E-Journal of Humanities, Arts and Social Sciences (EHASS)
ISSN – Online 2720-7722 | Print 2821-8949
Volume 5 Issue 9 August Special Issue 2024 pp 83-92
Available online at: https://noyam.org/journals/ehass/
DOI: https://doi.org/10.38159/ehass.2024597

Curriculum Digitalization and the Fourth Industrial Revolution: An Assessment of the Prospects and Challenges of South African Education

Phemelo Olifile Marumo [1], Thabang Richard Motswaledi [2] & Ikedinma Hope Amoge[3]

[1] School of Philosophy, North West University, South Africa.
[2] Department of Political Studies and International Relations, School of Government Studies North West University, South Africa.
[3] Obafemi Awolowo University, Ile-Ife, Nigeria.

ABSTRACT

The shift from traditional paper-based teaching to digital methods has sparked discussions about reshaping and enhancing the curriculum. There has been ongoing debate among scholars about the preparedness of South Africa's education system for digital teaching and the implications of the fourth industrial revolution. The COVID-19 pandemic has underscored the significance of a digital society, highlighting the need for transformation within the education system. The fourth industrial revolution has prioritized technological advancement and digitization across various sectors, emphasizing the importance of initiating these changes at the educational level, thus calling for a review of the curriculum. Thus, this study aims to explore the potential prospects and challenges facing South Africa's education system in the context of digitizing the curriculum and coping with the fourth industrial revolution. It used a qualitative research method, analyzing accredited journal articles, reports, and books to gain insights into the subject matter. The findings of the study suggest that challenges such as inadequate funding, unpreparedness of the sector, and lack of technological development in the education sector are hindering the progress of digital curriculum development, particularly in light of the COVID-19 pandemic. The study therefore concludes that the education sector has overlooked the significance of the fourth industrial revolution, which became evident during the pandemic. Henceforth, the study recommends that to effectively implement curriculum digitization, the industry needs to embrace technological advancements in line with the fourth industrial revolution. In addition, technological development in the education sector be prioritized, making curriculum digitization easier to implement for both learners and educators, especially in the face of challenges like the COVID-19 pandemic.

Correspondence
Phemelo Olifile Marumo
Email:
Phemelo.Marumo@nwu.ac.za

Publication History
Received: 29th May, 2024
Accepted: 12th August, 2024
Published online:
29th August, 2024

Keywords: *Curriculum Digitalization, COVID-19, The Fourth Industrial Revolution, Prospects, Challenges of the South African Education System.*

INTRODUCTION

The South African education system has always been pruned to produce graduates who were pivotal towards economic development and contributing to social economic emancipation. However, the emergence of COVID-19 has depicted that there were missing and several issues between the education

system as well as students.[1] Shepherd and Mohohlwane, have argued that the education system has relied too much on the old method of teaching and learning which is paper-based schooling forgetting that the current generation is exposed to technology within the fourth industrial revolution age.[2] There is no doubt that the country is determined to invest in the free higher education system which has led to placing incentives such as financial aid and funding opportunities that have depicted that the government is stamping on the education investment.

However, this has led to the influx of institutions of higher learning, and curriculum digitalization may be the solution to preparing for the future, pandemic or endemic. Similarly, this will also solve the influx crisis of students within the institutions of higher learning while fostering the fourth industrial revolution and development. On another note, some students may end up not having an education opportunity due to these flooded institutions, even if they qualify for university entry thus leading to denying the right to education.[3] Besides all that, even those that end up making it to institutions of higher learning may drop out due to not adaptation or various factors such as lack of accommodation thus digitalizing the curriculum would solve these challenges within the education system of South Africa.

Studying the 4th Industrial Revolution (4IR) in education is crucial for addressing the challenges and opportunities of this transformative era. The rapid technological advancements pose a threat to traditional education systems, but also present opportunities to prepare students for future careers. Integrating topics like coding and digital literacy can better equip students for the jobs of tomorrow and foster a culture of innovation and entrepreneurship. Furthermore, studying the 4IR in education has the potential to reduce inequality and empower marginalized communities by providing equal access to quality education and technology. Overall, it is essential for shaping a more inclusive, innovative, and sustainable future.

