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THE IMPACT OF COVID-19 ON THE QUALITY OF EDUCATION IN INSTITUTION OF HIGHER LEARNING: AN EXPLORATORY STUDY IN THE UNIVERSITY OF LIMPOPO

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ABSTRACT

COVID-19 pandemic affected higher educational institutions not just in Wuhan, China, where the virus originated but in all other higher educational institutions across the globe. The purpose of this paper is to explore the impacts of COVID-19 pandemic on the quality of education in the selected institution of higher learning. The outbreak of this virus across the globe has compelled the entire country to shut down to monitor the spread of the virus. Thus, the government introduced educational countermeasures to continue educating students despite the COVID-19 dilemma. In that, the theme was “save the academic year and save lives”. Today’s reality is learning across majority if not all institutions of higher learning stepped into the digital world in which students and lectures are virtually connected. Based on the researcher’s experience and observations in academia, online learning is effortless to comprehend as compared to the traditional contact learning. Students take assessments from the comfort of their homes, which permits them access to consult any form of assistance possible and even write in groups discussing the assessment. Without doubt, this instigates questions about the integrity, quality, and credibility of education. This resulted in average pass rate of students skyrocketing. Hence, it created a fallacious impression of the pass rate and intellectual capacity of students. The paper put forward the argument that the shift into online learning as a requirement for new normal have its own negative side in the sense that the quality of education is being compromised. This is supported by the call of accreditation bodies such as South African Institute of Chartered Accountants (SAICA) which made a call to request some of its programmes to remain venue based to ensure and maintain integrity of the assessments. The paper is desktop study which relied on literature review as part of its methodology. The paper is also grounded on the pragmatic experiences and observations of students and group discussion of prominent people in academia to strengthen its argument. The paper recommends that summative and formative assessments be venue based while observing social distancing and venues be thoroughly prepared for such assessments.

Keywords: COVID-19 Pandemic, Education, Institutions of Higher Learning, Online Learning, South Africa

INTRODUCTION

The dialogue around the effects of COVID 19 pandemic on the quality of education in institutions of higher learning in South Africa appears to be receiving less consideration as opposed to just a need to shift into new era of learning. It appears that much concentration and effort have been directed into implementing alternative teaching and learning method during this COVID-19 global pandemic. According to Chick, Clifton, Peace, Proper, Hale, Alseidi & Vreeland (2020), the breakout of COVID-19 has brought down a climb of global economy and had a major influence on the system of higher education. Social distance was implemented to

avoid transmission from the communities, the unexpected closure of campuses has transferred classes from contacts to virtual. Equally, Zhu & Liu (2020), support the view that this has focused on the use of eLearning technologies and platforms for successful student interaction with facilitators, who might have constrained access and affordability. The pandemic has exposed the weaknesses of the higher education system and the prerequisite for more education for digital technology instructors to adapt to the fast-changing education atmosphere worldwide (Dhawan, 2020).

Rashid & Yadav (2020) say that higher education systems have been intensive and popular throughout the globe as they respond to an emergency learning pandemic, indicating a quick change form face to face to the online system of learning. Meanwhile, the pandemic revealed the weaknesses and deficiencies of present education institutions and emphasized the importance of creating digital culture in developing nations and emerging countries, during the epoch of the pandemic. The increased digitization and transmission of educational services can become a post-pandemic norm (Toquero, 2020). Deep insight on the role of higher education institutions in delivering quality education, method of delivery, accessibility, the relevance of lifelong learning and the view of educators about the kind of learner has been challenged by the current scenario (Toquero, 2020).

E-learning is linked to several arguments. Some of the points relating to online pedagogy include costs, flexibility, learning method, lifelong learning, and policy. Online learning methods are believed to be easily accessible (Ngwacho, 2020). The expense of transportation, accommodation and the total cost of institutions-based learning is regarded to be a comparatively cheaper method of education. Flexibility is an important part of online learning. A student can plan on completing online courses. However, while noting the above background, the paper seeks to bring forward a discussion around how the new learning method affect the quality of education.

