there is a need for a cultural interpretation of intelligence which is deeply rooted in the concept that an individual could prove intelligent in one specific cultural context and yet not in another (Grigorinko & Sternberg, 2006). Arguably though, this could also explain why different communities have responded to the Covid-19 pandemic in different ways for their survival. For instance, some individuals and communities resorted to identification and use of local herbs and diet while others turned to medical options and preventive measures as advised by the medical/health personnel. This scenario is supported by empirical research that different cultures perceive differently what an intelligent person is. For example, in the Western notion, an intelligent person spends a great deal of effort on learning, enjoys learning, and persists in life-long learning with a great deal of enthusiasm. On the contrary, Yang and Sternberg (1997a) studied Chinese philosophical conceptions of intelligence and found that the Confucian perspective emphasizes the characteristic of benevolence and of doing what is right. They found that the Taoist perspective emphasizes the importance of humility, freedom from conventional standards of judgment, and full knowledge of oneself as well as of external conditions. In another research, Yang and Sternberg (1997b) studied contemporary Taiwanese-Chinese conceptions of intelligence and found five factors underlying these conceptions: (a) a general cognitive factor, much like the (g) factor in conventional Western tests; (b) interpersonal intelligence; (c) intrapersonal intelligence; (d) intellectual self-assertion; and (d) intellectual self-effacement. These factors uncovered in Taiwan differ substantially from those identified in the U.S. people’s conceptions of intelligence by Sternberg et al. (1981): (a) practical problem solving, (b) verbal ability, and (c) social competence. Das (1994) as cited in Cocodia (2014), reviewed Eastern notions of intelligence, and noted that in Buddhist and Hindu philosophies, intelligence involves waking up, noticing, recognizing, understanding, and comprehending, but also includes such things as determination, mental effort, and even feelings and opinions in addition to more intellectual elements. Okagaki and Sternberg (1993) did another study and found that different ethnic communities in San Jose, California, had rather different conceptions of

what it means to be intelligent. For example, Latino parents of school children tended to emphasize the importance of social-competence skills in their conceptions of intelligence, whereas Asian parents tended rather heavily to emphasize the importance of cognitive skills. White parents also emphasized cognitive skills. Studies in Africa provide yet another window on the substantial differences in conceptions of intelligence across cultures. Ruzgis and Grigorenko (1994) argued that, in Africa, conceptions of intelligence revolve largely around social aspects of intelligence that help to facilitate and maintain harmonious and stable intergroup and intragroup relations. In a study of Kenyan conceptions of intelligence (Grigorenko et al., 2001), it was found that there are four distinct terms constituting intelligence among rural Kenyans – knowledge and skills, respect, comprehension of how to handle real-life problems and initiative. Serpell (1974, 1996) found that Chewa adults in Zambia emphasize social responsibilities, cooperativeness, and obedience as important to intelligence; intelligent children are expected to be respectful of adults. In Zimbabwe, being prudent and cautious, particularly in social relationships, service to the family and community and politeness toward and respect for elders are key to intelligence (Dasen, 1984). Many of these conceptions focus beyond knowledge-based skills and competencies.

The above studies on cultural conceptions of intelligence imply that although the goal of education is often lopsided by the development of traditional left-brain skills such as giving correct answers, scoring well on the IQ test, there is a need to stimulate both left and right brain skills. The Covid-19 pandemic, the resultant closure of schools and the remote learning strategies all indicate an urgent need for the cultivation of creative functioning with the highest levels of convergent (left brain) thinking skills and divergent (right brain) thinking skills. It also implies the need for educators, schools, parents and the wider educational community to consider a broader concept of intelligence which goes beyond an individual's cognitive ability but rather one's total -holistic ability to navigate life situations and challenges that one might encounter. In this way, an educational problem is a real human problem and not just an academic problem. Learners need to grasp the ability to face and deal with the human problem instead of only reasoning or learning about the problem – which cannot be done in a standard way but rather in the multiplicity of ways, thus calling for a conceptualisation of the multiplicity of intelligence.