Thus, this paper aims to critically understand the prospects and challenges of curriculum digitalization amid COVID-19 and the fourth industrial revolution. Although there is vast existing scholarship on technologizing the education sector in South Africa. Not a lot has been documented on the prospects and the challenges of curriculum digitalization particularly during the fourth industrial revolution and the COVID-19 also a hand.

LITERATURE REVIEW

The education system of South Africa has always operated on the battle of racial division and entitlement imbalances which disadvantaged the majority of the citizens. Before a democratic state, the Bantu Education System was in place to oppress and discriminate against black South Africans.[4] The system ensured that there were different qualities of education for black and white students which was a disadvantage to the blacks as their education system lacked quality and proper curriculum while forcing Afrikaans as a mandatory language for teaching and learning.[5] The National Party (NP), which was the ruling organization at the time, passed this act in 1953 under the apartheid government to succinctly perpetuate the oppression and inequalities between the two races.

The apartheid regime was already oppressive for the black society as they were segregated and banked from several activities and the capping of the education system was also the mother form of oppression by the government. Hence, scholars such as Gallo are of the view that ensuring students were to be taught a foreign language while others enjoyed the benefits of being taught in their mother tongue was a form of oppression by the white government.[6] Scholars such as Mawere and Gallo are of the view

[1] Bekithemba Dube, "Rural Online Learning in the Context of COVID 19 in South Africa: Evoking an Inclusive Education Approach," *REMIE: Multidisciplinary Journal of Educational Research* 10, no. 2 (2020): 135–57.
[2] Debra Shepherd and Nompumelelo Mohohlwane, "The Impact of COVID-19 in Education–More than a Year of Disruption," *National Income Dynamics (NIDS)-Coronavirus Rapid Mobile Survey (CRAM) Wave* 5 (2021): 1–41.
[3] Chrissi Nerantzi, "The Use of Peer Instruction and Flipped Learning to Support Flexible Blended Learning during and after the COVID-19 Pandemic," *International Journal of Management and Applied Research* 7, no. 2 (2020): 184–95.
[4] Joshua Mawere, "Decolonising Legal Education in South Africa: A Review of African Indigenous Law in the Curriculum," *Pretoria Student L. Rev.* 14 (2020): 31; Matthew Anthony Gallo, "Bantu Education, and Its Living Educational and Socioeconomic Legacy in Apartheid and Post-Apartheid South Africa," 2020.
[5] J. Ferrante, *Sociology. A South African Perspective* (Hampshire, UK: Cengage Learning, 2016); Gallo, "Bantu Education, and Its Living Educational and Socioeconomic Legacy in Apartheid and Post-Apartheid South Africa."
[6] Gallo, "Bantu Education, and Its Living Educational and Socioeconomic Legacy in Apartheid and Post-Apartheid South Africa."

that not only the 1953 Buntu Education Act ensures differences in the quality of education delivered.[7] However black learners/students were also forced to be taught in a language that was foreign to them while the whites used their mother tongue language.

Furthermore, this system was aimed to teach black children manual labor and menial jobs that the government deemed to be suitable for the race,.. It was instructing black children that they were to become servants for the whites, and this had an extension to which the nonwhite student was barred from attending university. This was a clear oppression kind of system but all this changed in 1994 when the democratic government into power.[8] Thus, the government has a huge task to ensure the same standardized quality of education for all students in the education sector, and by curriculum digitalization, the government may ensure a suitable environment for teaching and learning.

Thinyane explains that the modern-day talk of education is mainly about the incorporation of technology in education.[9] Particularly with the talk of the fourth industrial revolution at hand and the world moving towards reliance on technology more than anything. Hence, this technology is being incorporated into every strategic sector of the economy and education also forms part of this important approach by the government. This is on the basis that education is the starting point of economic maturity and the youth being exposed to the internet and technology every day is important that the education system of South Africa transforms to curriculum digitalization.[10] In the recent past, the government has been active and technologizing the sector from the traditional paper-infilled sector to a paperless or technology-incorporated sector, yet the efforts to do so are still lacking meaningful results, especially within the formal education sector.