An Overview of COVID-19 Pandemic

Coronavirus shortened as (COVID-19), is a disease that is contagious that primarily emanated from China in the city of Wuhan in 2019. According to Cennimo (2021), COVID-19 is defined as “illness caused by a novel coronavirus called Severe Acute Respiratory Syndrome (SARS) coronavirus which was formerly called 2019-nCoV, that was first identified amid an outbreak of respiratory illness cases in Wuhan City, Hubei Province, China”. It was reported by the World Health Organization (WHO) (2021), that the virus is airborne, which means that the virus spreads through the air. WHO further indicates that this virus is more deadly to older people who are already suffering from other diseases such as diabetes, cancer, and chronic diseases amongst others. Ngwacho (2020), specifies that this virus spreads through the droplets of saliva, when an infected sneezes or coughs or even touching the surfaces which are infected by the virus. However, the Centre for Disease Control (CDC) (2021), in the United States of America (USA) indicates that the virus changes overtime and has the potential to be more severe. The CDC also report that the virus has many variants that include variant such as B.1.1.7 (Alpha) which was firstly spotted in the UK in 2020, B.1.617.2 (Delta) which was firstly identified in India in 2020 and B.1.351 (Beta) which was initially detected in South Africa.

The outbreak of this virus has brought many countries to a standstill in many sectors of the economy. It has shaken the capabilities and the abilities of health sectors in different countries (Selelo & Masenya, 2021). Essentially, no country was prepared to face this unprecedented pandemic which has tested the health sectors of the countries. In that, many people who are infected by COVID-19 were admitted to hospitals and subsequently both the private and public hospitals were full of people with COVID-19. This includes the experiences in countries such as India, USA, Italy, and South Africa inter alia. The hospitals were overwhelmed with people infected by COVID-19 such that they had to establish other places for isolation and put the patients with COVID-19. However, this virus demanded that the countries

develop a response plan to decrease the number of infections. The WHO (2021) provides that to stop the spread of the virus, there should be a social distance, wearing of face masks, avoiding large gatherings, and washing of hands regularly.

This pandemic halted the lives and livelihoods of people (Selelo & Masenya, 2021). In that, different countries across the world had to introduce the lockdowns, restrict the movement of people by introducing the “curfew”, close down of certain businesses including the universities and allow only essential sectors to operate (Onyema, Eucheria, Obafemi, Sen, Atonye Sharma & Alsayed, 2020). Meanwhile, different countries experience different “waves” of COVID-19. This means that at times they have the pandemic under control and ease the lockdown regulations, however, people tend to be complacent and not follow the basic COVID-19 regulations which lead to another the upsurge of COVID-19 infections that is sometimes referred to as “another wave of infections”. To salvage and reduce the COVID-19 infections, the vaccines such as the Johnson and Johnson (J & J), Sputnik and Pfizer are currently being used to reduce the level of COVID-19 infections. Although the vaccines are perceived to be effective in fighting the virus, it does not mean that once people get a jab should relax and forget the COVID-19 regulations. Hence, people should accept that the virus will be with us for the next few years, until the countries meet their population immunity.

The Quality of Education in Context of Academic Assessments

Jacob, Abigeal & Lydia (2020), find that COVID-19 had an impact on higher education. The authors indicate that COVID-19 has disturbed the academic assessment, led to the restructuring of academic calendar, change the traditional (contact) method of teaching and learning and has disturbed academic conferences. The authors are corroborated by Azorin (2020), who reaffirms that one of the sectors that is touched by COVID-19 pandemic is higher education sector wherein the institutions of higher learning are forced to shift from contact learning to a virtual (online) learning. Meanwhile, Toquero (2020), rubberstamps the latter point by observing that COVID-19 made it obligatory for higher education institutions to shift from the traditional (contact) teaching and learning to online learning wherein it created some of the challenges and opportunities. Accordingly, at the centre of it is the quality of education that students swallow during the pandemic. One acknowledges the effectiveness and efficiency of digital (online) teaching and learning; however, it is possible that the quality of the content of the academic assessment could be compromised. Whilst, online learning is approved and embraced by many higher education institutions, it poses unavoidable challenges such as the quality (content) of the academic assessments.

Daniel (2020) contends that “there is no dishonour in teaching through good materials prepared by others”. While this sentiment uttered by the author may appear to be true, there is no honour in plagiarising such content by the students for their academic assessments. In that, Azorin (2020), observes that the Spanish curricula needs to be reviewed because COVID-19 threatens the quality of the curricular. The hypothesis made by the author is that there is a great emphasis on “memorizing” the content rather than applying it. The author further suggests that it is now become a pre-requisite to have a curricular that brings and fosters a participative approach, a sense of competency and a pragmatic approach in this complex milieu because of the pandemic. Therefore, the trend of “memorizing” the content and plagiarising the content for academic assessments is expected to soar in the current crisis of the pandemic. This creates much anticipated high pass rate because the students have a leeway to consult any form material to write academic assessments including tests and write in groups discussing the assessment.

