




Evolution in online learning: implications for South African higher education institutions Post-COVID-19



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ABSTRACT

The Covid-19 pandemic has expedited the transition to online learning, prompting significant changes in higher education institutions in South Africa and worldwide. The relevance of online learning has grown, and institutions are now forced to provide high-quality, adaptive, and accessible education in a digital environment. To effectively embrace online teaching and learning, educational institutions must invest in digital infrastructure and rethink pedagogical techniques. This literature review paper uses the PRISMA approach to explore how the Covid-19 epidemic has profoundly impacted the online learning environment in South African higher education institutions following the pandemic. It was established that in order to provide high-quality education to students across the country, South African higher education institutions must develop a flexible and accessible education system, rethink pedagogical approaches, and implement best practices in online learning. These best practices include providing personalised learning experiences, utilising modern digital technologies, and maintaining strong support systems for both students and lecturers. Furthermore, the findings emphasise the importance of coordinated efforts among higher education institutions, policymakers, and stakeholders in sustaining online learning as a viable and successful mode of instruction in the post-Covid-19 future. This includes continuing investment in technology, continued professional development for educators, and the establishment of policies that promote digital inclusion and equity. Working together, these entities can ensure that the advances made during the pandemic result in long-term benefits in the accessibility and quality of higher education in South Africa and around the world.

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Introduction

The Covid-19 pandemic has had a tremendous impact on many facets of our everyday lives, and higher education institutions in South Africa have not been immune to its impacts. Prior to the Covid-19 pandemic, e-learning in educational institutions globally grew at a stable yearly pace of 15.4 percent (Alqahtani & Rajkhan, 2020). This figure highlights the previously established trajectory of digital learning improvements, which have become even more crucial in the midst of the pandemic's enormous disruptions. Notably, several higher education institutions (HEIs) in the developed countries had already mandated the use of e-learning platforms for all students, while numerous rising nations, like China, India, Brazil, and South Africa, still had some higher education institutions that had not implemented such mandated e-learning measures (Mpungose, 2020). This disparity in the adoption of digital learning technologies revealed a global disproportion in the preparedness and implementation of online education across countries, with more affluent nations being more proactive in this area.

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In Africa, the fundamental reason for this reliance on in-person teaching methods is that many educational institutions were founded during the industrial period and lack a solid foundation in the digital sphere (Odularu, Puzi, Ngqila, & Olatoye, 2022). Gurajena, Mbunge, and Fashoto (2021) aver that prior to the Covid-19 epidemic, the prevalent mode of instruction was face-to-face interactions, with students largely accessing educational content via online learning platforms. This abrupt shift in learning dynamics highlighted the critical need for educational institutions to adapt to the digital era, a point that was emphasised even more during the epidemic. According to van Schalkwyk (2021), universities continue to have a significant learning curve in recognising the usefulness of developing teaching and evaluation methods. The sudden and critical move to online learning resulted in significant changes in education delivery.

Nonetheless, the development of digital technology exposed societal inequities, exclusion, and fragmentation, particularly among vulnerable groups such as people with disabilities and underprivileged families (Ammaturo, Ammaturo, Fallucca, & Aiello, 2023). This demonstrates the multidimensional impact of the rapid digital revolution, focusing light on both its transformative potential and the critical need to address social disparities exacerbated by technology advancements. Higher education institutions faced difficulty in providing effective online instruction, owing mostly to socioeconomic gaps (Mhlanga, Denhere, & Moloi, 2022). In response, institutions of higher learning established that strategic online infrastructure expenditures, including the adoption of platforms such as Microsoft Teams, were required to promote online teaching and learning (Zawacki-Richter, 2021). Given the increased importance of online learning, universities now face the critical issue of assuring the delivery of high-quality, adaptive, and accessible education within a digital environment. This emphasises the changing nature of education and the critical necessity for institutions to connect their strategy with the needs and opportunities given by the digital sphere.

Literature Review

The literature review examines the transition to online teaching and learning in the post-covid period as well as the implications of the transition to higher educational institutions in South Africa.

