Scientia Publica Media

Research Article

Academics' Experiences during Horrible Times: Online Teaching, Learning, and COVID-19

Mohammed Xolile Ntshangase ⓘ**, Zime Pride Zulu** ⓘ

Department of Education Studies, University of Limpopo, South Africa

Abstract
E-Learning has become the new normal in Higher Educational Institutions across South Africa. Hence, intergration of the new learning pedagogies has initiated a shift of the norms on professional development. This paper seeks to unpack the strategies used by lecturers in the face of adversities experienced during the E-learning space pre & post COVID-19. There are strategies advised by teacher autonomy which need to be explored. It might have been better if teacher autonomy was merely being against pressures exerted on the individual teachers. But, it is a means for teachers to advance their personal and professional capability to adapt to the rapidly changing conditions and situations in learning spaces. This paper seeks to unravel an unacquainted new path on the drive of lecturers in their professional development that has not been evident in their training. In socio-politically transforming societies such as South Africa, the absence of adequate structures to implement a range of changing policies, may leave lecturers in despair when trying to access development opportunities. This paper adopts analytic theory and semi-structured interviews to give light to the constructivist views of lecturers who have developed methods during the times of adversity. Purposive sampling of 6 lecturers and 10 students will help the generation of data for this study because even though lectures had to adjust to new methods but students were in the receiving end of all the pressure. This study argues for implementation of best practices for the successful professional development of academics in line with E-learning. The University of Limpopo will be the centre of data generation with ethical considerations requested as well as literature visited. Collected data will be thematically analysed in order to sieve and arrange the necessary information for this study. The newly shared practices will form part of the resolutions to the professional development of academic staff.

Keywords: E-Learning, E-Learning Platforms, Positive Psychology, Self-Determination, Teacher Autonomy

1. INTRODUCTION

Amid the global COVID-19 pandemic, Basic and Higher Educational institutions were called upon to implement Online teaching and E-learning practices. E-learning is a new education model that may incorporate ecosystems of networked communities and varieties of learning resources (Garrison, 2011). E-learning emerged from two broad terms which are; (a) information technology and (b) education and training. This means that to transform a normal classroom lesson into e-learning requires some expertise and organization which are a neccessity (Safavi, 2008). E-learning, mostly ascribed as online learning was presented as a shift from synchronous to asynchronous learning environments (Coogle & Floyd, 2015). This shift carried a tumultuous pressure on the teaching practitioners nationwide. According to Oliver (2001) teaching online is a vastly different process to conventional teaching, involving changes to both pedagogy and teaching practice. It has been reiterated for online teaching to become effective, it is necessary for institutions to ensure that their teachers have appropriate skills and expertise in not only the delivery of online courses and programs but also their design and development. Teachers' ability on the

implementation and adoption of e-learning according to research has identified internal factors which play a significant role in the use of e-learning some of most including; attitudes & perceptions in line with technology literacy , self-efficacy and motivation (Chau, Law , & Tang, 2021). These factors pose as intial points of scrutiny on the teachers capacity and proffesional development in line with the newly found advsersities that have been ushered by the E-learning space/4IR.

Since successful implementation of e-learning in education relies much on lecturers' attitudes towards it; understanding lecturers characteristics is especially crucial when implementing e-learning systems. According to Schiler (2003), personal characteristics of academics staff such as educational level, age, gender, educational experience, experience with the computer for educational purpose and attitude towards ICT can influence the adoption of a technology. Marimo, Mashingaidze & Nyoni, E (2013) mention that the experience of academics with the implementation, use and adoption of e-learning platforms may be influenced by their behavioural intentions, attitudes and perceptions. It has to be noted that irrespective of the aspects of the academics' attitudes towards or perceptions of e-learning, they have to have the requisite skills in terms of training and have technical support as these are critical to their competency in content development, management and e-facilitation. It can be pointed out that systemic challenges and limited skills required for the integration and implementation of e-learning and a lack of technical support, prevented the effective usage of e-learning in various Higher Education Institutions (Maphalala &Adigun, 2021).

Bandura (1986) defined self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances". Stemming from the construct, numerous studies collectively note that a teachers' sense of efficacy is a teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (Tschannen-Moran & Hoy,2001). The teacher's sense of self-efficacy as an agent of drive is drawn from the Self-determination theory that postulates satisfaction of basic needs nourishes intrinsic motivation; people need to feel competent and autonomous to maintain their intrinsic motivation. In this theory, according to Deci & Ryan (1991), autonomous behaviors emanate from one's integrated sense of self. It should be considerd that some autonomy is necessary for teachers to be able to deal immediately and adequately with unexpected situations. The swift change into full online teaching and learning forced academics to be prompt in responding to the teaching and learning needs. An abundance of studies have shown the challenges faced by lecturers, such as Islam, Beer & Slack (2015) mention learning style and cultural challenges, which noted in order achieve the best learning outcome it is desirable to have an understanding of students' learning styles. Online students' learning styles can be unclear, and this has implications on how academics develop learning materials. Banning (2005) provides the various teaching styles as notable approaches which are didactic, facilitative and socratic as well as the experimental methods. A current challenge for academics in an e-learning environment is to understand the different learning styles of different students for better learning outcomes.