According to Ferrante, education has two forms of classification which are formal education and informal education.[11] Ferrante argues that formal education to the type of education that is normally classroom-based and is provided by trained educators.[12] This is where the utilization of either paper or paperless material is essential in disseminating information among students. Furthermore, in this type of education, there can be long-distance (not a face-to-face interaction) or contact learning (face-to-face interaction). On the contrary, informal education is the type of education that normally occurs outside a classroom and with formal rules to follow. Therefore, the paper focuses mainly on formal education, untangling the significance of transforming it into a paperless classroom within the education sector of South Africa.

The current South African system is divided into 3. These are the primary stage, the secondary stage, and the tertiary stage. All these stages work hand in hand to prepare students from one stage to another and subsequently for the working environment through university or college studies. According to the Constitution of South Africa, all South Africans have a right to basic education and access to further education including adults or children.[13] The state must provide reasonable measures to make this education available and accessible. With an expenditure of about R203 468 billion spent in basic education over the 2015/16 financial year, this can only be expected to escalate further.

The state investing its resources in the education system to ensure proper quality education will be delivered and this is only at the basic ground of education now going to higher learning institutions thus digitalization of the curriculum will contribute highly to this. South Africa has twenty-five institutions of higher learning with thirteen universities, six universities of technology, and six comprehensive institutions that offer a wide range of higher learning which are degrees, diplomas, and doctorates respectively. [14]

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[7] Mawere, "Decolonising Legal Education in South Africa: A Review of African Indigenous Law in the Curriculum"; Gallo, "Bantu Education, and Its Living Educational and Socioeconomic Legacy in Apartheid and Post-Apartheid South Africa."

[8] Mawere, "Decolonising Legal Education in South Africa: A Review of African Indigenous Law in the Curriculum."

[9] Hannah Thinyane, "Are Digital Natives a World-Wide Phenomenon? An Investigation into South African First Year Students' Use and Experience with Technology," *Computers & Education* 55, no. 1 (2010): 406–14.

[10] Thinyane, "Are Digital Natives a World-Wide Phenomenon? An Investigation into South African First Year Students' Use and Experience with Technology."

[11] Ferrante, *Sociology. A South African Perspective*.

[12] Ferrante, *Sociology. A South African Perspective*.

[13] "Constitution of the Republic of South Africa," Pub. L. No. Section 7-39, Bill of Rights (1996), https://www.refworld.org/docid/3ae6b5de4.html.

[14] Eric Feldman, "Virtual Internships during the COVID–19 Pandemic and Beyond," *New Horizons in Adult Education and Human Resource Development* 33, no. 2 (2021): 46–51.

This is the phase where they prepare students for the working environment so that they will be able to contribute to the economic growth of the country while contributing to the great well-off South African society. Therefore, education is very important because it is the gateway for students and the working environment. It provides the students with the tools to be able to function correctly in the working environment through the acquired skills.

The current education system in South Africa has public, private, or higher learning institutions the government is trying to meet the people halfway and ensure that there is growth.[15] Thus, not forgetting the uprising of the students, the Fees Must Fall movement, brought a standstill in the education of higher learning institutions whereby students were demanding free education from the state. Therefore, the digitalization of the system might not only provide an opportunity for a lot of students, but it will also provide reasonable measures for students to study from home thus easing the financial burden.

Formal Education and Informal Education

Formal education is the type of education that is normally classroom-based and is provided by trained educators, such as at university. In addition, formal education can further be understood as a structured form of learning or transferring skills normally by a trained teacher to a student. Nygren, Nissinen, Hämäläinen, and De Wever; Cha, and So; González, and Bonal, contend that the standardization of this is guided by structures such as curriculum built up which set and reflects the standards of the institution.[16] Thus, these institutions can be those at formal places of learning such as schools, colleges, and universities; hence, they must comply with standards of carrying out a standard curriculum.