Conceptual Background

In the process of adapting to the "new normal," universities experienced a sudden inversion with a return to traditional teaching and learning approaches (Zhao & Xue, 2023). This unexpected move disrupted what had become the accepted normal, as higher education institutions had primarily operated online for over two to three years. During this time, certain universities experienced a significant spike in dropout rates from advanced diploma and postgraduate diploma programmes. The comeback of face-to-face instruction became less appealing to certain students, particularly those who had sought career possibilities in other provinces or countries, resulting in a mismatch between the old educational paradigm and the changing demands and circumstances of the student population.

This theoretical article examines the adaptation of online teaching methodologies to meet the specific requirements of students in the post-Covid-19 age. Our inquiry focuses on how South African higher education institutions can effectively maintain adaptive and accessible education by evaluating pedagogical techniques and using best practices in online learning. A fundamental call is issued to universities to investigate new methods for offering student-centred learning within the changing world of online social interactions. Furthermore, we emphasise the need of coordinated efforts among higher education institutions, policymakers, and stakeholders. This collaboration is critical to ensuring the long-term viability and effectiveness of online learning as a modality of instruction in the post-Covid-19 world. By fostering collaboration among these key partners, we hope to improve the resilience and effectiveness of online education, contributing to a strong and responsive educational framework that satisfies the different requirements of learners in the changing post-pandemic educational world.

Theoretical framework

Diffusion of innovations theory provides a valuable framework for understanding how online learning has evolved and what this evolution implies for South African higher educational institutions in post COVID-19 period. This theory examines how new ideas, behaviours, or technology transmit within a social system over time, it defines multiple stages of adoption, from innovators and early adopters to the majority and laggards, and investigates elements that influence the adoption process, such as perceived benefits, compatibility, complexity, and observability (Surry & Farquhar, 1997; Frei-Landau, Muchnik-Rozanov, & Avidov-Ungar, 2022). In this study, the covid-19 breakout necessitated the move towards online learning and hybrid models and the use of new technology to facilitate learning (Singh, Steele, & Singh, 2021). This necessitated that all universities all adopt to the use of technology as early as the pandemic started to affect the academic year. Although higher institutions of learning were not ready for the move online learning platforms, especially in the underdeveloped countries, universities prepared staff and students by providing facilities and training for the new normal (online teaching and learning).

According to Çakıroğlu, Saylan, Çevik, Mollamehmetoğlu, and Timuçin (2022), the move to online teaching and learning spread throughout academia via various avenues. While some universities swiftly adapted to this situation (early adopters), others remained somewhat slow in this process (laggards). The perceived benefits of online teaching and learning was improved students' performance (Marandu, Mathew, Svatwa, Machera, & Jaiyeoba, 2023), promoting students' independence (Garca-Morales, Garrido-Moreno, and Martn-Rojas, 2021; Meshram, Paladino, & Cotronei-Baird, 2022). This shows that the institutions should encourage the move to hybrid learning in the post-pandemic period. As articulated by Marandu et al (2023) there is a need for future curricular changes, and

the adoption can be achieved by developing tactics for boosting adoption, such as training and support programmes and regulatory changes, that can facilitate the integration. By applying the Diffusion of Innovations theory in this way, researchers and policymakers can gain valuable insights into the evolution of online learning in South African higher education institutions in the post-COVID-19 period and develop strategies to support and enhance the adoption of innovative practices.

Research Methodology

A systematic literature review was utilised for a thorough investigation of all relevant published papers centred on the following themes/keywords: higher education institutions, online teaching and learning, post-Covid-19 learning, and post-pandemic learning. The systematic literature review, guided by research questions, is an objective evaluation of published studies with the goal of producing coherent and consolidated findings within an area defined by the researcher as problematic and in need of a comprehensive solution (Siddaway, Wood, and Hedges, 2019). In this paper, the high dropout rate of students who could no longer attend face-to-face classes was problematic, and the researchers required a method to incorporate them into the curricula. The identification of study objectives was critical in determining the significance and quality of the selected publications. We then reviewed the selected papers on online teaching and learning and its impact on higher education institutions after COVID-19 using a PRISMA methodology. We screened the title, abstract, and full text of all selected desktop sources, published between 2020 and 2023. To ensure a comprehensive and rigorous approach, the researchers searched scholarly databases, such as Google Scholar, Web of Science, and Scopus. These databases are the most relevant scientific information platforms that allow access to scientific databases and the most significant publications of the various disciplines, particularly, the evolution of online learning and its implications for higher education institutions in the post-COVID-19 period.