Cultural challenges noted individual and cultural learning differences in the e-learning environment, there is a greater urgency for content providers to design courses and materials that take into consideration these differences and engages culturally diverse audiences (Islam et al,2015). Pedagogical E-learning Challenges; as e-learning is currently widespread, academics who are not equipped technically to handle developments of materials and delivering online modules are hampering progress, and they require extensive skills development (Ellis, O' Reilly and Debreceny, 1998). Technological Challenges; technical support to academics is lacking in comparison to the desire of learning success and the profound use of e-learning technology. The great desire is met with insufficient investment in infrastructure and technological assistance (Reeder et al, 2004). Coining a concept Brod (1984) the term technostress which is stress associated with using technology and its impact on a practitioner's psychological and physical aspects; caused by an inability to cope with varied and emerging technological developments in a workplace. It was further refined as any negative influence on practitioners' attitudes, thoughts, behaviours or psychology caused directly or indirectly by the use of technological resources (Weil and Rosen ,1997). The noted challenges can be an indication that begs to question the how, lecturers have managed to effectively engage students in the E-Learning space, how their Teacher Autonomy has driven them into formulating practices that have not been part of their training as facilitators. This paper will be unlocking the constructed practices that have formed part of keeping the boat afloat, that has not be highlighted for recognition with attempts to showcase the professional development of lecturers in the age of technological transition.

1.1. Literature Review

Scholars like Weil and Rosen (1997), Ellis et al (1998) and Reeder et al (2004) have written significant works in this topic of Online teaching and learning as means to embrace the 4IR. In their findings it appears that they focussed on institutions that were already pondering the idea of embracing 4IR before the emergency push like Covid-19 lockdown. Those institutions like those that Islam et al (2015) focussed on are institutions that were already preparing to embrace Online teaching and learning but facing challenges with the infrastructure that can support 4IR epoch. The common feature in all those studies conducted by all the above mentioned scholars is that they sampled the previously advantaged institutions with colleagues that are ready to embrace change and the institutions being ready to source the necessary infrustructure. This study approaches the issue from the perspective of previously disadvantaged institutions with the management that seems not ready to accept change/ transformation. The universities that are a case in point here are poor universities in which the infrustructure has not been updated to meet the requirements for Online/ Blended teaching and learning. It is for that reason then that this study contributes to scholarly conversations in a way of exposing the unexplored perspective of the previously disadvantaged institutions at a time of being faced with Covid-19 pandemic with lockdown.

1.2. Theoretical Framework

This study is committed to the analytical school of thought. Analytical philosophy emphasizes clarity and argument, that is often achieved through logical and linguistic analysis (McGinn, 2002). Gottlob Frege (1906) is considered as the father of analytical philosophy, a tradition that emphasizes on clarity of argument through the logical use of language in presenting thoughts. Within this framework Bertrand Russell found a space to argue for logicism and logical atomism (Soames, 2003). According to Soames (2003) Logicism and logical atomism refers to the practice of breaking the argument into basic propositions in order to understand its coherence as a whole. Similarly, Barry Hallen and John O Sodipo (1997) argue for the analytical breakdown of issues to the simpler and logical thoughts through the use of logic in a simple ordinary language. Soames (2003) seems to hold a view that philosophical problems arise from misunderstanding of language and all necessary truths are a priori, analytic and true in virtue if meaning of words depend upon how the world in fact is. Analytic theory helps in producing philosophy that is not ideologically motivated, but thought that is analytic and reflective (Hallen, 2005). Under Wittgenstein's (1937) inspiration, Rudolf Carnap (1961) sought to embed his analysis in logical positivism as a development to this tradition. Logical positivism holds that there are no specific philosophical truths and that the object of philosophy is logical clarification of thoughts (Soames, 2003). Carnap (1937) and other scholars contributed to this tradition by rejecting the doctrines of their predecessors of constructing artificial language to resolve philosophical problems. They argued that the Vienna Circle was erroneous because the "quest for systemic theories of language worked as a misguiding intrusion of scientific methods into philosophy" (Glock, 2008: 44).

