

A Systematic Review of the Post COVID-19 Pandemic Transformation on Design and Delivery of Curriculum

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Abstract

This study investigated the lasting impact of the COVID-19 pandemic on higher education in Africa, focusing on curriculum design and delivery. The pandemic highlighted significant vulnerabilities in African higher education, notably exacerbating the digital divide that hindered seamless curriculum delivery during lockdowns. This systematic literature review synthesizes empirical and conceptual studies to assess these impacts from 2019 to 2022. The pandemic caused substantial setbacks in curriculum implementation due to enforced lockdowns and restrictions on physical gatherings, crucial for traditional classroom-based instruction. These constraints underscored the urgent need for educational institutions to adapt to digital modes of instruction to maintain continuity in teaching and learning. The findings reveal that many African higher education institutions were unprepared for the abrupt shift to online learning, resulting in significant educational disruptions. The cessation of in-person instruction prevented students from accessing educational resources, further widening the pre-existing digital divide. The study emphasizes the necessity for a comprehensive redesign of higher education curricula to incorporate online delivery methods effectively, leveraging various learning technologies to ensure uninterrupted curriculum delivery during crises. It recommends that African higher education institutions prioritize integrating digital learning platforms and tools in their curricula. This adaptation is critical in enhancing resilience against future disruptions, ensuring the academic calendar remains intact despite potential crises.

Keywords: COVID-19, curriculum, higher education, learning technologies, online learning

The COVID-19 pandemic has brought about significant changes to higher education across many developing nations. The development of online education emerged as a response to the necessity of devising and executing alternative methods of instruction and assessment for traditional classroom-based education. According to Gamede et al. (2022), both conventional (in-person) and digital pedagogical approaches possess their respective merits and demerits. The COVID-19 pandemic expedited various enhancements at educational establishments. Blended or hybrid modes of instruction are increasingly utilised by numerous academic institutions, such as University of Cape Town, University of South Africa, Durban University of Technology and other (Sharma & Shree, 2023). The rapid shift towards online and distance learning modalities has

prompted the recognition of the significance of alternative work-integrated learning (WIL) strategies.

Due to the unprecedented challenges posed by the COVID-19 pandemic, the educational institutions experienced significant disruptions in their capacity to deliver and receive high-quality instruction and education. Hence, both faculty members and students faced considerable obstacles in maintaining educational standards during this period. Hall et al. (2020) accurately assert that the pandemic has had a significant impact on the educational system. The COVID-19 pandemic has expedited various reforms within academic institutions. The current state of higher education in the aftermath of the COVID-19 pandemic has been characterised as the "new normal," with a predominant emphasis on online teaching and learning. However, there is a contentious debate surrounding the feasibility of this approach, as face-to-face instruction has resurfaced as the favoured pedagogical modality (Puma, 2022). Similarly, the period following the COVID-19 pandemic provides an opportunity to reassess the goals of education. Almajali et al. (2022) state that a key objective is to ensure that the curriculum remains relevant, suitable, and adaptable to the evolving needs of emergency or disaster preparedness. According to Tribe's (2002) definition, curriculum refers to a thorough collection of educational experiences that are designed for a specific degree programme. However, the complete educational opportunities are currently compromised. Dopson and Tas (2004) have emphasised the challenge of incorporating pragmatic elements into the process of curriculum planning and development. Notwithstanding the varied methodologies employed in education, a commonly held belief is that involvement of the community and stakeholders, as well as ongoing assessment and input, are imperative. According to Gamede et al. (2022), the current curriculum objectives address various preparedness concerns. The queries that have emerged pertain to the potential prospects that have arisen as a result of the pandemic.

Research Questions

This study was guided by these questions:

1. To what extent are academics prepared for the post-COVID era?
2. What are the optimal strategies for designing and delivering curriculum in a post-COVID context, to enhance preparedness for uncertainty?

Theoretical Frameworks

This study explored the impact of the COVID-19 Pandemic on the development and delivery of instruction at the higher education. Thus, the study employed theoretical frameworks to underpin it (Creswell, 2014). A theoretical framework is a conceptual structure that outlines the key concepts, variables, and relationships that underlie a research study. It provides a foundation for understanding the research problem and guides the selection of research methods and data analysis techniques. The theoretical framework is often based on existing theories, models, or frameworks from the relevant literature, and is used to develop hypotheses or research questions that can be tested empirically. The

COVID-19 pandemic may lead academics to engage in introspection regarding the rationale behind their instructional methods, potentially resulting in beneficial transformations. Virtual learning provides a wider range of opportunities, expanding the landscape of possibilities and enabling novel approaches to problem-solving that can lead to greater success. According to Guppy et al. (2022), academics are afforded the chance to revise their pedagogical approaches and improve their instructional techniques. It is imperative to understand the benefits of combining face-to-face, remote, or blended classrooms for effective teaching and learning (Puma, 2022). The establishment of an effective learning system should be the objective of any course delivery, as posited by Mackatiani et al. (2022).