Research Findings

After reviewing the peer-reviewed scientific work, it is clear that higher education institutions have gradually implemented innovations and best practices that prioritise a student-centered and research-oriented approach (Maiya & Aithal, 2023). This strategic development aims to encourage inclusivity and enables students' active participation in the curricula, as well as university management's consideration of students in the decision-making processes. In South Africa, inclusive education policies have been implemented to remove barriers to learning for all pupils, with a particular emphasis on those at risk of exclusion. This inclusive education policy includes a curriculum that is designed to accommodate diversity while also combining parts of academic and social learning (Qumbisa, Awuzie, & Emuze, 2023). In terms of utilising online teaching and learning, universities took a proactive approach, ensuring that "no student was left behind" and salvaging the academic year in the aftermath of the epidemic (Abshir, 2020; Aboagye, Yawson & Appiah, 2021; van Schalkwyk, 2021; Menon & Motala, 2021). This demonstrates higher education institutions' commitment to embracing inclusion and adapting to changing conditions, with a focus on all students' educational requirements and experiences.

Marandu et al (2023) did a comprehensive examination to investigate students' inclinations to continue with online learning after the COVID-19 epidemic, notably inside Botswana's basic universities. The findings of this study revealed a high level of satisfaction among students engaged in online learning. These findings, in turn, highlight the urgent need for universities to modify and adjust their curricula to better accommodate and support online learning modalities in the near future. The results point to a trend towards more adaptable and dynamic approaches to education in order to fit with students' growing choices and levels of satisfaction in a post-pandemic society.

Notably, online learning has various benefits for both instructors and students. It is distinguished by its ease of use, convenience, and flexibility, allowing the learning process to be carried out seamlessly from almost any location, increasing accessibility and supporting a variety of learning styles (Sahoo, 2020; Ramli, Majid & Badyalina, 2020; Karma, Darma, & Santiana 2021). This is especially important for students who may be working all over the world and want to continue their studies through contact online learning rather than distant learning. These collective thoughts highlight online learning's transformational potential to revolutionise the educational landscape by breaking down traditional time and distance limitations.

Meshram et al (2022), concur that online education has helped the students develop independence. Given that student independence is a critical characteristic and acknowledging the significant role that online education plays in cultivating this quality, it is critical to actively advocate and promote the adoption of online education approaches. This recognition highlights online education's ability to significantly contribute to the development of critical skills and qualities required for future graduates' success and independence.

Another benefit of using online education as an emergency remedy is that it improves student performance (Marandu et al, 2023). Students' ability to listen to recorded lessons allows for a complete knowledge of subjects that may not have been absorbed during the initial class session, which contributes to improved performance. Furthermore, online education creates an environment in which less confident students can express questions without the burden of having direct contact with lecturers or facilitators.

Contrary to the belief that studying in a physical classroom guarantees a superior learning atmosphere and understanding, Tanaiutchawoot (2023) contends that studying in a physical classroom only allows the possibility of monitoring students' focus. He argues that the flexibility and personalized character of online education appear to benefit academic achievement by allowing students to ask questions and seek clarification in a comfortable setting.

South African Case Studies of Successful Implementation of Online Teaching and learning

The widespread usage of Learning Management Systems (LMS) in South African universities demonstrates a strong commitment to integrating technology into teaching. According to Ntlangula and Sze (2023), nine South African universities use Blackboard, which is known for its features that encourage independent study, questioning, and collaboration. Despite these characteristics, Blackboard is most effective for self-motivated learners and has little impact on student achievement, attitude, or involvement. Blackboard's Predict feature, which allows students to see their course performance and prioritise activities, highlights the platform's focus on self-directed learning.

In contrast, the University of South Africa (UNISA), largely a remote education institution, began using the Sakai LMS well before the COVID-19 outbreak. According to Sims (2024), UNISA implemented Sakai in 2010, utilising a wide range of internal technologies such as announcements, messages, calendars, discussion forums, chat rooms, wikis, blogs, commons, and polls. This comprehensive strategy fosters dynamic learning settings, allowing UNISA to sustain high-quality teaching while responding quickly to pandemic issues. UNISA's proactive adoption of Sakai demonstrates its leadership in online learning and establishes a standard for other universities.