The analytic framework in this research work helps in acquiring a deeper or adequate understanding of the research problem prior to forwarding our own views. Since it is the framework which guides us in our methodology, it also helps to critically apply analysis that cannot be accusable of any biasness. This theoretical framework enables a researcher to be reflective and at the same time be within guards of rationality while being critical of his or her thoughts. With the guide of logical positivism, we have been able to deal with dogmas and ideological speculations around the issues that raised some discomforts and questioning the lecturers' autonomy during the Covid-19 pandemic. As Soames (2003) argue that logical positivism holds that there are no absolute philosophical truths, but the object of philosophy is to clarify thoughts, this has helped us to simplify our thoughts. In this paper, we have used the ordinary language in producing our critical thoughts while at the same time analyzing the common thoughts that are currently existing in the world. Our use of the ordinary language is due to the fact that in this work we are dealing with real issues/ experiences that involve real human beings in the world other than some metaphysical fantasies. Analytic framework is adequately relevant when dealing with the tentative issues like this one academic a radical operational shift from the olden wayas in which academics have been doing their business to embracing 4IR. As a matter of fact, many people talk about these issues at the emotional realm of feeling like their professional autonomy gets undermined at times and not rationalize about the developmental and skillful ways in which E-learning has brought new ways of facilitating teaching. Therefore, in this paper we

adopt this theoretical framework in attempt to do different as Mahlo (2020) argues that is not of a potent scholar to emotionally weep in corridors without addressing the problems that humanity faces.

According to Vallee (2014) the use of ordinary language in research helps to counter the claim of some people who argue that sholars commonly place themselves as priviledged beings that operate at a superficila level above the ordinary man. This is an argument corroborated by Heath (2016) who argues that there is no need for creating philosophical problems and address them with fancy language that does not speak to real problems that people face in life. In this case, lecturers face a situation whereby there is no allocated time for the technological training in the university due to the fact that they are given deadlines and lot of work. At the end of the day they are expected to be knowing what to do according to the line managers who sometimes argue about 'teachers' autonomy' which is just kept in policies and never explained with understanding. According to Vangrieken et al (2017) teachers' autonomy speaks to the fact that teachers must be recognised as practitioners who are actively engaged with teaching such that they have space to be innovative in their modus operandi. The reality of the matter in the university of Limpopo is that during Covid-19 lecturers had to use online platforms to facilitate their teaching and assessment, but their autonomy was limited as they only had to use blackboard. After the hard lockdown period they were commanded to return to the model of assessing in campus so that tests can be invigilated physically by lecturers, and that was not well explained that it means lecturers must still employ blackboard monitoring tools. Accodring to this paper, that was a clear case of misinformation and it led to some mistakes happening and lecturers being blamed for those mishaps while in the first place it was management's fault to not recognise that Covid-19 with its lockdowns became a catalyst to embrace the 4IR. 4IR here means that there is no more a need for lecturers to return to contact lectures and assessments in campus, but rather be innovative and embrace a full use of technology to facilitate teaching and learning. It is on those grounds that analytic theory becomes more relevant as the lens to assess this situation.

2. RESEARCH METHODOLOGY

According to Snyder (2019) research methodology in academic writing outlines how the whole study is conducted and highlights important parts like issues that the researcher must have handled within the study. Those issues include (a) ethical clearance, (b) conflict of interests, (c) transferability of the study, (d) sampling, (e) data analysis, and (f) study limitations (Snyder, 2019). Since this study is an empirical/ primary research and qualitative in nature, the researchers emphatically required ethical clearance from the University of Limpopo. According to Patel and Patel (2019) ethical clearance is needed when one conducts a research that involves human participants. Newman and Gough (2020) corroborates this view and even adds that in instances whereby one collects data from animals or plants ethical clearance from authoritative bodies becomes a necessary requirement. In the case of primary research which involves human interviews, researchers need to consider human rights as outlined in the Universal Declaration of Human Rights (UDHR, 2000) and related statutes (Brown, 2016). According to Hoft (2021) researchers have to observe the principle of anonymity and confidentiality, whereby participants are protected from any harm that may occure as a result of having voiced out some views. In such a case, the use of pseudonyms or codes like participant 1, participant 2, and so on gets adopted in order to avoid a situation whereby a participant gets disadvantaged as a result of his/ her participation in the study. In addition, Kang and Hwang (2023) argues that it is also considered unethical if one would not seek the consent of the participants or assent from the parents if the participants happen to be under 18 years of age. Since it is now evident that when conducting primary research there is no way a researcher may escape the requirement of ethical clearance, the University of Limpopo does issue an ethical clearance upon application by the researcher/s.

