THE INFLUENCE AND EFFECTS OF DIGITAL REVOLUTION ON AFRICA'S HIGHER EDUCATION SYSTEMS

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ABSTRACT

This article explores the challenges posed by the digital revolution and its influence on the education system. Enthusiasm among digital natives for departing from traditional teaching methods in favour of digital tools to enhance higher education learning is evident. Employing document analysis, this research extracts valuable insights. The selection of published materials pertinent to migration is achieved through purposive and convenience sampling. The Technology Acceptance Model emerged as the suitable framework, highlighting that user perception of technology's user-friendliness and utility predicts their attitude towards adopting digital tools. The study's outcomes predominantly favour the facilitation of the process of learning. The effectiveness of a variety of technological tools including blogs, discussion forums, announcements and videos, which encourage engagement and enhance learning process overall, is highlighted by constructive feedback. Considering these findings, the study proposes that higher education institutions cultivate a professional migration identity by embracing platforms like Moodle. Platforms include zoom, video conferencing, TEAMS, and WhatsApp may be the first to undergo the transfer process. This strategic approach is recommended to effectively address technological hurdles, ultimately enhancing, and sustaining online teaching and learning practices.

Keywords: digitalised curriculum, digital tools, education, online learning, online teaching, technology

INTRODUCTION

A portion of the continuing coronavirus disease 2019 pandemic, which was initially detected in South Africa on 1 March 2020. The higher education e system in South Africa has made significant strides in the 1990s in terms of digital learning and information and communication (ICT) expansion (Basol, Cigdem, and Unver 2018); nevertheless, access to these digital resources has been restricted to specific locations.

The education sector's technology transformation holds some hope for providing African nations with extraordinary opportunities to reinvent themselves and overcome the obstacles posed by the modern digital age.

Most education experts concur that when implementing effectively the digital facilities have enormous promise for enhancing the educational process (Jelfs and Richardson 2013; Miah and Omar 2012). In reaction to the COVID-19 pandemic lockdown, higher education institutions were forced to move to online teaching and learning despite common obstacles like a shortage of Wi-Fi, data and other necessary resources as well as information and communication technology facilities. Even if online teaching is a well-planned activity, emergency remote teaching refers to the temporary switching of instructional delivery to an alternative method of delivery mode as a result of a crisis circumstance. With the hope that after the crisis passes, things will return to normal, this type of training makes use of completely remote setting and remote setting for instruction that would typically be delivered as a mixed course (Hodges and Fowler 2020).

One of the most significant and hotly debated topics in higher education institutions across the world today is the impact of the digital age teaching and learning (Georgsen and Zander 2013). To discuss creative and inclusive teaching and learning strategies. Underserved and marginalised communities should increase to become active participants and contributors in the digital and knowledge economies in order to address inclusive and innovative methods of teaching knowledge and digitals skills to young Africans in African countries. This will assist in addressing the digital divide and the barriers preventing people from accessing high quality.

We will close the learning and teaching gaps that the COVID pandemic has made worse by establishing the framework for better access. Research indicates that there have been more notable changes in government policy to support digital learning in many African countries as more governments advocates for the adoption of digital learning materials in the majority of higher education institutions in those countries (Accilar 2011).

In many instances, it appears that education system in most of African countries are pressuring students and academics to use digital facilities directly with little opportunity to consider the benefits of such facilities on how particular facilities are transforming the process of instructing and learning. Despite the digital revolution brewing in African education system and the countries' frequent policy updates that have stifled the emergence of innovative methods for teaching and learning with new technologies the majority of higher education institutions have taken the stance of scared prevailing practices that are immune to critical examinations.

BACKGROUND OF THE STUDY

Following the historic disruption of the COVID-19 outbreak several African countries have implemented various measures to support digital learning. The COVID-19 pandemic's effects

on schooling have led to a number of fantastic developments (Accilar 2011). Despite modest investments by both the public and private sector, the stark gaps in access to higher education in African countries remain to be quite a concern.

The article's research context is the influence of digital revolution on Africa's higher education systems in the age of digital. In this article the world digital era is situated in several contexts such as the idea that the digital era encompasses social responses to network informatics technologies in addition to the laptop, computer, and smart phones (Cantoni and Tardini 2010).