Other universities, such as the University of KwaZulu-Natal, demonstrated forethought by preparing students and staff for the Emergency Research Teaching and Learning (RTL) curriculum before converting to online during the Pandemic (Martin, Pillay, Martin, & Nkomo, 2022). The University of Cape Town (UCT) responded rapidly, leveraging existing digital platforms and developing new online resources, such as the Vula LMS, to improve online collaboration and learning experiences (Badaru & Adu, 2022). Similarly, the University of the Witwatersrand (Wits) invested in digital infrastructure and training, using Canvas, a commercial cloud-based LMS noted for its real-time communication, evaluation tools, and user-friendly design. Despite its benefits, Canvas lacks non-formal learning components such as self-direction and identity, while it does offer MasteryPaths for personalised learning experiences (Ntlangula & Sze, 2023).

The University of the Western Cape implemented the iKamva LMS. Fisher, Solomons, and Makhathini (2022) define iKamva as an e-learning content management system built on responsive web design principles and accessible via a variety of devices such as mobile phones, computers/laptops, and an Android app. The platform's extensive suite of e-tools supports announcements, course resources, tests, quizzes, assignments, discussion forums, and lesson planning, all of which contribute to a rich learning environment.

These cases demonstrate how institutional support and resource allocation are crucial to the effective adoption and deployment of LMS platforms. Universities having prior experience with online learning, such as UNISA, were better prepared to adjust quickly during the COVID-19 pandemic. In contrast, universities that make major expenditures in digital infrastructure and training may be able to assure educational continuity and quality. The many techniques and technologies used by institutions underscore the significance of flexibility, adaptation, and ongoing development when integrating technology into higher education.

Implications for Higher Institutions

According to Abshir (2020), the COVID-19 pandemic has created an opportunity to use online learning in response to the quick speed of technology changes in the education system. This viewpoint contends that the pandemic's exceptional challenges have sparked a shift towards embracing digital learning modalities, allowing educational institutions to adapt more effectively to the changing technology landscape.

While online education has many benefits, it is important to recognise the limitations. A study by Eguia and Padro (2023) that inquires into students' transitional experiences from online education to limited face-to-face instruction throws insight into problems, especially those caused by a poor internet connection. This study emphasises the need to identify and resolve the barriers that may impede a smooth transition between various modalities of instruction, adding vital insights to the continuing debate about the effectiveness and limitations of online learning.

It is imperative for the government to take an active role in encouraging broadband providers to improve the quality of their connections. As part of their social responsibility, these companies should be encouraged to help universities by providing more inexpensive access for both educational institutions and students. Odularu et al, (2022) and Mhlanga and Dunga (2023) emphasise the importance of this collaboration and its potential to improve educational accessibility and affordability. By developing a mutually beneficial connection between regulatory agencies, broadband providers, and educational institutions, we as a community can work to create a more inclusive and connected learning environment for students. Institutions should consider embracing online platforms to increase students' information absorption, as it has been shown to improve pass rates. Higher education institutions should focus on building appropriate online learning environments and recognise that physical classroom arrangements do not guarantee greater performance.

Aloka, Ajayi, Zindoga, and Mnyamana (2023) emphasise the importance of the South African government improving post-pandemic preparedness among students and instructors. Their proposals include encouraging technologically based teaching approaches and advocating for the development and use of specialised eLearning technology in Higher Education Institutions (HEI). The emphasis

is on creating a transformative and adaptive educational environment that uses cutting-edge resources to suit the changing requirements of a post-pandemic society.

Recommendations

Selelo and Manamela (2022) point to the importance of integrating blended learning approaches into the educational landscape following the COVID-19 epidemic. According to this viewpoint, the future of education requires an integrated blend of traditional in-person teaching methods with modern online learning platforms. The transition to such hybrid educational approaches is critical because it tackles not only the current issues provided by the epidemic, but also establishes a forward-looking framework for making learning more adaptive, accessible, and resilient to future shocks. By integrating blended learning systems, educational institutions may provide more flexible, personalised, and efficient learning experiences, ensuring that students have the necessary skills and information in a quickly changing environment. Tang (2023) advocates the evolution of modern instructional methods, focusing on three essential areas for improving educational outcomes: the incorporation of a flexible curriculum, the use of technological advancements, and the establishment of an interactive, dynamic online learning space. This holistic strategy is intended to make education more adaptive, engaging, and effective in fulfilling the different requirements of students of today.