It is for that reason that in this particular study ethical clearance was necessarily obtained from the University of Limpopo because the researchers engage with the University of Limpopo lecturers in a form of semi structured interviews. Hennesy et al (2022) adds to this discussion of ethical issues by arguing that even when using the literature one must adequately acknowledge it in a form of citing it both in-text and in bibliography. Therefore, this study adopts those ethical principles as ethical clearance was obtained form University of Limpopo and all literature used here is properly and sufficiently acknowledged. Hoft (2021) corroborates Hennessy's (2022) view as he argues that plagiarism is a literature theft which is an academic offense. There is a sense in which Hennesy's (2022) views present a situation whereby using literature without properly citing is as an unethical act, and that is why any group of researchers cannot succeed without keeping the research ethics and avoid plagiarism at all cost. It is therefore due to all those views

that the literature used here is adequately referenced/ cited. With regards to conflict of interests, the researchers here can confirm that there is no conflict of interests with anyone or any institution. By the way, according to Gorman (2018) conflict of interests arises when the views of a researcher turn to be contrary, unacceptable, or derogatory towards the character of some organisation or an individual. Conflict of interests may sometimes arise between the researcher/s and the funder/s of the research when the researchers' views contradict the principles of the funding organisation/s (Martinez et al, 2018). However, in this paper the research ethics are adhered to, as data is collected from lecturers who signed their consent before the commencement of interviews. Since the University of Limpopo is the field where data is collected and the ethical clearance was acquired there is no organisation that contests the writing and publication of this study. This research work stems from lectuerers' live experiences and researchers dealt with the issues that might have been thinkably capable of arousing institutional or personal conflict of interests.

Transferability of the study has been defined by Munthe-Kaas et al (2020) as the measure of showing the authenticity or reliability of the study as well as its findings. However, Jiang et al (2022) argues that transferability is not always required in cases of conceptual and qualitative research because the similarity or the situations in this changing world cannot be confirmed to be exactly the same. This is why Zhu et al (2022) argues that at least the use of the term 'reliability' may be more relevant. In this study, the issue of reliability is handled through the fact that the researchers used the real experiences of real people as well as published literature which can always be checked against what this study presents. To be more specific, this work is not meant to be transferred to different places as it is clearly a comment on the battle of policy and implementation that needs to be addressed with reference to lecturers' autonomy and creativiny. Sampling is defined by Bhardwaj (2019) as the manner in which participants are selected to fulfil the requirements of the study. This view is corroborated by Oribhabor and Anyanwu (2019) who argues that for the control and managing of the study, researchers needs to have a criterion to choose their study participants. In a study like this one researchers must explain how they selected participants as well as the literature used. At this point, the researchers present that this critical analysis is based on the 6 lecturers and 10 students purposively sampled from the University of Limpopo. The common thing between the six lecturers and 10 students is that they all suffer due to this non recognition of lecturers' autonomy by the management.

Data analysis is defined by Heeringa (2017) as the way in which the collected data is interpreted in order to make sense within the context of the study. This comes as Molder et al (2021) argues that data collection is more like collecting different pieces of information that need to be put together and then enable someone to have the whole sense of what is discussed. This study primarily adopts thematic analysis whereby the participants will voice out their responses and be referred to as participant 1, participant 2 etc and then themes will be drawn from their responses as Peel (2020) explians how thematic analysis works. In addition to Thematic analysis, with the use of analytic theory this study adopts triple interpretation approach which relies on a triple layered interpretation of participants and scholarly views. According to Aye and McCaffery (2022) a triple layered interpretation approach is made up of three levels of interpretation that include; (a) textual interpretation, (b) contextual interpretation, and (c) substantive interpretation. Textual interpretation according to Willig (2017) advocates the view that there is no need to look far than the text that the author presents. In this case, the text/ writing of the author/ participant is understood as prima facie entailing the complete sense of what the author/participant aims to tell the resercher. In fact, Pochhacker (2022) argues that looking further than the literal meaning of the text may even mislead the reader while trying to find a hidden meaning instead of the apparent one. However, in this paper the researcher views textual interpretation as quite simplistic and risking the disconnect between the author/ participant and the researcher while the two should have the same understanding of the context at which the response/ text arose. Contextual interpretation refers to an instance whereby analysis takes into account the context at which the text/ response was written/ spoken (Tylor, 2023). In this case one would refer to Pachella (2021) who argues that it is important to understand the author of a particular piece of work within his/ her context than viewing the text as disconnected with both the author and the surrounding circumstances. This paper takes Pachella and Tylor's argument forward to say that there is no evidence of any instance where the text/ response is not related with the personality of the author/ participant and the environment where the author/ participant is at the time of writing/ talking. Albeit tersely, this means the researcher must understand the author/participant as an ordinary human being that is affected by his character and the environment to write/ talk as he/ she wrote/ spoke. Substantive interpretation as defines by Khoshimova (2021) interrogates the substance of the text as either relevant or irrelevant in the contemporary time. In this paper, the terms 'talk' and 'write' appear as pairs in many places

because they emphasise reference to both human participants and literature which includes document analysis.