In higher educational institutions the teaching methods was very crucial. Around the globe the digital age is changing as seen by the higher instruction system and processes. According to literature, there have been significant transformation in the higher education policies supporting digital learning around the globe as more states fight for the adoption of digital instructional resources in the majority of higher education institutions in African countries (Accilar 2011). Since higher education institutions rely on quick information to take initiative, the constant development of ICT has given them tremendous opportunities to improve their teaching and learning (Agostini and Nosella 2020; Eze et al. 2019).

When COVID-19 revolutionized the enthusiasm among digital natives for departing from traditional teaching methods in favour of digital resources to improve higher education learning is obvious. The majority of African higher education institutions are located in lower-class and middle-class nations where neither students nor faculty have availability of high speed internet or the electronic devices required to set up online learning option. Consequently, a move away from face-to-face instruction to urgent online learning exposed the vast digital inequalities between and within higher education institutions in African nations particularly in populations that were impoverished (World Bank 2020). Tools and materials that function using hardware to transit information and are devided ideological product and tools.

Platforms including zoom conference video conferencing, teams and whatsapp were the first to be migrated. Academics argue that when used appropriately digital technologies hold great potential for improving teaching and learning (Jelfs and Richardson 2013; Miah and Omar 2012). The situation has brought attention to the need for a higher education establishment that is competent, tech savvy and prepared to tackle a wide range of issues in the contemporary digital world. Due to this necessity the majority of developing countries have a great desire to supply top notch digitally connected learning resources, infrastructure and human capital to higher education institutions – all of which appear to be required for the development of a workplace that is technologically skilled. Due to COVID-19's rapid digital transformation African countries may find themselves unable to adequately address pressing challenges

including the appropriate integration of digital technologies into educational systems. Finding ways to effectively incorporate digital technology into higher education institutions is therefore a challenge. Doing so will enable students to navigate the rapidly evolving digital development in a conscious and thoughtful manner. How to adequately handle the challenge will depend on plans for resolving the underlying problem of how to successfully integrate the available digital technologies in the higher education institutions. Policy makers and legislators seem to recognise the benefits of digital learning and new requirement for educational resources for students in the twenty first century through platforms like zoom video conferencing, teams and WhatsApp. Research conducted in developing nations indicated that despite the opportunities presented by digital technologies, academics and education researchers have not adequately addressed the challenges of developing knowledge practices that can spark meaning pedagogy through these tools (Accilar 2011; Georgsen and Zander 2013; Miah and Omar 2022). To utilize digital technology in instructing and learning processes the challenges using a fundamentally different approach by kicking off a conversation concerning fresh and efficient pedagogies and didactics techniques to be adjusted in higher education system. This article's discussion is expected to shed light on important ideas for how various teaching strategies in higher education establishments should be developed in order to take advantage of the widespread use of digital technology in the field.

An effective teaching and learning method led to good productivity that is good performance of students in examinations.

PROBLEM STATEMENT

While most African countries have established virtual universities thanks to the constant adoption of e-learning, only a small number of South African universities fully rely on e-learning for their academic operations. Most people find e-learning challenging to utilize and for some it remains a pipe dream due to inadequate ICT infrastructure. Public HEIs have also been the subject of the majority of this field's research. These investigations focused on the difficulties associated with digital learning and problems with the accessibility of e-learning resources (Anene, Imam, and Odumuh 2014; Dubé et al. 2017). Its acceptance and application by students in African universities, however has received relatively little research attention. The reason for this is that while e-learning has not yet been fully adopted and utilized by the students, traditional techniques of instruction and evaluation are still frequently used in these institutions (Singh and Hardaker 2014; Ahmed 2010; Dubé et al. 2017). While a number of private higher education institutions are making significant investments in ICT facilities in an attempt to fully adopt e-learning, many have been unable to do so due to low government

support and the high percentage of illiteracy.

The article explores the challenges posed by the digital revolution and its influence on the education system. Examining these variables will enables most African universities to change and adopt a proactive approach when making decisions that will support students in utilizing and adopting these ICT resources. In the same vein this study is essential since a lot of research conducted in African nations has concentrated on problems and opportunities related to the accessibility of digital learning resources.

METHODOLOGY

Research purpose, objectives and questions

The data for this study was produced using the document analysis. The released documents providing migration information were found using a deliberate convenience sampling technique. The study's concept, the Technology acceptance concept, was acknowledged. It suggests that users' attitudes about embracing digital technologies are predicted by their perceptions of the technology's utility and user friendliness. This essay's goal is to examine the difficulties brought about by the digital revolution and how it has affected the educational system. The primary objectives are:

- conducts a critical analysis of the material currently available on the significant obstacles the digital revolution poses and how they affect higher education;
- identify the influences of the digital revolution on this phenomenon and draw a logical conclusion from it.