Without doubt, this instigates questions about the integrity, quality, and credibility of education. This resulted in average pass rate of students skyrocketing. Hence, it created a fallacious impression of the pass rate and intellectual capacity of students. This was supported by the honourable Nzimande, minister of Higher Education Science and Technology in his speech, where he proudly announced the improved pass rate of students and further elaborated

that perhaps the Department of Higher Education should consider moving fully digital as new normal requires. However, it seems like the question of the quality and credibility as well as the standard of online learning have not received attention of the relevant stakeholders. Therefore, the paper seeks to raise a concern in relation to online learning. Perhaps the pass rate without deep understanding of the curricular could be rendered hollow. A fully conscious assessment by Azorn (2020), highlights that “student should predict less and experiment more”. This simply means that students should be conscious about their settings and apply the content of the curricular in enhancing the socio-economic settings.

While noting the requirements for the so called “new normal” and compliance with COVID-19 regulations, the paper put forward the argument that the move is negatively affecting the quality of education in general. This is supported by the call of accreditation bodies such as South African Institute of Chartered Accountants (SAICA) to request some of its programmes to remain venue based to ensure and maintain integrity of the assessments.

Dilemmas Associated with Online Learning

It has become evident that education is subject to external hazards that the globe faces a COVID-19 epidemic (Bozkurt & Sharma, 2020). Given that many see online teaching as the answer to the current crises are no longer viable face to face, it seems to be a warning observation that effective online learning in South Africa can be beyond of the reach of many students unless there are interventions on multiple fronts (Du Preez & Le Grange, 2020). This is mainly because of the challenges it presents to teaching and learning. Despite its almost compelling attraction, technology poses significant obstacles to higher education (States University, n.d). When technology evolves so swiftly and unexpectedly, systematic planning of technological upgrades to educational programs is challenging. Academic planners are always playing catch-up to integrate new technological applications that arise faster than a good planning procedure can predict (States University, n.d).

Many colleges and universities have yet to adequately address the issue of training professors and staff employees to efficiently use technology. It appears that constructing a physical technical infrastructure is insufficient. For technology to fulfil its promise to higher education, it must also develop a human resource infrastructure (States University, n.d). However, below discussed are numerous challenges associated with online learning at the University of Limpopo which includes but no limited to:

Quality Standardization

It is a difficulty to achieve the quality of e-learning. In its education policy, the government does not have explicit provisions for e-learning programmes. Quality standards, quality control, deployment of electronic resources and dissemination of electronic information are inadequate. It is necessary to solve this problem quickly, so that everyone may benefit from quality e-learning education (Hedding, Greve, Breetzke, Nel & Van Vuuren, 2020). In addition to focusing on benefits connected with the use of online learning during a crisis, the institutions of higher education and the government must also increase awareness and improve the quality of the online courses offered under these conditions. Until students do what they learn, learning process cannot fully attain its full potential. In certain cases, all online information is theoretical and does not allow students to properly practice and learn. Mediocre course content is also a major issue (Crawford, Butler-Henderson, Rudolph, Malkawi, Glowatz, Burton, Magni & Lam, 2020)

Invigilation and Assessment Supervision

In e-learning, examinations are typically performed online, when teachers are restricted

to proxy observation and checking of the student. There are many student exam styles suited to e-learning according to Adedoyin & Soykan (2020). This contains enriched ICT exam forms that feature built-in response, performance formats, sentences or short replies, match, false and cloze procedures. The writings from Mhlanga & Moloi (2020) show that it cannot be imagined that the epidemic would make the evaluation more complex for learners to have the same learning experiences and possibilities via the internet.