The modern-day education system reflects the ideology of Plato's philosophy on education. Plato's analogy of education was that education was out to be structured as students' thinking capabilities and interests may differ.[17] In addition, Kotsonis further argues that Plato saw it fit that all students receive sufficient quality education and thus this has now become a right for all regardless of financial status.[18] Although there is a public and private sector of education provision, they both cadre for students depending on the preference, affordability, and preference of their parents.

According to Plato education is an essential pillar of society and it can change people's lives.[19] Similarly, Plato further asserted that all citizens needed to be educated, and this would contribute to social stability. This is based on Plato's belief that the key to eradicating evil and achieving stability since in a situation where people are educated and sound, then the need for establishing laws is unnecessary as people have morals.[20] However, if they were uneducated, then the laws were useless. Therefore, for Plato, education was more than just memorizing facts while sitting in a classroom from youth to maturity. But education is a life-long process and adults also can be trained and educated, thus creating a system in which even adults are trained, this is what makes his educational system to be institutionalized and/or rigid.[21]

On the other hand, Informal education is the type of education that normally occurs outside a classroom, such as at home and with no formal rules to follow. In addition, informal type of education lacks the structure and strict standards of formal education. Hence, in most cases of informal stupe of education, learning can occur outside the classroom, and this can be either in educational background locations such as museums or libraries.[22] However, this does not limit that learning can also occur in non-

[15] Mawere, "Decolonising Legal Education in South Africa: A Review of African Indigenous Law in the Curriculum."
[16] Henrik Nygren et al., "Lifelong Learning: Formal, Non-formal and Informal Learning in the Context of the Use of Problem-solving Skills in Technology-rich Environments," *British Journal of Educational Technology* 50, no. 4 (2019): 1759–70; Hyunjin Cha and Hyo-Jeong So, "Integration of Formal, Non-Formal and Informal Learning through MOOCs," *Radical Solutions and Open Science: An Open Approach to Boost Higher Education*, 2020, 135–58; Sheila González and Xavier Bonal, "COVID-19 School Closures and Cumulative Disadvantage: Assessing the Learning Gap in Formal, Informal and Non-formal Education," *European Journal of Education* 56, no. 4 (2021): 607–22..
[17] Alkis Kotsonis, "What Can We Learn from Plato about Intellectual Character Education?," *Educational Philosophy and Theory* 52, no. 3 (2020): 251–60.
[18] Kotsonis, "What Can We Learn from Plato about Intellectual Character Education?"
[19] Kotsonis, "What Can We Learn from Plato about Intellectual Character Education?"
[20] Emma Williams, "Morals to Maths: Coetzee, Plato and the Fiction of Education," *British Journal of Educational Studies* 67, no. 3 (2019): 371–87.
[21] Williams, "Morals to Maths: Coetzee, Plato and the Fiction of Education."
[22] Cha and So, "Integration of Formal, Non-Formal and Informal Learning through MOOCs"; González and Bonal, "COVID-19 School Closures and Cumulative Disadvantage: Assessing the Learning Gap in Formal, Informal and Non-formal Education."

educational locations like at home or non-educational organizations. Therefore, unlike formal education settings, informal education is completely optional and not compulsory hence often noted to be noncompulsory. Be that as it may, this system may also have a syllabus or a curriculum guiding the teacher or trainer to transfer knowledge.

Non-formal Education

Non-formal education can be understood as a mix of both formal and informal learning modes. However, contrary to the formal and informal education system, non-formal education does not have a syllabus or curriculum and normally instructors are not been to be trained professionals. In addition, even in terms of its structural make is noted to be more informal learning. For instance, non-formal education can be administered in organizations such as conferences, the Boy or Girl Scouts, non-credit adult education courses, and seminars.