Limitations according to Baig et al (2020) refer to epistemological, ontological, structural, and sometimes financial factors that somewhat hinder the smooth continuance of the study. In this case there are no necessary limitations with the factors that Sallam (2023) mentions because lecturers and students who form a pool of data collection are always available in the University of Limpopo. Epistemologically, this study discusses a real phenomenon known very well by both the participants and researchers, and literature on the subject matter is available. Ontologically, the University of Limpopo is a real university that exists within South Africa and experiences discussed here are real eperiences of real people that can be accessed in real life. In actual fact, that is why contextual interpretation becomes of benefit into this study. In total, this study is formulated as a qualitative primary research to serve as a form of a critical review of the thoughts, policy, and lecturers' aunomy [non]recognition in University of Limpopo and that as well serves as another limitation in a sense that the discussion is limited to the perspective of previously disadvantaged universities.

3. FINDINGS AND DISCUSSION

Lecturers from participant 1 to participant 6 have experienced a situation whereby their managers want to micromanage them, and that in some way limits their successful improvement in online teaching as well as facilitation of e-learning. Most responses were similar in all participants and that is the reason why few responses will be sampled here in order to avoid repetition. All these findings pay reference to the question of universitys preparedness to embrace a radical change to 4IR with regards to Online and Blended teaching as well as such learning.

Participant 1 (lecturer) : E-learning demands that all lectuerers and students must have laptops and have data to access internet wherever they are. But in our case sometimes there is no access to internet or students cannot access lectures or cannot record lectures due to loadshedding.

Participant 2 (student): The e-learning has made some lectuerers learn new methods like using Blackboard for tests and exams. But the management surprisingly still demands that we come and write in campus labs instead of writing wherever we are.

Participant 3 (lectuerer): E-learning has encouraged the use of online classrooms and that makes it easy for those who are teaching bigger classes. But, e-learning has encouraged the use of different facets of the internet systems and that created some skills on lecturers who were otherwise poor in using online teaching methods. The issue is that there is a limitation in terms of autonomy of how to handle the class because the management keeps interfering with how teaching must happen.

Participant 4 (lecturer): It seems that the managers want e-learning to only mean using a laptop in campus and not further than that. I was highly surprised when I got a call telling me that my students are writing a test uninvigilated in one of the computer labs and I should cancel that test. I had to cancel the test regardless of the fact that it was set under respondus lockdown whereby the settings are such that the test is online invigilated and cannot allow the student to cheat.

Participant 5 (student): E-learning enabled us to write small activities that test our undersatdning after every section of our sylabus and that makes us understand better because we are so many in class, our lecturer could not do this in the traditional face-to-face method of classrooms.

Participant 6 (lecturer): Although there are many talks about e-learning, the management that is made of old people still believes in old methods that are highly grounded to the traditional model of teaching and learning. During lockdown where everyone had to avoid contact and gathering it was a time where lecturers' autonomy should have been exercised in a manner that lectuerers be allowed to use their technological skills.

Participant 7 (lecturer): Facilitating e-learning just became a thing that everyone talks about and we have to do without any induction or training, and that is why we all had to figure out how to do it. But, when we started doing we had many instructions that seek to limit our autonomy on venturing into new methods of teaching.

3.1. Themes

All the findings can be summarised by saying that almost all participants had similar experiences and their answers had many similarities. However, the following are the themes that came out in the findings of this study;

- E-learning and online teaching got compulsory during Covid-19 lockdown without any generic understanding of it across the university staff and students. Therefore, it did not become more developmental in lectuerers' skills as autonomy was limited in terms of how far lectuerers could explore the facilitation of e-learning/ online teaching.
- Embracing new strategies in teaching and learning may prove difficult if there is no autonomy in fully implementing them, and facilitation of e-learning in prevously disadvantaged universities is one example.
- Although the shift to online teaching and e-learning during Covid-19 lockdowns was a grand chance to embrace 4th industrial revolution (4IR), lack of training of staff in the university and managements refusal to embrace change became more problematic in some institutions of higher learning.