The following research questions guided the study:

- What are the challenges posed by the digital revolution?
- How does digital revolution influence pedagogical approaches, institutional structures, and learning outcomes within the African higher education?

THEORETICAL FRAMEWORK

The researcher used natural identity framework which is underpinned by societal, professional, and personal identities. A societal identity is the process of recognising the importance of societal contributions to educating. According to Khoza (2021), the societal identity addresses

operational how questions through knowledge constructions. Achievement of learning outcomes becomes the driver of societal identity through unprescribed technology of education and/or technology in education such as various social media sites. Through activities facilitated by academics so that students achieve learning outcomes, students generate module content, which in turn will be prescribed for future educating by those in favour of a professional identity.

LITERATURE REVIEW

Any kind of learning that includes technology or instructional strategies that effectively leverage technology is referred to as digital learning. It includes the use of a broad range of strategies such as blended and online learning. It includes additional programs that facilitate in person or remote learning using a PC (Markus and Robey 1998). The technology that supports higher education have been the focus of a lot of research into its digital components. Thus, the goal is to investigate how human factors are included while creating educational materials and how academics interpret the potential and effects ICTs on education institutions in Africa, have been well documented, and considerable resources have been allocated to improving ICT platforms, infrastructure, connections, and tools. Significant efforts have also been made to expose African academics and their students to digital content created by other people. Examples of this include massive open online courses, virtual learning environments, online, blended, hybrid and remote learning as well as open educational resources and virtual learning (Markus and Robey 1998)

Challenges of digital transformation

Sholars have examined the impact of digital revolution on higher education systems in Africa more generally with regard to digital and technology enhanced learning. This includes the perception of e-learning environments, learning management systems, availability and accessibility of digital resources and ICT infrastructures to support digital and remote learning especially with regard to COVID-19, held by academics and students. According to Soomro et al. (2020) throughout the COVID-19 pandemic having access to digital platforms and the ICT facilities from home has been a privilege available to those who can afford to pay for the service. The challenges have grown increasingly crucial as higher education institutions throughout the African continent have quickly shifted to remote and online education methods to lessen the effects of traditional methods over the past few months. It is still a very complex issue to understand how African academics are constructing their own educational materials and is a subject that is far less well understood. Development studies revealed that the processes that

are being used among other things, the extent to which the creation is institutional policies and procedures driven and formalized as opposed to being an official and haphazard undertaking. Students found it challenging to learn since the faculty found it tough to use digital learning services (Mawere, Mukonza, and Kugara 2021). Because there were so many risk students and modules, a high failure rate persisted as a result. Academic staff members should prioritize using appropriate and user-friendly digital teaching and learning technologies when presenting modules online learning. Finding effective ways to incorporate digital technologies into educational systems is therefore a challenge. Doing so will enable students to traverse the fast-evolving digital landscape with awareness and reflection. The primary focus has been on creating digital content through the dissemination of digital research data and outputs together with other knowledge related products and services.

The purpose of freely available instructional materials (OER) as a catalyst for innovation as stated by Orr, Remini, and Van Damme (2015), determines the contribution of OER to numerous important educational challenges. The challenges relate to teaching and learning, dissemination of excellent educational materials and removing obstacles to learning possibilities when taken collectively can enhance the standard and availability of resources for teaching and learning. This demonstrates precisely where open distance and e-learning perceive the greatest potential advantages of digital learning. When designing and compiling their courses the majority of African higher education institutions should adopt digital learning which would enable them to collectively raise the benchmark of post-secondary education. Leadership in higher education institutions is required to motivate employees and make contributions to higher education systems. The higher education system in African nations to adjust to the shifts brought about by digital age. New technology brings about a lot of changes as well as fantastic chances to join the emerging wave of educational system upheaval.

Impactful transformation

Georgsen and Zander (2013) claim that the economy, interpersonal connections and higher education institutions have all been impacted by the rising use of digital resources, COVID-19 in terms of research knowledge, academic standards, and knowledge gaps. The effects of digital technology made it necessary for academic staff at higher education institutions to learn new abilities but they haven't done so yet. The effect of digital technology made it necessary for academic staff at higher education institutions to acquire abilities which they now lack (Masenya 2021). Meeting those shifting needs on a regular basis becomes a focal emphasis or strategic objective. According to recent studies, higher education has increased dramatically during the past ten years notably in African countries. Examining a high standard of education

throughout higher education institutions becomes more inventive, entrepreneurial, and accepting of those important impacting transformation by adjusting to those changes (Mok 2008).