Digital Divide

Murphy (2020), indicates that in this difficult time, ensuring digital fairness is vital. Not everyone has access to digital equipment, the internet and Wi-Fi. The lack of adequate digital tools, no internet or unstable Wi-Fi can lead to a lot of difficulty since many students are likely to lose crucial learning. Institutions should strive to guarantee access to the necessary resources by every student and faculty. Lassoued, Alhendawi & Bashitialshaaer (2020), allude that in cases when students do not have computers, they must also guarantee that all the instructional applications operate on mobile phones. Online education has a lot of advantages that traditional methods do not offer. However, it is not suitable for some students. It offers many opportunities to accommodate busy schedules and locations, but the student must set aside time to be able to participate in the online course or community (Toquero, 2020). Students also need access to the technology needed to participate in an online course or society, and if they lack these resources, they may struggle with their assignments or exams. Students need motivation and self-discipline so that they can be successful in their online classes; otherwise, they would just give up instead of trying harder. Online courses are good for students who learn independently (Ngwacho, 2020). They must be independent and self-motivated because they do not have an instructor or peer group to assist them. There are also some challenges that may arise when taking online courses. With an online course, it is sometimes hard to get in touch with other students because of time differences, especially if you are in a different country, a province, or a community (Ngwacho, 2020).

Technical Difficulties

Numerous online education resources are accessible, however occasionally they cause numerous problems (Le Grange, 2020). These challenges and problems with contemporary technology range from downloading failures, installation issues, login problems, audio and video problems and so on. Sometimes, online education is boring and uncompromising for students. Online learning is so time effective and flexible that students can never find time to learn (Pather & Booi, 2020).

Pets and Human Intrusions

An unexpected arrival or interruption in on-line education for members of the family, friends and pets is an intrusion of humans and pets which may upset or divert students' concentration. Malcolm brown, director of the learning initiatives at EDUCAUSE, has also said that pets are being invaded while on-line study through video conference (Adedoyin & Soykan, 2020).

RESEARCH METHODS AND MATERIALS

Exploratory research is defined as research undertaken to gain new understandings, discover new ideas, and for cumulative knowledge of the phenomenon (Burns & Groove, 2014). The selected university (University of Limpopo) was suitable for this research because it offered only traditional classroom learning before the COVID-19 pandemic. The study attempts to bring

forward the discussion about the impacts that online learning may cause on the quality of education in institutions of higher learning. For data gathering and analysis, the researchers employed qualitative approaches which is one of the trustworthy techniques of data collection. Face-to-face interviews since it allows all respondents to provide full information as possible. A purposive sample was used in the study.

Purposive method of sampling includes picking specified units or instances on a defined basis instead than randomly. In this context, the study purposefully sampled students and academic professors with a firm believe that relevant information would be collected. Sampling technique indicates that the sample is not covered by every component of the population. The study sampled of 30 participants, 20 being both postgraduates and undergraduate students and 10 professors from the University of Limpopo. This is because the current situation (COVID-19), did not allow many students and university staff to return to the campus.

Data Collection

Data collection is the detailed, systematic collection of study related information using methodologies such as interviews, questionnaires, observations, focus group discussions, narratives and case history (Burns & Groves, 2013). There have been three data sources identified, including face-to-face interviews, known as the primary data collecting source, observations and group discussion, to evaluate the impact of COVID-19 on the quality of education at higher education institutions, especially in University of Limpopo.

Data Analysis

Data analysis is a process in which data gathered are transformed to make use of the analysis and to conclude (Smith & Firth, 2011). Data analysis includes the reduction of acquired data into manageable data proportions and the identification of data patterns and themes. The researcher adopted three methods for data collection, however, a single data analysis method was adopted. In this case thematic analysis was used. It is one of the most common forms of analysis within qualitative research. It strives to identify patterns of themes in the interview. The selection of data analysis method was found suitable due to nature of the study. The study is qualitative and exploratory; hence, thematic analysis was found to be pertinent as a result.

Results and Interpretations

The results from this study, presented perceptions, observations and group discussions from students and academic professors. The total number of students participated in the study in the form of questionnaire guide was 30, which comprises both undergraduates and postgraduates and 10 professors. From the interviews, student's responses indicated that online learning in its nature simplifies their lives and academic lives, as it is conducive and less costly. They however, indicated that there is a huge difference between how they were studying prior COVID-19 and currently with this new normal. Certain student shared a view that "we used to study very hard before COVID-19, but that is no longer the case during the current state". They further indicated that writing online from the comfort of their rooms afford them an opportunity to consult any available assistance including internet search. Generally, students are excited with the online learning is it is perceived to be less difficult and require less effort from them. It is, therefore, safe to conclude that an education system that require less effort from students is compromised, such a system cannot produce quality.