3.2. Analysis

The Covid-19 lockdown was a good chance to embrace 4IR use of technology through online teaching and facilitation of e-learning. According to Walker et al (2020) embracing change or transformation is mostly difficult for people who are not ready to transform and develop. Management in some previously disadvantaged institutions got caught up in a quandary of a demand to change, and that made them barriers to academic autonomy of lecturers. Lecturers' autonomy to drive online teaching and e-learning while demonstrating best teaching practices was hindered by constant interference of the managerial staff. Heyne et al (2024) argue that online teaching and facilitation of e-learning somehow threatens to minimise micromanagement and that is why there are difficulties in fully embracing it. However, the non-embrace of innovative methods was due to the fear that there might be lack of quality in the process of teaching and learning as Barry (2021) argues from the manaegrial standpoint. Therefore, some managers do not trust new methods that lecturers use during the process of online teaching and facilitation of online assessment. Therefore, as Morrison and Shemberger (2022) would corroborate this argument, this study holds that the desire to always comply with the demands of the management limits the autonomy and progress towards both online teachcing and facilitation of e-learning in some institutions of higher learning.

It is commonly difficult to trust and well manage people in the usage of systems that one is not trained on (Scott, 2017). That explains why it was difficult to accept good practices in the implementation of online teaching and e-learning in some institutions of higher learning. The pressure that came with Covid-19 lockdown made it impossible to allocate time for training both lectuerers and managers on the online teaching as well as e-learning. According to Kimoga (2021) lecturers' autonomy is also recognised by students as a way that if well implemented would have made learning more enjoyable. In other words, hindering practice of academic autonomy frustrates both lecturers and students. Then venturing into new methods of teaching and learning like online teaching and e-learning did not get the special embrace it deserves in previously disadvantaged universities. In other words, lectuerers' autonomy remained limited in the implementation of online teaching and e-learning regardless of the forced transformation demanded by Covid-19 lockdown.

4. CONCLUSION AND RECOMMENDATIONS

Although the Covid-19 pandemic was a global catastrophe, but with its lockdowns it exposed the necessity of embracing 4IR and new methods of teaching and learning in higher institutions. Lecturers faced serious challenges with employing new skills within online teaching and facilitation of e-learning implementation due to constant interference of managerial staff. Absence of policies to manage the implementation of online teaching and e-learning created a space for managers to hinder the autonomous use of new skills. Students also get frustrated when managerials staff interferes with the academic autonomy of their lecturers because it even changes their study plans. Having workshops to educate managers, lecturers, and students about the importance of embracing 4IR would perhaps transform the whole process of teaching and learning for the better service in institutions of higher learning.

This study recommends that; (a) university management, lecturers, as well as students must be inducted/ trained on how to properly implement online teaching and e-learning, (b) there must be a policy with regulations on how to ensure academic autonomy for lecturers who want to employ their innovative skills in coming wit new methods that may lead to best practices of teaching and learning, (c) embracing 4IR must be taught as the neccesary tool to catch up with the era of transformation and development in the process of teaching and learning within the institutions of higher learning. It may also be a suggestion that learning must be an enjoyable process that can only be achieved if academics are not limited in bringing new skills to advance online teaching and e-learning.

REFERENCES

Ayre, J., & McCaffery, K. J. (2022). Research Note: Thematic analysis in qualitative research. *Journal of Physiotherapy, 68*(1), 76–79. https://doi.org/10.1016/j.jphys.2021.11.002

Baig, M. I., Shuib, L., & Yadegaridehkordi, E. (2020). Big data in education: a state of the art, limitations, and future research directions. *International Journal of Educational Technology in Higher Education*, *17*, 1-23. https://doi.org/10.1186/s41239-020-00223-0

Bandura, A. (1986). *Social foundations of thought and action: a social cognitive theory*. Prentice Hall.

Barry, H. (2021). *Embracing Change: How to build resilience and make change work for you*. Orion Spring.

Bhardwaj, P. (2019). Types of sampling in research. *Journal of Primary Care Specialties*, *5*(3), 157-163. https://journals.lww.com/jopc/_layouts/15/oaks.journals/PageNotFound.aspx

Brod, C. (1984). *The human cost of the computer revolution*. Publisher Addison-Wesley.

Brown, G. (2016). *The Universal Declaration of Human Rights in the 21st century: A living document in a changing world* (p. 146). Open Book Publishers. New York.

Carnap, R. (1937). *The logical structure of the world*. Berkeley-Los Angeles, Univ.

Carnap, R., Fraenkel, A. A., & Bar-Hillel, Y. (1961). On the use of Hilbert's e-operator in scientific theories. In Sarkar, S. (ed), *Decline and obsolescence of logical empiricism: Carnap vs Quine and the critics*. Garland Publishers Inc.