Meshram et al (2022) highlight the transformative power of pedagogic disruption, which has the potential to significantly improve educational outcomes. they challenged the status quo in teaching and learning, so making education more relevant, engaging, and effective for students in the twenty-first century. As a result, it is recommended that conventional universities consider bringing online learning into their traditional (face-to-face) method and instead develop a hybrid technique that includes working graduates who want to further their studies. Mhlanga and Dunga (2023), along with Odularu et al, (2022), have both emphasised government regulator activities aimed at encouraging broadband service providers to provide more cheap internet access. These efforts are part of a coordinated effort to lower the costs associated with high-speed internet access, making it more accessible to a larger portion of the population. This strategy is based on the idea that internet access is a key resource for economic, educational, and social growth. Government authorities are bridging the digital divide by encouraging service providers to cut their pricing, guaranteeing that all people, regardless of economic status, have the opportunity to profit from the digital economy. This shift to more affordable broadband access is critical for encouraging inclusive growth. This shift towards more affordable broadband connection is critical for supporting equitable growth and providing communities with the tools they need to flourish in today's increasingly digital world.

Pina Stranger, Varas, and Mobuchon (2023) reiterate the necessity of creating relationships between higher education institutions (HEIs) and innovators of new instructional approaches, emphasising the need to include external stakeholders in these collaborations. Such collaborative efforts are critical for incorporating unique pedagogical approaches that not only enrich the educational landscape but also ensure that the curriculum remains relevant to society's changing requirements and the job market. Collaborations with external partners, such as industry professionals, community organisations, and technological experts, can tap into a wealth of insights and resources, improving the quality and application of education. This method lays the way for a more dynamic, interconnected educational ecosystem, where learning is constantly updated and revitalised by the contributions of other views.

Ammaturo et al (2023) emphasise the importance of taking a complete approach in order to pave the road for a society with greater equality. Society can strive for a more equal and just future by putting human rights first, promoting inclusion in participation, and improving digital literacy. Furthermore, infrastructure optimisation helps to level the playing field by promoting equitable access and opportunities for all community members. This comprehensive approach, as described by the authors, lays the framework for creating a society that values fairness, inclusion, and individual empowerment in the digital age.

Based on the above review, it is recommended that:

- i. Institutions of higher learning should devise techniques that blend conventional in-person instruction with current online platforms while providing training and support.
- ii. Governments should work with broadband service providers to lower internet costs and increase access, particularly in underserved areas.
- iii. Higher education institutions should advocate for government-funded projects to improve campus-wide internet connectivity and give students with tools and support to access online learning platforms from a variety of geographical locations.
- iv. Universities should integrate digital literacy training into curricula to provide students with the necessary skills for successful learning and professional development in the digital age.

Recommendations for Future Research

Future research may include the following:

- i. Investigate the long-term influence of online learning on student performance and engagement This research could focus on academic successes, engagement levels, and skill development among students who have received considerable online education vs those in traditional settings.

- ii. Evaluate the effectiveness of blended learning models in South African higher education by examining student satisfaction, learning outcomes, and the viability of various hybrid approaches.
- iii. Explore the obstacles students face in rural and underserved South Africa, such as limited internet access, to generate policy recommendations for enhancing digital infrastructure and support.
- iv. Examine the influence of government and business sector collaboration on improving online education, including existing collaborations, outcomes, and opportunities for improvement.

Conclusion

To navigate the obstacles offered by future uncertainty, higher education institutions must take a proactive approach, embracing blended learning approaches. This requires a joint effort from academic institutions, the public and private sectors, as well as the implementation of innovative instructional methodologies. A collaborative effort between these organisations can greatly contribute to the evolution of educational practices.

Furthermore, governments play an important influence in shaping the educational environment. They must advocate for universal internet access, which will help to close the digital gap. Governments that provide extensive connectivity encourage inclusivity while also laying the groundwork for socioeconomic growth. This intentional investment in digital infrastructure fits with the changing demands of the educational environment, creating an ecosystem in which individuals are better prepared to flourish in an increasingly linked world.