Through observations, it was noted that the overall pass rate of students has improved significantly since the inception of online learning. This was supported by Honourable Minister Nzimande in his speech. He announced how the pass rate has significantly improved and the department is excited and should perhaps consider full capacitated online learning. However, in

his remarks, he did not indicate how the department together with institutions of higher learning will ensure and maintain the quality of education while ushering the online learning. Consequently, students take formal assessments in groups and further discuss the assessments. Some go to an extent of compensating their peers to write for them. This without doubt, has negative impacts on the quality of education. Some fields of studies have called for a continuation of contact assessments as a means of protecting the quality and dignity of their programs in the University of Limpopo.

Suggestions for Enhanced Online Learning

This theme raises some of the ways that can be implemented to enhance online learning. First, institutions may build on present initiatives to offer the students with free devices, data and connection in collaboration with the government and the commercial sector. Secondly, comments and encouragement from scholars' personnel might be systematically captured from their experiences to inform university staff's continuing professional development programs and improvement of their technical and teaching skills. Thirdly, comments on online teaching/learning experiences might be informed by students developing and feeding into professional future learning courses offered to staff development programs (Du Preez & Le Grange, 2020).

The quality of the courses should be constantly enhanced, and instructors should try their best. Online programs should be innovative, engaging, relevant, student-centred and group based. Lecturers need to spend a great deal of effort developing efficient ways to give instructions online. Effective online instructions provide students with feedback, ask students' questions, and extend the learning horizon to include material (Motala & Menon, 2020). Educational institutions must focus on pedagogical difficulties and emphasis on collaborative learning and case studies through online instructions, projects-based learning (Aristovnik, Keržič, Ravšelj, Tomaževič & Umek, 2020).

There are many problems with online education, yet in times of crisis one cannot overlook their advantages. Technical problems may be handled by filming videos, testing content, and maintaining plan B ready to prevent any impediment to the teaching-learning process (Teräs, Suoranta, Teräs & Curcher, 2020). Dynamic, engaging and interactive online courses should be carried out. Professors should establish deadlines and urge students to alert and to pay attention to them. The learning process should be humanised in the greatest feasible and possible way.

DISCUSSIONS

Undoubtedly, COVID-19 pandemic is firstly a matter of public health (Reimers & Schleicher, 2020). The pandemic influences how the people should live and practise their livelihoods and how the government and private sector should conduct their affairs. Schleicher (2020) posit that while the conversations centre around the public health sector, education is no exception. In that, COVID-19 exposed many weaknesses and inadequacies of higher education institutions. Whilst the pandemic exposed myriad challenges in higher institutions of learning, it has also brought some opportunities that higher institutions of learning should adopt.

As a point of departure, the countries across the globe introduced the national lockdowns. The lockdowns demanded that certain businesses and other essential services were allowed to operate. However, at first students were left puzzled and perturbed on how they will access education. As the institutions of higher learning were expected to shift to digital learning, Jena (2020) indicates that many students from the poor background may not be able to afford smartphones, a laptop, or a computer. For that reason, the author argues that digital learning "may create digital divide" amongst the poor and the opulence students. In a context of South Africa, poor students who reside in rural areas which is aloof from higher education institutions

experienced difficulties in connecting to network because at times there are experiencing poor network coverage in certain rural areas. Consequently, the students would be left behind in terms of the academic assessments. Some students do not have smart gadget while others could be struggling with online learning because they do not understand it.

The literature reveals that the use of online learning plays a profound role amid and post COVID-19 pandemic. The literature also highlights that even though there are challenges exposed by COVID-19 in higher education institutions, there use of online teaching and learning is inevitable. Whilst observing that some of the institutions of higher learning were not prepared for this massive shift to digital teaching, strenuous and concerted efforts from the government and the private sector cannot be circumvented. Hence, the government through the office of the National Student Financial Aid Scheme (NSFAS) provided laptops to poor students and the universities offered their helping hand by providing laptops to the “missing-middle” students for the purpose of online teaching and learning. Meanwhile, the pandemic caused some institutions to transform the Information and Communication Technology (ICT). This transformation is necessary for the institutions to keep up with the growing technology. If there is ever a time to transform the ICT in higher education, incontrovertibly that time is now and should be used to have a comprehensive and collaborative teaching and learning for now and in the future.