Chau, K. Y., Law, K. M, Tang, Y. M. (2021) Impact of self-directed learning and educational technology readiness on synchronous E-learning. *Journal of Organizational and End User Computing, 33*(6), 1–20. https://doi.org/10.4018/JOEUC.20211101.oa26

Coogle, C., & Floyd, K. (2015). Synchronous and Asynchronous Learning Environments of Rural Graduate Early Childhood Special Educators Utilizing Wimba© and Ecampus. *MERLOT Journal of Online Learning and Teaching, 11*(2), 173–187. https://jolt.merlot.org/Vol11no2/abstracts.htm

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to the self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska Symposium on Motivation: Vol. 38. Perspectives on Motivation*. University of Nebraska Press.

Ellis, A., O'Reilly, M., & Debreceny, R. (1998). *Staff development responses to the demand for online teaching and learning*. Southern Cross University, ePublication@SCU. http://epubs.scu.edu.au/tlc_pubs/39/.

Frege, G. (1906). Begriffsschrift. *Grunddzesetze der arithmetic*, *2*(1). plato.stanford.edu/entries/frege/#BasFerLogPreCal

Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice* (2nd ed). Routledge.

Glock, J. H. (2008). *What is Analytic philosophy?* Cambridge University press.

Gorman, D. M. (2018). Can we trust positive findings of intervention research? The role of conflict of interest. *Prevention Science*, *19*, 295-305. https://doi.org/10.1007/s11121-016-0648-1

Hallen, B. (2005). *Contextualism in philosophy: Knowledge, meaning, and truth*. Oxford University press.

Hallen, B., and Sodipo, J. O. (1997). *Knowledge, Belief, and Witchcraft: Analytic Experiments in African PhilosophyCalifornia*. Stanford University Press.

Heath, P. L. (2016). The Appeal to Ordinary Language 1. In *Clarity Is Not Enough* (pp. 185-200). Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781315534732-8/appeal-ordinary-language-1-heath

Heeringa, S. G., West, B. T., & Berglund, P. A. (2017). *Applied survey data analysis*. Chapman and Hall/CRC.

Hennessy, M., Dennehy, R., Doherty, J., & O'Donoghue, K. (2022). Outsourcing transcription: extending ethical considerations in qualitative research. *Qualitative Health Research*, *32*(7), 1197-1204. https://doi.org/10.1177/10497323221101709

Heyne, D., Melvin, G. A., & Keppens, G. (2024). Embracing change: From recalibration to radical overhaul for the field of school attendance. *Frontiers in Education, 8*, 1251223. https://doi.org/10.3389/feduc.2023.1251223

Hoft, J. (2021). Anonymity and confidentiality. *The Encyclopedia of Research Methods in Criminology and Criminal Justice*, *1*, 223-227. https://doi.org/10.1002/9781119111931.ch41

Islam, N., Beer, M., & Slack, F. (2015). E-learning challenges faced by academics in higher education. *Journal of Education and Training Studies*, *3*(5), 102-112.

Jiang, J., Shu, Y., Wang, J., & Long, M. (2022). Transferability in deep learning: A survey. *arXiv preprint arXiv:2201.05867*. https://doi.org/10.48550/arXiv.2201.05867

Kang, E., & Hwang, H. J. (2023). The Importance of Anonymity and Confidentiality for Conducting Survey Research. *Journal of Research and Publication Ethics*, *4*(1), 1-7. http://dx.doi.org/10.15722/jrpe.4.1.202303.1

Khoshimova, S. (2021). The substantive" life" among the cultural concepts of the works of em remarque. *Oriental renaissance: Innovative, educational, natural and social sciences*, *1*(11), 272-276. https://cyberleninka.ru/article/n/the-substantive-life-among-the-cultural-concepts-of-the-works-of-e-m-remarque

Kimoga, J. (2021). The influence of state demands for accountability on varying faculty in making pedagogical decisions: Recommending a model for professional lecturer autonomous teaching. *Journal of African Education*, *2*(2), 209.

Mahlo, A. (2020). Reflecting on supervision experiences: Honours students' research projects in development studies at Nelson Mandela University. *SAJHE*, *34*(2). https://scielo.org.za/pdf/sajhe/v34n2/10.pdf

Maphalala, M. C., & Adigun, O. T. (2021). Academics' Experience of Implementing E-Learning in a South African Higher Education Institution. *International Journal of Higher Education*, *10*(1), 1-13.