The paper's focus is on curriculum-based learning or education, therefore the formal and the informal education sector or type are the focus. Thus, the paper is of the view that digitizing the curriculum will not only be an assistance to those in classrooms but even to those outside the classroom with an adequate measure to carry out learning even if it is informally. In addition, the Covid-19 period has shown that schools across the country had to be closed, and even when they were opened students had to attend in turns. González, and Bonal, documented that this depicted the need to digitalize the curriculum, and thus there was a rapid rise in private tutors who may charge a lot of money to hire for fewer hours due to being in demand.[23]

Therefore, by digitalizing the curriculum, not only will both the formal and informal sectors have access to information at the tip of their hand.[24] This will also relieve the socio-economic pressure on parents to hire expensive tutors, especially in a society such as South Africa with high inequalities. Furthermore, since education is a right, it will also assist those who can attend classrooms to access this precious knowledge.

THEORETICAL FRAMEWORK

Functionalist perspective

The paper sought to edify the existing argument of the functionalist perspective that education is one of the pillars of society. In addition, by curriculum digitalization, not only is this pillar strengthened but the government also contributes to the fourth industrial revolution while technologizing society. Education has many functions, and these functions include the transmission of skills, facilitating personal and screening, and selecting the most qualified students for what is considered the most socially important careers.[25] Functionalists argue that education is one of the most vital organs in society as it ensures the survival and continuation of society through its functions and one of its most important functions is to contribute to the smooth running of society.[26]

Salihu et al., further alluded that for society to survive it needs compositions of institutions such as those of education to ensure growth and survival from one generation to the next.[27] Even though it may be seen as harsh by others as it screens for "best" candidates, those candidates must have a particular trait or qualification that allows and sets them different from everyone in general. Furthermore, for society to grow there have to be innovations, ideas, and research that show that society has reached another milestone.

This can only be acknowledged and welcomed if it was conducted/proven scientifically again we see the importance of education within the social structure and its contribution to the stability of the whole society. In South Africa especially concerning its history education can be seen as an organ that will bring

[23] González and Bonal, "COVID-19 School Closures and Cumulative Disadvantage: Assessing the Learning Gap in Formal, Informal and Non-formal Education."
[24] González and Bonal, "COVID-19 School Closures and Cumulative Disadvantage: Assessing the Learning Gap in Formal, Informal and Non-formal Education."
[25] Ferrante, *Sociology. A South African Perspective*.
[26] Muftahu Jibirin Salihu, M R Nayel, and A R Rabiatul-Adawiah, "Sustainable Higher Education Leadership: A Conceptual Approach from the Functionalist Paradigm for Higher Institutions of Learning," *Humanities & Social Sciences Reviews-(HSSR)* 8, no. 2 (2020): 8–12.
[27] Salihu, Nayel, and Rabiatul-Adawiah, "Sustainable Higher Education Leadership: A Conceptual Approach from the Functionalist Paradigm for Higher Institutions of Learning."

stability and equality especially now that it is accessible to all with the same kind of quality throughout the landscape.[28] It will help to place candidates, especially black/ African in the position that they deserve because of their education regardless of their skin colour, religion, and gender, people who now will receive "special treatment" will be the education both black or white South African.

Thus, digitalization of the curriculum will contribute to capping the racial inequalities of the county while also edifying the improvement of the socio-economic status of many black people.[29] Similarly, the COVID-19 pandemic has also depicted that pandemics such as the latter mentioned contribute to the threat of this social and economic pillar and functionalists would view the fourth industrial revolution as a prospect towards equal quality education.

METHODOLOGY

This study utilized a qualitative review analysis to understand curriculum digitalization, COVID-19, and the fourth industrial revolution together with its prospects and challenges within South African education. The authors used the keywords; "curriculum digitalization" OR "curriculum digitalization and COVID-19" OR "curriculum digitalization and fourth industrial revolution" OR "curriculum digitalization, prospects, and challenges" for this study. The paper employed purposive sampling and snowballing sampling techniques. A purposive sample is also known as judgmental, selective, or subjective sampling.