The quality of the academic assessments remains in question. The much anticipated and over celebrated high pass rate is perhaps a misconception of the quality of education. In that, the literature vividly stresses that students have a freedom of consulting any form of material that could assist them in passing their academic assessments. Therefore, plagiarism of the content cannot be overlooked. The cut, copy and paste compromises and undermines the quality of education. Although Ngwacho (2020), suggests that one of the methods to check the quality of online content in Kenya is that Semi-Autonomous Government Agencies (SAGAs) should continuously and consistently check the quality, pertinence, and relevancy of the curricular, the vacuum remains in the formative (tests) and examination assessments. Even though institutions of higher learning in South Africa use Turnitin software to detect plagiarism (similarity index), it is not applied in the test assessments. That is the main concern in the quality of the test assessment because students sometimes play smart and access any material possible to assist them during the tests examination because they are not being invigilated by anyone. For that reason, the paper stands firm that the quality of the content with specific reference to tests assessments is tempered with, by cut and paste type of writing which therefore undermined the quality assurance of the curricular.

CONCLUSION AND RECOMMENDATIONS

Online teaching and learning are characterised by the mixed bag of successes and failures in it. This means that when one discusses the benefits of online teaching and learning, one should also evaluate the challenges associated along with online teaching and learning. For that reason, the literature discussed both the benefits and challenges of online learning in respect to higher education. This paper provided a conceptual analysis on the impact of COVID-19 on higher education. In that, the paper reveals that COVID-19 is a matter of public health, however, it affected and disturbed the calendar of academic assessments. It has forced the institutions of higher learning to shift from traditional teaching to online learning. The students had to learn aloof from the institutions and use digital platforms to continue their academic assessments. A clearheaded analysis from the literature is that online learning affects the quality of the curricular.

To be more specific, the quality of the assessment especially tests and examinations are questioned because there is a possibility of copy and paste of the content. Students do this in the absence of supervision and have the latitude to consult any form of mattering that could be of their assistance in passing the tests and examination. Therefore, the paper recommends that academic assessments such as tests and examinations should be venue-based assessments

wherein students are allowed to write the assessments in the venues under the supervision. Given the nature of COVID-19 pandemic, all the protocols should be followed and be applied in writing such assessments. This includes the consideration of the number of students allowed in the hall, sanitizing, temperature scanning and social distancing of about 2 metres.

There are no best practices that imitate and follow established models for universities and higher education institutions. In the next several months, educational institutions after the pandemic may need to evaluate the problems they confront and prepare for harsh decisions. University groups must reflect on their vision and task of education to guarantee that learning results and standards of quality are not jeopardized by students. All the stakeholders must include the universities in delicate balance of financial and public health expenses, which is interconnected with educational objectives, the development of knowledge and social services. The higher education institutions need to be ready for a challenging post-pandemic path to shape and guide their student's destiny.

REFERENCES

- Adedoyin, O.B., & Soykan, E. (2020). Covid-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments*, 1-13.
- Aristovnik, A., Keržič, D., Ravšelj, D., Tomaževič, N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: A global perspective. *Sustainability*, 12(20), 1-34.
- Azorín, C. (2020). Beyond COVID-19 supernova. Is another education coming? *Journal of Professional Capital and Community*, 5(3), 381-390.
- Burns, E., & Groove, W. (2014). Research method. *Ergonomics*, 32(3), 237-248.
- Bozkurt, A., & Sharma, R.C. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. *Asian Journal of Distance Education*, 15(1), 1-6.
- Cennimo, D.J. (2021). Coronavirus Disease 2019 (COVID-19). Available at: <https://emedicine.medscape.com/article/2500114-overview> (accessed, 26 June 2021).
- Centers for Disease Control (CDC). (2021). Variants of the virus. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/variants/variant.html> (accessed, 20 June 2021).
- Chick, R.C., Clifton, G.T., Peace, K.M., Propper, B.W., Hale, D.F., Alseidi, A.A., & Vreeland, T.J. (2020). Using technology to maintain the education of residents during the COVID-19 pandemic. *Journal of surgical education*, 77(4), 729-732.
- Cicha, K., Rizun, M., Rutecka, P., & Strzelecki, A. (2021). COVID-19 and higher education: First-year students' expectations toward distance learning. *Sustainability*, 13, 1-19.
- Crawford, J., Henderson, B.K., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., ... & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Learning & Teaching*, 3(1), 1-20.
- Daniel, J. (2020). Education and the COVID-19 pandemic. *Prospects*, 49(1), 91-96.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5-22.
- Du Preez, P., & Le Grange, L. (2020). The COVID-19 pandemic, online teaching/learning, the digital divide and epistemological access. Unpublished paper.
- Hedding, D.W., Greve, M., Breetzke, G.D., Nel, W., & Van Vuuren, B.J. (2020). COVID-19 and the academe in South Africa: Not business as usual. *South African Journal of Science*, 116(7-8), 1-3.
- Jacob, O.N., Abigeal, I., & Lydia, A.E. (2020). Impact of COVID-19 on the higher institutions development in Nigeria. *Electronic Research Journal of Social Sciences and Humanities*, 2(2), 126-135.
- Jena, P.K. (2020). Impact of pandemic COVID-19 on education in India. *International Journal of Current Research*, 12(7), 12582-12586.
- Lassoued, Z., Alhendawi, M., & Bashitialshaaer, R. (2020). An exploratory study of the obstacles for achieving quality in distance learning during the COVID-19 pandemic. *Education Sciences*, 10(9), 1-13.
- Le Grange, L. (2020). Could the Covid-19 pandemic accelerate the uberfication of the university? *South African Journal of Higher Education*, 34(4), 1-10.
- Mhlanga, D., & Moloi, T. (2020). COVID-19 and the digital transformation of education: What are we learning on 4IR in South Africa?. *Education sciences*, 10(7), 1-11
- Motala, S., & Menon, K. (2020). In search of the 'new normal': Reflections on teaching and learning during Covid-19 in a South African university. *Southern African Review of Education with Education with Production*, 26(1), 80-99.
- Murphy, M.P. (2020). COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy. *Contemporary Security Policy*, 41(3), 492-505.