Marimo, S.T., Mashingaidze, S., & Nyoni, E. (2013). Faculty of Education Lecturers' and students' perceptions on the utilization of e-learning at Midlands State University of Zimbwabwe. International Research Journal of Arts and Social Science, 2(4), 91-98. Retrieved from http://ir.msu.ac.zw:8080/xmlui/handle/11408/1600

Martínez, C., Fu, M., Galán, I., Pérez-Rios, M., Martínez-Sánchez, J. M., López, M. J., ... & Fernández, E. (2018). Conflicts of interest in research on electronic cigarettes. *Tobacco Induced Diseases*, *16*. https://doi.org/10.18332%2Ftid%2F90668

McGinn, C. (2002). *The making of a philosopher: My Journey through Twentieth-Century Philosophy*. Harper Collins Publishers.

Mölder, F., Jablonski, K. P., Letcher, B., Hall, M. B., Tomkins-Tinch, C. H., Sochat, V., ... & Köster, J. (2021). Sustainable data analysis with Snakemake. *F1000Research*, *10*. https://doi.org/10.12688%2Ff1000research.29032.2

Morrison, J., & Shemberger, M. (2022). Fighting the resistance: helping faculty to embrace online teaching during a pandemic. *The Journal of Faculty Development*, *36*(3), 49-57.

Newman, M., & Gough, D. (2020). Systematic reviews in educational research: Methodology, perspectives and application. *Systematic reviews in educational research: Methodology, perspectives and application*, 3-22. https://doi.org/10.1007/978-3-658-27602-7_1

Oliver, R. (2001). Assuring the quality of online learning in Australian higher education. *Proceedings of Moving Online II Conference*, 2001, 222–231

Patel, M., & Patel, N. (2019). Exploring research methodology. *International Journal of Research and Review*, *6*(3), 48-55.

Pöchhacker, F. (2022). *Introducing interpreting studies*. Routledge.

Reeder, K., Macfadyen, L.P., Chase, M., & Roche, J. (2004). Negotiating culture in cyberspace: participation patterns and problematics. *Language Learning and Technology, 8*(2), 88-105.

Safavi, A., A. (2008). Developing countries and E-Learning program development. *Journal of Global Information Technology Management, 11*(3), 47– 64.

Sallam, M. (2023). The utility of ChatGPT as an example of large language models in healthcare education, research and practice: Systematic review on the future perspectives and potential limitations. *MedRxiv*, 2023-02. https://doi.org/10.1101/2023.02.19.23286155

Schiler, J. (2003). "Working with ICT: Perceptions of Australian principals. *Journal of Educational Administration, 41*(3), 171-185.

Scott, T. M. (2017). Training classroom management with preservice special education teachers: Special education challenges in a general education world. *Teacher Education and Special Education*, *40*(2), 97-101. https://doi.org/10.1177/0888406417699051

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, 333-339.

Soames, S. (2003). *The Dawn of Analysis: Philosophical Analysis in the Twentieth Century* (Vol. 1). Princeton University press.

Taylor, C. (2023). Interpretation and the sciences of man. In *The Philosophy of Society* (pp. 156-200). Routledge.

Tschannen-Moran, M., and Hoy, A. W. (2001). Teacher efficacy: capturing an elusive construct. *Teach. Teach. Educ.* 17, 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Vallée, R. (2014). Slurring and common knowledge of ordinary language. *Journal of Pragmatics*, *61*, 78-90. https://doi.org/10.1016/j.pragma.2013.11.013

Vangrieken, K., Grosemans, I., Dochy, F., & Kyndt, E. (2017). Teacher autonomy and collaboration: A paradox? Conceptualising and measuring teachers' autonomy and collaborative attitude. *Teaching and Teacher Education*, *67*, 302-315. https://doi.org/10.1016/j.tate.2017.06.021

Walker, L. J., Goings, R. B., Spencer, D., Jr., McDonald-Lowe, S., & Palmer, R. T. (2020). Embracing change: The importance of pluralism at historically Black colleges and universities. In C. S. Platt, A. A. Hilton, C. Newman, & B. N. Hinnant-Crawford (Eds.), *Multiculturalism in higher education: Increasing access and improving equity in the 21st century* (pp. 129–142). Information Age Publishing, Inc.

Weil, M. M., & Rosen, L. D. (1997). *Technostress: Coping with technology@ work@ home@ play*. WileyPublishers.

Wittgenstein, L. (1937). Mind association. *JSTOR*, *61*, Article 242. http://www.jstor.org/stable/2252298

Zhu, Y., Chen, Y., Li, X., Chen, K., He, Y., Tian, X., ... & Huang, Q. (2022). Toward understanding and boosting adversarial transferability from a distribution perspective. *IEEE Transactions on Image Processing*, *31*, 6487-6501. https://doi.org/10.1109/TIP.2022.3211736