The researcher relies on his/her judgment when choosing the sample(s) of the material to be employed in the paper.[30] Purposeful sampling will be used due to its strength in the identification and selection of information-rich literature on curriculum digitalization, COVID-19, and the fourth industrial revolution together with its prospects and challenges within South African education.

Furthermore, snowballing will be used due to its strength of citation tracking to identify additional papers that currently exist on curriculum digitalization, COVID-19, and the fourth industrial revolution together with its prospects and challenges within South African education. Literature from Google Scholar and Sabinet search engines classified by title, full text, and abstract, was included in the study using the inclusion and exclusion criterion of the year of publication (between 1953 to 2022) and search terms mentioned above. Grey literature, news articles, and analysis of existing literature were also excluded. Data were analyzed through thematic content analysis and presented in themes.

DISCUSSION OF FINDINGS

Embracing the 4th Industrial Revolution and the transformation of Education in South Africa

The 4th Industrial Revolution (4IR) marks a profound shift in the way life, work, and interact with technology.[31] It is characterized by the fusion of digital, physical, and biological realms, it has the potential to revolutionize various sectors, including education. In South Africa, where socio-economic disparities persist, harnessing the power of 4IR in education can be a catalyst for equitable development and inclusive growth. The 4IR can be understood as it encompasses advancements in artificial intelligence, robotics, the Internet of Things (IoT), biotechnology, and other fields. Kayembe and Nel further alluded that these technologies are not only changing the nature of jobs but also demanding new skills and competencies from the workforce.[32] In this context, education plays a pivotal role in preparing individuals for the challenges and opportunities of the 4IR era. Hence, technology will not only pose a challenge for jobs in the sector, but it also requires educators to be updated on the latest technological advancements in the sector such as smart boards and laptops. This can be challenging for most educators as they may be old and not able to live up to the expectations of the digital world.[33]

[28] Mawere, "Decolonising Legal Education in South Africa: A Review of African Indigenous Law in the Curriculum."
[29] Mawere, "Decolonising Legal Education in South Africa: A Review of African Indigenous Law in the Curriculum"; Gallo, "Bantu Education, and Its Living Educational and Socioeconomic Legacy in Apartheid and Post-Apartheid South Africa."
[30] Lee-Jen Wu Suen, Hui-Man Huang, and Hao-Hsien Lee, "A Comparison of Convenience Sampling and Purposive Sampling," *Hu Li Za Zhi* 61, no. 3 (2014): 105.
[31] Christian Kayembe and Danielle Nel, "Challenges and Opportunities for Education in the Fourth Industrial Revolution," *African Journal of Public Affairs* 11, no. 3 (2019): 79–94.
[32] Kayembe and Nel, "Challenges and Opportunities for Education in the Fourth Industrial Revolution."
[33] Kayembe and Nel, "Challenges and Opportunities for Education in the Fourth Industrial Revolution."

Anshari, Syafrudin, and Fitriyani,) explain that the relevance of the Fourth Industrial Revolution (4IR) in South African education lies in embracing the principles of 4IR to address many challenges.[34] By integrating technology into teaching and learning, educators can enhance student engagement, and personalized learning experiences, and develop critical thinking and problem-solving skills. Exposure to emerging technologies can also inspire innovation and entrepreneurship among students, contributing to economic growth and job creation.[35] Various strategies in the education sector, such as upgrading infrastructure by investing in digital infrastructure and connectivity to ensure all schools have access to technologycan be implemented,. Curriculum reform is another important strategy, involving updating curricula to include 4IR-related topics such as coding, data science, and digital literacy to better prepare students for the future job market.