- Ngwacho, A.G. (2020). COVID-19 pandemic impact on Kenyan education sector: Learner challenges and mitigations. *Journal of Research Innovation and Implications in Education*, 4(2), 128-139.
- Onyema, E.M., Eucheria, N.C., Obafemi, F.A., Sen, S., Atonye, F.G., Sharma, A., ... & Alsayed, A.O. (2020). Impact of coronavirus pandemic on education. *Journal of Education and Practice*, 11(13), 108-121.
- Pather, S., & Booi, E. (2020). An assessment of student resource readiness for online learning during COVID 19: A South African case study. In Proceedings of ICERI2020 Conference.
- Rashid, S., & Yadav, S.S. (2020). Impact of Covid-19 pandemic on higher education and research. *Indian Journal of Human Development*, 14(2), 340-343.
- Reimers, F.M., & Schleicher, A. (2020). A framework to guide an education response to the COVID-19 Pandemic of 2020. OECD.
- Schleicher, A. (2020). The impact of covid-19 on education insights from education at a Glance 2020. Retrieved from oecd. Org website: available at: <https://www.oecd.org/education/the-impact-of-covid-19-on-education-insights-education-at-a-glance-2020.pdf>. (accessed, 04 May 2021).
- Selelo, M.E., & Masenya, M.J. (2021). An analysis of government's R500 billion stimulus Package relief for COVID-19 pandemic: Did the small and micro enterprises receive sufficient relief package, or the money was squandered? *European Journal of Economics, Law and Social Science*, 5(2), 550-559.
- Smith, J., & Firth, J. (2011). Qualitative data analysis: The framework approach. *Nurse researcher*, 18(2), 52-62.
- States University. (n.d.). Special challenges of technology. available at: Technology in Education - Higher Education - Learning, Educational, Students, and Technologies - StateUniversity.com <https://education.stateuniversity.com/pages/2496/Technology-in-Education-HIGHER-EDUCATION.html#ixzz6yOe4gpZ6> (accessed, 21 July 2021).
- Teräs, M., Suoranta, J., Teräs, H., & Curcher, M. (2020). Post-Covid-19 education and education technology 'solutionism': A seller's market. *Post digital Science and Education*, 2(3), 863-878.
- Toquero, C.M. (2020). Challenges and opportunities for higher education amid the COVID-19 pandemic: The Philippine context. *Pedagogical Research*, 5(4), 1-5.
- World Health Organization (WHO). 2021. CORONAVIRUS. Available at: https://www.who.int/health-topics/coronavirus#tab=tab_1 (accessed, 29 June 2021).
- Zhu, X., & Liu, J. (2020). Education in and after Covid-19: Immediate responses and long-term visions. *Postdigital Science and Education*, 2(3), 695-699.