The Covid-19 pandemic - Possible opportunities

Covid-19 pandemic provides a lens that has suddenly enlarged the phenomena and features of the perceived world (Mamzer, 2020). Features and phenomena about social functioning, the nature of knowledge and ways of knowing not yet seen are revealed. From this perspective, the situation should be treated as a symbolically conventional representation of multi-social-cultural perspectives of intelligence. Thus, nothing has changed by a re-emergence of a situation that requires an interpretation with the lens of the multiplicity of intelligence. Just as there were no formal schools and children used to learn from within their families and communities, Covid-19 has now forced parents, learners, teachers and schools towards rethinking the concept of schooling to include home schooling whereby learners are deeply engaged in family and community activities. This community engagement has opened new and multiple ways of viewing reality, increasing the levels of creativity and flexibility which are skills aligned to the right brain. The Covid-19 pandemic has also shown an epistemological challenge about whether intelligence is culture-specific

or a multi-cultural concept. For example, the restrictions pressed on international travels and local mobility implies that people must search for solutions to their problems within their immediate environment, further implying a critique on the traditional schooling system which has for centuries focused on inculcating uniformity, convergent thinking towards predetermined answers and solutions to social challenges and problems (Kumar & Sharma, 2016). Covid-19 pandemic reveals the need to reconsider intelligence as the ability to solve problems or to create products that are valued within one or more cultural settings (Gardner, 1983). This pandemic has shown how society needs creative minds, more than ever before. Teachers, learners, families, and schools have had to search for creative and adaptive means of teaching and learning including use of self-study materials, learning in shifts due to the need for social distancing, learning within small village communities, teaching through social media such as WhatsApp, Facebook among others. This follows a whole brain the educational approach which values multiplicity of ideas whereby the aims of education are enhancing critical thinking, production of knowledge, development of individual and social identity, self-creation. The focus on creativity in underscored by Sternberg (2005) when he defines intelligence as “the ability to achieve one’s goals in life, given one’s social-cultural context; by capitalising on strengths and correcting or compensating for weaknesses in order to adapt, shape and select environments through a combination of analytical, creative and practical skills” (p.189). Both Gardner and Sternberg allude to the multiplicity idea of intelligence and its social-cultural dimension. While in the traditional schooling system, teachers aim at creating or moulding a logical person who can live in rational and objective society (Hossieni & Khalili, 2011), the Covid-19 pandemic has revealed a renowned focus on emphasize subjectivity, local facts, interdisciplinary methods, individual and cultural differences and creativity. Knowledge and solutions to problems are more of “approximate” nature and less clearly demarcated than exact (Rubenzer, 1982). This tendency has been increased by the need for individual survival as social and universal systems, both in health and education have been put to test. Each individual person and or institution has had to be creative and focus on available local resources for survival and sustainability.

In a left-brain dominated educational setting, teachers dominate and control students (Hosseini & Khalili, 2011). During the Covid-19 pandemic, teachers have had to let students free to study on their own using self-study materials, and virtual learning platforms without or with minimal teacher control. The question now is whether teachers will get back to their left-brain dominated teaching strategies and control mechanisms once schools fully open after the pandemic. While national systems might continue to exert pressure on teachers and learners to focus on central ideas in the teaching and learning process, the Covid-19 pandemic might present an opportunity to both teachers and learners to utilise the experience they have acquired during the pandemic to create teaching and learning activities anchored on individual needs and situations as opposed to the universalisation of ideas. This might therefore create a renaissance of knowledge and ways of knowing.

Conclusion

While understanding the concept of intelligence has remained a problematic issue among the philosopher of Mind, epistemologist and psychologist, the Covid-19 pandemic has revealed the need for a multiplicity of its interpretations and conceptualisation. The

pandemic has problematized the concept of intelligence beyond a definitional project to encompass its nature, how it is acquired and used. The situation brings us to consider these questions:

- (a) What is the nature of intelligence or what constitutes intelligence? Is it a unidimensional or multidimensional concept?
- (b) How do we acquire intelligence? Is it innate or it can be nurtured?

We conclude that while Covid-19 has practically disrupted the schooling system worldwide, it has equally presented serious challenges to the traditional educational system and has ushered in new hope for holistic teaching and learning. Based on the teaching and learning modalities suggested and used during the Covid-19 pandemic when schools were closed, the creativity of teachers, learners, schools and other educational institutions have highlighted a possibility of increased student freedom in the learning process, creativity and innovation on the part of both teachers and students and the multiplicity of measures of success. However, whether the tenets of the traditional educational system based on the left brain teaching and learning strategies persist beyond the Covid-19 period is a matter of debate and subject of another study. What is clear however is that the pandemic has opened a window for the multiplicity of thinking and conceptualisation of knowledge, in terms of intelligence, how it is acquired and the means or measures of success. It would be interesting to study the nature of teaching and learning after the Covid-19 period and how the future classroom will be informed by the pandemic. In reading this study, the reader should bear in mind that it is limited to Uganda's experience and what was happening to the researchers' context during the Covid-19 pandemic. There is need for a more extensive study to understand how these findings relate to a wider context.

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