Nationwide teacher training and providing professional development opportunities for educators to enhance their digital skills and pedagogical practices are crucial. Collaboration with industry partners can expose students to real-world applications of 4IR technologies and provide them with internship and mentorship opportunities.[36] Several successful initiatives in South Africa demonstrate the integration of 4IR in education. For instance, the African Leadership University offers programs focused on entrepreneurship and innovation, while the Ikusasa Student Financial Aid Programme provides funding for students pursuing studies in STEM fields. These initiatives serve as models for leveraging 4IR to drive educational transformation and empower learners. The Fourth Industrial Revolution presents both challenges and opportunities for education in South Africa. By embracing innovation and technology, the country can address longstanding issues in its education system and equip students with the skills they need to thrive in the digital age. Through strategic investments, curriculum reforms, and partnerships with industry, South Africa can position itself as a leader in 4IR education, driving economic growth and fostering inclusive development.

Challenges and Prospects of South African Education

South Africa faces significant challenges in its education system, including unequal access to quality education, outdated curricula, and a lack of infrastructure in many schools. These challenges exacerbate existing inequalities and hinder the country's ability to fully participate in the 4IR. The dynamics of curriculum digitalization are very complex, especially within developing states which is the case for South Africa. The country is still challenged with vast inequalities; hence, it is noted to be the most unequal society in the world. South Africans still suffer from a lack of access to resources such as data and laptops, low socio-economic status, and lack of adequate access to quality education.[37] In addition, the challenges of digitalization of curriculum could also result in other students being left behind as most do not have access to teaching and learning material such as data, laptops, and or smartphones.[38]

Similarly, Dube further alluded that even the students who are residing in the local areas will also not get access to network coverage, thus this could also pose a risk to their education entirely.[39] Therefore, the lack of infrastructural development as far as network towers also contributes to these challenges of South Africa's digitalization curriculum. These challenges presented themselves during COVID-19 pandemic and institutions had to either improvise or pause discharging their duties due to these.[40] Particularly, institutions of higher learning have aspired to push the academic years to finish all curricula as they are important as they prepare students for the working environment.[41]

[34] Muhammad Anshari, Muhammad Syafrudin, and Norma Latif Fitriyani, "Fourth Industrial Revolution between Knowledge Management and Digital Humanities," *Information* 13, no. 6 (2022): 292.
[35] Kayembe and Nel, "Challenges and Opportunities for Education in the Fourth Industrial Revolution."
[36] Anshari, Syafrudin, and Fitriyani, "Fourth Industrial Revolution between Knowledge Management and Digital Humanities."
[37] Sava L Andrew and John Aluko Orodho, "Socio-Economic Factors Influencing Pupil's Access to Education in Informal Settlements: A Case of Kibera, Nairobi County, Kenya," *International Journal of Education and Research* 2, no. 3 (2014): 1–16.
[38] Dube, "Rural Online Learning in the Context of COVID 19 in South Africa: Evoking an Inclusive Education Approach."
[39] Dube, "Rural Online Learning in the Context of COVID 19 in South Africa: Evoking an Inclusive Education Approach."
[40] Crain Soudien, Vijay Reddy, and Jaqueline Harvey, "The Impact of COVID-19 on a Fragile Education System: The Case of South Africa," *Primary and Secondary Education during COVID-19: Disruptions to Educational Opportunity during a Pandemic*, 2022, 303–25.
[41] Petro Du Preez and Lesley Le Grange, "The COVID-19 Pandemic, Online Teaching/Learning, the Digital Divide and Epistemological Access," *Unpublished Paper* 1 (2020): 90–106.

Thus, many had to rely on continuous learning programs that would need access to the Internet, especially within the fourth industrial revolution where access to information should be available to all.[42] The government has been approached in terms of making the internet accessible to all but with a lack of financing to these challenges, these only remain challenges and a barrier towards development and digital curriculum development.

However, be that as it may, the country has also shown a lot of potential to overcome its challenges of curriculum digitalization. During the stage of COVID-19, the country depicted elements of implementing the fourth industrial revolution as a goal for development in the country. Through government partnerships, the higher education sector was able to provide laptops and data to students to ensure that teaching and learning continued even during the lockdown when students were sent back home yet learning continued.[43]

Thus, this depicts the prospects and potential of the country to move towards a highly technologized state in which curriculum digitalization within the formal education sector can be institutionalized. In addition, this can also assist the country in tackling issues of inequality as most will now have access to information and technology at their fingertips.[44] As already stated, Plato's understanding of education was that it will eventually assist leaders to get rid of societal challenges such as poverty and corruption (which he referred to as evil thinking). This will be very important for states such as South Africa where corruption is also at hand with the government.