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References

- Aboagye, E., Yawson, J. A., & Appiah, K. N. (2021). COVID-19 and E-learning: The challenges of students in tertiary institutions. *Social Education Research*, 1-8.
- Abshir, B. A. (2020). The Effect of Coronavirus (COVID-19) on Face to Face Learning of Undergraduate Students in Mogadishu, Somalia. *International Journal of Education and Social Science*, 7(5), 21-32.
- Aloka, P. J., Ajayi, O., Zindoga, L., & Mnyamana, N. (2023). Psychological Barriers on Adjustment to Online Teaching and Learning in Universities During Covid-19 Pandemic: A Social Justice Perspective. In *Online Teaching and Learning in the COVID-19 Era: Perspectives on Equity and Epistemic Justice* (pp. 89-114). Cham: Springer International Publishing.
- Alqahtani, A. Y., & Rajkhan, A. A. (2020). E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives. *Education sciences*, 10(9), 216.
- Ammaturo, P., Ammaturo, C., Letizia Fallucca, M. B., & Aiello, P. (2023). Challenges to the Inclusion of Vulnerable Social Groups in Pandemic and Post-Pandemic Society. *Social Work Review/Revista de Asistentia Sociala*, (1).
- Badaru, K. A., & Adu, E. O. (2022). Platformisation of Education: An Analysis of South African Universities' Learning Management Systems. *Research in Social Sciences and Technology*, 7(2), 66-86.
- Çakıroğlu, Ü., Saylan, E., Çevik, İ., Mollamehmetoğlu, M. Z., & Timuçin, E. (2022). Faculty adoption of online teaching during the Covid-19 pandemic: A lens of diffusion of innovation theory. *Australasian Journal of Educational Technology*, 38(3), 87-103.
- Eguia, J.U. & Padro, P.C. (2023). The lived experiences of BEED students on the academic transition from distance education to limited face-to-face learning modality-a qualitative inquiry. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 9(10), pp.343-354.
- Fisher, D., Solomons, D., & Makhathini, K. B. (2022). Face-to-face versus online-based lectures: A COVID-19 induced study on assessments. In *Frontiers in Education* (Vol. 7, p. 1045311). Frontiers Media SA.
- Frei-Landau, R., Muchnik-Rozanov, Y., & Avidov-Ungar, O. (2022). Using Rogers' diffusion of innovation theory to conceptualize the mobile-learning adoption process in teacher education in the COVID-19 era. *Education and information technologies*, 27(9), 12811-12838.
- García-Morales, V. J., Garrido-Moreno, A., & Martín-Rojas, R. (2021). The transformation of higher education after the COVID disruption: Emerging challenges in an online learning scenario. *Frontiers in psychology*, 12, 616059.