The impact of education delivery

Various approaches have been implemented by African higher education establishments to address the difficulties posed by remote instruction and learning amid COVID-19 pandemic. It involves and implementing module development for online distribution as well as utilizing virtual learning platforms to provide reading materials, resource package and supporting documentation. The quality of higher education continues to affect academic delivery, operation and portability. The objective is to actively involve students in reviewing their learning objectives. This procedure ensures that reliable information is developed in accordance with curriculum (Remache and Belarbi 2019). The international accrediting organisations seek coordinated, cooperative actions but with the separate accountability responsibilities. The requirements give higher education institution faculty members the opportunity to take on leadership abilities and exhibit a great degree of dedication in their colleges and departments in order to achieve significant growth. The higher education institutions have turned into autonomous entities in the rapidly evolving educational setting through the use of the CAA standard as a standard platform such as WhatsApp, TEAMS, and Zoom video conferencing. Ultimately the standards formulate the road map for proficient governance and strategically influence the capacity for decision making across all tiers. The collaborative governance of the higher education institutions operations and shapes the sphere of control. According to Kelley, Tong, and Choi (2010), the quality of education must be seen as a significant development that puts pressure on society. Governments push the higher education institutions to offer degrees over the specific period of time while the student works a full-time job in an effort to decrease costs. Once more the badge – the accreditations from such and such higher education institution is significant.

Lynch (2018) states that educating using the online platforms such as WhatsApp, TEAMS, and Zoom video conferencing, is growing and shows signs of slowing down. These platforms are applied in ways that go beyond conventional schooling to change several fields. Offering short courses or providing academic training on a set of newly needed skills enables businesses to guarantee that staff members can advance their skills set using a transformative instrument. In addition, people have access to programmes that allow them to obtain online credentials and improve their lives by learning more. With colleges and universities utilizing the renowned faculty members expert support teams to provide online courses, online education has grown

in importance within tertiary education (Yuma 2016).

Transformation taken place

The internet's abundance of information has made many kinds of educational content. The accessible lecturers notes and role, along with the students daily learning process are no longer the main emphasis of a learning process. It implies a break from traditional teaching methods in which teachers mostly use lectures and handouts to impart knowledge and students ingest it passively through their regular course work. Rather there is a discernible move in the direction of an alternative educational focus. This change may signal a movement towards student-cantered interactive learning methods where the goal is to actively include students in the learning process rather than just impart knowledge. Schwandt and Marquardt (2000) stated that the production of knowledge has been transformed from the products to knowledge and the classroom has given way to a virtual one and the emphasis has shifted from the lecturer to the student. This means that the lecturer develops knowledge that is virtual and student-centred in terms of education. Virtual access is made possible through technology facilities. Students can access information without physically going to the lecture hall where it is delivered by using methods such as web announcement, email, discussion forums and video conferencing.

Lecture hall

Before technology was used to support the lecturer's delivery methods using technology facilities in the lecture hall was not conceivable. The primary means of delivery were verbal communication at first followed by the advert of written media. At a later stage the lecturer could write their lessons in preparation and instantly project them using overhead projectors (Biswajit 2005). They were able to reuse textual materials but without making any improvements thanks to overhead transparencies. A lecturer can easily alter his lesson plans thanks to the invention of projection through the technology facilities. The same content can be printed as well as giving students access to it without having to copy it. These days the technology has advanced to project animations, video, and other media in addition to text. (Biswajit 2005).

Lecturer role

The functions of the lecturer in the contemporary global learning environment shifted transitioning from a knowledge supplier to a learning facilitator as all he has to do is point the motivated students who are making use of the online courses. The lecturer must use the intranet to access the e-learning system because the lecturer hall is furnished with permanent multimedia

projectors and laptops. Instead of dictating how students learn, the lecturer should give them the freedom to work in groups and make certain decisions on their own (Wikramanayake 2003). Lecturers must make sure that students construct their own knowledge and abilities in response to material and learning challenges rather than having them directly delivered to them. Lecturers should think about these learning opportunities that might encourage students who are doing these kinds of activities.