Therefore, curriculum digitalization will assist the government in employing highly skilled individuals which bring positive change to society. Hence, the application of meritocracy will be at hand as education is ruling the order of employment and advancement of life. It would then seem important that the fourth industrial revolution has come at a crucial time of the COVID-19 pandemic and curriculum digitalization will also the country to work even during such times.

RECOMMENDATIONS

In contemporary society, technology has become such an important tool in all forms of life, especially considering the amount of exposure to technology that the current generation has. It is therefore by the recommendations of this paper technological integration as well as digitalizing the curriculum in the education system be recognized as an important tool that needs urgent integration. This will not only assist in effective learning but will also help students to be able to adapt to the university level of teaching and bring about a certain level of balance in ensuring opportunities are given to every student qualifying for higher education.

Over and above the private sector, regarding education, several schools have already started implementing such measures to assist their students to be able to learn more effectively and efficiently. Therefore, this kind of technology will assist in helping to bring balance between learners from private schools as well as learners from public schools.

CONCLUSION

Education is very vital in the society of South Africa; hence it has to always be accessible to all. Within the discussed subtopics and examples given, it is a clear indication that the South African education system has a lot of challenges, especially concerning curriculum digitalization and availing quality education for all. Hence, the paper has further documented the significance of providing quality education and for society to function fully, it needs the integration of different institutions which includes education as an important organ as noted by Plato. Education gives a clear indication as to which individual deserves an opportunity and these individuals will contribute to the economy which is what Plato sees as the first step towards acquiring a safer better society. In addition, the COVID-19 pandemic has also depicted the importance of technology within the fourth industrial revolution, seeing the challenges and prospects noted in the paper, the articles conclude that South African education has the potential to fully function at curriculum digitalization. The paper has noted important aspects of socio-economic states that are

[42] Soudien, Reddy, and Harvey, "The Impact of COVID-19 on a Fragile Education System: The Case of South Africa."
[43] Nhlanhla Landa, Sindiso Zhou, and Newlin Marongwe, "Education in Emergencies: Lessons from COVID-19 in South Africa," *International Review of Education* 67, no. 1 (2021): 167–83.
[44] Landa, Zhou, and Marongwe, "Education in Emergencies: Lessons from COVID-19 in South Africa."

currently posing a threat to quality educational facilities and curriculum, especially within the COVID-19 era. Therefore, through curriculum digitalization, society can be enabled to deal with social inequalities, lack of access to quality education as a right, and lack of resources and information.

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ABOUT AUTHORS

Prof. Phemelo Olifile Marumo is a Senior Lecturer and Deputy Director in the Faculty of Humanities, School of Philosophy, at Northwest University. He primarily focuses on the philosophical perspectives in teaching and learning. He is an active member of various academic committees and has worked with NWU's Center for Teaching and Learning (CTL) in the scholarship of teaching and learning (SoTL). Prof. Marumo's research area of interest is African Philosophy and its attributes. He has contributed to several book chapters and has published in different accredited local and international journals.

Thabang Motswaledi is a temp lecturer at the Department of Political Studies and International Relations at North WestUniversity. He recently graduated his MA in political studies with cum laude where he investigated the responses of SOE's to the energy crisis in South Africa and Nigeria through a comparative study. Henceforth, he is currently pursuing his doctoral degree in political studies, specializing in human security, energy poverty, and the political economy of energy in South Africa as well as the African continent.

Ikedinma Hope Amoge, teaches political science at Obafemi Awolowo University, Ile-Ife, Nigeria. She is currently an Associate Professor, whose research interests cover international relations, African politics, development and gender studies, and foreign policy.