- Gurajena, C., Mbunge, E., & Fashoto, S. (2021). Teaching and learning in the new normal: Opportunities and challenges of distance learning amid COVID-19 pandemic. Available at SSRN 3765509.
- Karma, I., Darma, I. K., & Santiana, I. (2021). Blended Learning is an Educational Innovation and Solution During the COVID-19 Pandemic. *International research journal of engineering, IT scientific research*,
- Maiya, A. K., & Aithal, P. S. (2023). A Review-based Research Topic Identification on How to Improve the Quality Services of Higher Education Institutions in Academic, Administrative, and Research Areas. *Maiya, AK, & Aithal, PS, (2023). A Review based Research Topic Identification on How to Improve the Quality Services of Higher Education Institutions in Academic, Administrative, and Research Areas. International Journal of Management, Technology, and Social Sciences (IJMITS)*, 8(3), 103-153.
- Marandu, E.E., Mathew, I.R., Sivotwa, T.D., Machera, R.P. & Jaiyeoba, O. (2023). Predicting students' intention to continue online learning post-COVID-19 pandemic: extension of the unified theory of acceptance and usage technology. *Journal of Applied Research in Higher Education*, 15(3), pp.681-697.
- Martin, C., Pillay, P., Martin, M. & Nkomo, SA (2022). 'Teacher educators' pedagogical thinking in an ERTL programme: The case of two higher education institutions', in JP Makonye & NS Ndlovu (eds.), *Innovations in online teaching and learning: Case studies of teacher educators from South Africa during the COVID-19 era*, AOSIS Books, Cape Town, pp. 81–96. <https://doi.org/10.4102/aosis.2022.BK376.05>
- Menon, K., & Motala, S. (2021). Pandemic leadership in higher education: New horizons, risks and complexities. *Education as Change*, 25(1), 1-19.
- Meshram, Kanika, Angela Paladino, & Valeria S Cotronei-Baird. (2022). "Don't Waste a Crisis: COVID- 19 and Marketing Students' Self-Regulated Learning in the Online Environment." *Journal of Marketing Education* 44 (2): 285–307. doi:10.1177/02734753211070561.
- Mhlanga, D. & Dunga, H. (2023). Demand for internet services before and during the Covid-19 pandemic: what lessons are we learning in South Africa?. *International Journal of Research in Business and Social Science (2147-4478)*, 12(7), pp.626-640.
- Mhlanga, D., Denhere, V., & Moloi, T. (2022). COVID-19 and the key digital transformation lessons for higher education institutions in South Africa. *Education sciences*, 12(7), 464.
- Mpungose, C. B. (2020). Is Moodle or WhatsApp the preferred e-learning platform at a South African university? First-year students' experiences. *Education information technologies*, 25 (2): 927-941.
- Ntlangula, X., & Sze, L. W. (2023). Examining the readiness of learning management systems in developing personalised learning paths. In *Proceedings of the 2023 4th International Conference on Teaching, Learning and Assessment in the Digital Age (pp. 68-80)*.
- Odularu, O. I., Puzi, M. E., Ngqila, K. H., & Olatoye, T. A. (2022). Transformations in higher educational institutions: A review of the post-COVID-19 era. *Journal of Culture and Values in Education*, 5(1), 183-194.
- Pina Stranger, A., Varas, G., & Mobuchon, G. (2023). Managing Inter-University Digital Collaboration from a Bottom-Up Approach: Lessons from Organizational, Pedagogical, and Technological Dimensions. *Sustainability*, 15(18), p.13470.
- Qumbisa, N., Awuzie, B., & Emuze, F. (2023). Enhancing Inclusive Higher Education Programmes Implementation Using African Philosophies. In *Using African Epistemologies in Shaping Inclusive Education Knowledge* (pp. 431-447). Cham: Springer Nature Switzerland.
- Ramli, M. F., Majid, M., & Badyalina, B. (2020). Impeding Factors Towards the Effectiveness of Online Learning During Covid-19 Pandemic among Social Sciences Students. *International Journal of Learning Development*, 10 (4): 37.
- Sahoo, S. (2020). E-readiness and perception of student teachers' towards online learning in the midst of COVID-19 pandemic. Available at SSRN 3666914.
- Selelo, M.E., & Manamela, M.G. (2022). Coining Online Teaching and Learning in Higher Education: Reference to COVID-19 Pandemic in South Africa. *International Journal of Social Sciences and Educational Studies*, 9(2), 53-62.
- Siddaway, A.P., Wood, A.M., & Hedges, L.V. (2019). How to do a systematic review: a best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses. *Annual review of psychology*, 70, pp.747-770.
- Sims, D. A. (2024). Online education and learning management system usage in a South African Economic and management faculty during COVID-19. *E-Learning and Digital Media*, 20427530241239429.
- Singh, J., Steele, K., & Singh, L. (2021). Combining the best of online and face-to-face learning: Hybrid and blended learning approach for COVID-19, post vaccine, & post-pandemic world. *Journal of Educational Technology Systems*, 50(2), 140-171.
- Surry, D. W., & Farquhar, J. D. (1997). Diffusion theory and instructional technology. *Journal of Instructional Science and technology*, 2(1), 24-36.
- Tanaiutchawoot, N. (2023). Student learning effectiveness of live learning, recording video, and classroom toward the motivation and learning outcomes of engineering students: in the descriptive course and logical course: case study after COVID 19. In *Proceedings of the 2023 4th International Conference on Education Development and Studies* (pp. 35-42).
- Tang, K.H.D. (2023). Impacts of COVID-19 on primary, secondary and tertiary education: a comprehensive review and recommendations for educational practices. *Educational Research for Policy and Practice*, 22(1), pp.23-61.
- van Schalkwyk, F. (2021). Reflections on the public university sector and the covid-19 pandemic in South Africa. *Studies in Higher Education*, 46 (1): 44-58.

Zawacki-Richter, O. (2021). The current state and impact of Covid-19 on digital higher education in Germany. *Human Behavior and Emerging Technologies*, 3(1), 218-226.

Zhao, X., & Xue, W. (2023). From online to offline education in the post-pandemic era: Challenges encountered by international students at British universities. *Frontiers in Psychology*, 13, 1093475.

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