Student's role

Since the learning information can be accessible later the student's concentration is entirely on the learning process rather than on copying notes. Therefore, students who previously learned skills and facts by the lecturers and media resources should switch to acting on the information provided by lecturers' media resources and personal experiences in order to develop their own knowledge (Biswajit 2005). The emphasis should be on learning higher order abilities such as critical thinking and problem solving.

Digitalised curriculum

Performance and competency-based curricula may predominate in a digitalized curriculum (Khoza 2019; Kisaka 2018). The conclusion was expanded to include the fact that the digitalized curriculum incorporates elements of competency-base and performance curricular. A performance curriculum on the one hand tackles the what question of instructions that help the different professions improve (Khoza 2018; Makumane 2018). The mandated content along with time instructions, objectives, resources and assessment are fundamental components of a performance curriculum (Khoza and Biyela 2020; Tyler 2013).

The curriculum has to be updated in order to alter the roles of the lecturer and student. The traditional curriculum would emphasise disciplinary and fragmented knowledge. The capacity to transition between a variety of vocations will be necessary for the next generation, thus, we should concentrate on multi-disciplinary issues. Because one must shift occupation or handle multiple jobs on their own developing basic literacy and especially emphasizing job specific abilities is useless.

Assessments

The methods of assessment should adapt to the modifications made to the educational process. Evaluations ought to focus more on how knowledge is applied than on gauging students' factual knowledge and skill levels (Biswajit 2005).

Additionally, assignments that require comprehension and originality should be assigned to students.

Knowledge gap

According to Yende (2021) the academic staff lacks the necessary tools to react quickly to the evolving digital demands of the profession. Due to sporadic power outages often known load shedding in South Africa and the high cost of data needed for online learning, students found it challenging to attend online education due to socio-economic disparities and economic challenges (Simbarashe 2021). The main challenge of the digital transformation of the education sector that is switching to online learning is the problem of inequality in South Africa. South Africa is the most unequal country in the world as shown (Zikhali 2018) in one of the World Bank Group reports.

Meyer and Gent (2016), and Kayembe and Nel (2019) state that there are disparities and restrictions in South Africa's access to technology particularly internet connectivity. In South Africa there are certain populations that lack electricity and have limited internet access, particularly education institutions located in distant locations. The education sector's digital transition suggests that these populations will remain marginalized.

Virtual learning

Digital learning is used to facilitate distant learning. It allows students to access educational services from anywhere in the world. According to Powell and McGuigan (2021), during the COVID-19 the virtual learning became more and more crucial for the higher education institutions. Beyond the use of technology tools and instrumentalization, it is vital to take a critical position against virtual learning. To ensure collaboration and participation, colleges and departments must therefore investigate how they may combine humanistic elements with the virtual learning. If they do not face to face learning will result. Because the Covid-19 pandemic has forced higher education systems to fully adopt virtual platforms that grant access to higher education institutions for everyone it has completely changed the setting of online teaching and learning. To guarantee that instruction could go on even in the face of adversity, institutions of higher learning had to step in and employ a variety of tactics. The majority of African institutions lacked the digital tools necessary to enable instantaneous transfer to virtual delivery, therefore they were not prepared for the full shift from traditional to online teaching and learning (Kele and Mzilen 2021; Menon and Motala 2021). For public colleges that had no experience teaching online and had no use in person and web enhanced teaching methods this was particularly challenging. Higher education institutions suffered as a result when they adopted the new standard which involves teaching and learning online and holding meetings and working together virtually using zoom, Microsoft teams, skype, google classroom and

WhatsApp (Essop 2021).

Research demonstrates the corrective measures that have been put in place to address the problems with digital technology access and internet connectivity for example, universities give students laptops and data so they may use the internet (Essop 2021). The shift to virtual platforms during the COVID-19 lockout, along with unequal access to ICT resources and essential skills has exacerbated already existing disparities among the various student backgrounds in African countries. The institutions in African nations demonstrated the varying degrees of preparedness for shift to online learning, which is a sign of the disparity.

Improvement of educational quality education

Because of the COVID-19 pandemic the higher education system is now much more complex, necessitating a rethinking of what it means to be able to access services. Since virtual platforms have become the new norm, the traditional method of learning through in person interactions in lecture rooms has changed. The improvement of educational quality has become a long-term objective for many institutions around the world. However, because educational quality is an innate but contextual metric it demands attention and empirical debate. Various stakeholders including academics, researchers, regulators, and countries are paying more and more attention to the strategic importance of quality in education. Since the quality is a multi-dimensional term, managing it presents a challenge. Higher education institutions prioritize quality education as one of their key characteristics as evidenced. In order to accommodate students demands flexible approaches have been adopted and assessment procedures have been reorganized. Teachers have been urged to record their classes and daily activities using automated video recording systems so that students can view lecturers at anytime, anywhere.

Moodle

All academics and students were forced by the COVID-19 revolution to uphold their module content to Moodle with little or no interaction. Nevertheless, some academics have not been utilizing Moodle for teaching and learning even after this initiative (Khoza and Mpungose 2022). To connect constructivist theory with pedagogical advice, a learning management system (LMS) is required. By synchronous and asynchronous technology, Moodle can offer students a rare chance to participate in social negotiation and mediation. Social negotiation and mediation are made possible by these online exchanges, spanning time and space (Doolittle 1999). In the same vein, to modify later education, students can receive formative input from the teachers and their classmates. Students can be encouraged to be more interested and persistent in the classroom through social negotiation and feedback and enables teachers to act

as facilitators and promotes the utilization of a variety of resources and viewpoints (Doolittle 1999).

Video conferencing

In higher education, video conferences are being used more and more for other students at different levels as well as for basic teacher education (Wiesemes and Wang 2010). Most students think that participating in video conference has benefits like enhanced interactions, novelty, drive and communication skills. But not all students find new technology comfortable to use. This could be because they have different learning styles or they are unfamiliar with the new tools. Potential draw backs of videoconference technology include the inability to maintain students' interest and the absence of instruction and support for instructors and/or students (Martin 2005).

Figure 1: In video conference meetings, anyone can share their screen wirelessly from a laptop to the entire group by accessing a simple URL. Participants who are collocated or remotely view the content of their PC screen projected onto a video display. By entering the meeting name in any phone room or conference room, or by using a URL on their laptop, off-site users or participants who are not in the designated conference rooms can join the meeting with ease. Google Calendar may be used to schedule and join meetings under VC, and invitees can participate from their own device by simply clicking a link in the invitation.

Figure 1: Video Conferencing

Document collaboration

Team members can work together with many other participants with documents or information in real time through document collaboration (Adebesin & Uzochuku, 2023). Document collaboration tools have revolutionized how students and educators interact and work together. Platforms such as Google Workspace and Microsoft Office 365 enable real-time collaboration

on documents, presentations, and spreadsheets, allowing for seamless teamwork regardless of geographical location (Mlambo and Chigona 2024). Digitalized documents can be copied as many times as needed and sent to a distant location in the same format. Digital information makes information easier to access, store, manage and retrieve while saving a ton of time, money, and space. Documents in this category can still be accessed even after being kept in isolation for many years. The likelihood of them becoming unavailable, lost, or misplaced is quite low.

CONCLUSION

This article critically analysed the approach for digital challenges posed by the digital revolution and its influence on the education system. The main strength of this article, however, lies in its pragmatic attitude towards approaching digitalization through an integrated strategy integrating significant transformation, evolutionary learning, digital entrepreneurship, digital capabilities and reuse and digital advantage.

Both students' centricity and discipline must be influenced by digital transformation methods. The higher education institution must be concerned with the ultimate goal of digitalisation and how it will provide superior values for the students when institutions construct the appropriate combinations of essential digital transformation components. Cross-functional components are source of digital transformation strategies in higher education institutions. However, it is thought that the alignment is difficult. Despite these challenges and influences, interrogation of transformation experience was important. Interrogation helped lecturers to become aware of the values motivating their embracing of the online learning without being supported by educational technologists.

When humans put in their best effort but still experience failure, they tend to blame nature for promoting or directing events in the cosmos. People feel that successful acts are motivated by a particular social profession or their own internal intelligence if they manage to produce what they perceive or outcomes. People are forced to accept natural forces because they don't result in pleasant consequences. Clearly and recently nature is the source of these natural forces that have been improving human acts during COVID-19 resolution. They have established a new natural identity that is the result of the fourth Industrial transformational revolution.

It is essential to find practical ways and digital solutions to improve the quality of online teaching and learning at the university workplace. With the information and benchmarking of better teaching and learning best practices the academic staff and students must be equipped with skills to become technologically understanding and empowered to use platforms and tools such as WhatsApp, TEAMS, and Zoom video conferencing for online teaching and learning

environment using the four interventions.

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