The theoretical framework for this study on the impact of the COVID-19 pandemic on the development and delivery of instruction in higher education anchored upon several theoretical perspectives to provide a comprehensive understanding of the complex dynamics involved.

The diffusion of innovation and institutional change theories provide a robust theoretical framework for understanding the integration of differentiated instruction strategies into pre-service teacher education curricula. These theories offer valuable insights into how educational innovations are adopted and institutionalized within academic settings. The origins, principles, and rationale of these theories are pivotal to justifying their application in this study, which aims to explore the preparedness of academics for the post-COVID era.

Diffusion of innovation theory, formulated by Everett Rogers in 1962, examines how new ideas, practices, or technologies spread within a social system over time (Rogers, 2003). The theory identifies key elements such as the innovation itself, communication channels, time, and the social system, which influence the rate and extent of adoption. According to Rogers, the adoption process involves five stages: knowledge, persuasion, decision, implementation, and confirmation. This process is driven by innovators, early adopters, early majority, late majority, and laggards within the social system. The theory's relevance to educational settings lies in its capacity to explain how teaching innovations, such as differentiated instruction, can be systematically introduced and sustained within teacher education programs.

Institutional change theory, on the other hand, focuses on the processes through which institutions undergo transformation in response to internal and external pressures (DiMaggio & Powell, 1983). This theory posits that institutions, defined as established norms and practices within a given field, are influenced by regulatory, normative, and cultural-cognitive forces. Institutional change can be incremental or radical, driven by changes in legislation, shifts in professional norms, or evolving societal expectations. The theory highlights the role of actors, power dynamics, and the environment in shaping institutional transformation. It provides a lens to understand how educational institutions can adapt their curricula and practices to integrate innovations like differentiated instruction effectively.

The rationale for employing diffusion of innovation theory in this study is rooted in its ability to elucidate the dynamics of innovation adoption within educational institutions. Differentiated instruction represents a significant pedagogical innovation aimed at addressing diverse learner needs and promoting inclusive education. By applying Rogers' theory, the study can identify the factors that facilitate or hinder the adoption of differentiated instruction among pre-service teacher educators. For instance, understanding the roles of innovators and early adopters can help in developing targeted strategies to encourage broader acceptance and implementation of differentiated practices (Rogers, 2003).

Institutional change theory complements this by providing a framework to analyse how educational institutions can structurally and culturally adapt to support the integration of differentiated instruction. The theory's focus on regulatory, normative, and cultural-cognitive elements aligns with the multifaceted nature of educational institutions, which operate within complex regulatory environments and are influenced by professional norms and societal expectations (Scott, 2008). By examining these dimensions, the study can identify the systemic changes required to institutionalize differentiated instruction in teacher education curricula.

Moreover, the diffusion of innovation theory underscores the importance of communication channels and social networks in spreading new ideas. In the context of pre-service teacher education, effective communication strategies are crucial for disseminating information about differentiated instruction and its benefits. This involves leveraging professional networks, academic conferences, and collaborative platforms to share best practices and success stories (Valente, 1996). By facilitating knowledge exchange and peer learning, educational institutions can accelerate the adoption of differentiated instruction.

Institutional change theory, with its emphasis on the role of actors and power dynamics, highlights the significance of leadership and advocacy in driving educational reforms. Leaders within teacher education programs play a critical role in championing differentiated instruction, securing necessary resources, and fostering a supportive culture for innovation (Greenwood & Hinings, 1996). Understanding these dynamics can help in designing interventions that empower leaders and change agents to spearhead the integration of differentiated instruction.

The application of these theories is further justified by the need to address the barriers to implementing differentiated instruction identified in the literature. Studies have shown that insufficient training, lack of resources, and inadequate institutional support are major obstacles (Walton & Rusznyak, 2017). Diffusion of innovation theory can help in developing strategies to enhance training and resource allocation, while institutional change theory can guide efforts to build supportive infrastructures and policies.

Furthermore, both theories highlight the importance of contextual factors in shaping the adoption and institutionalization of innovations. Educational institutions in different regions or with varying levels of resources may face

unique challenges and opportunities. By applying these theories, the study can account for these contextual variations and propose tailored solutions that are sensitive to the specific needs and conditions of different institutions (Westphal et al., 1997).

Therefore, the diffusion of innovation and institutional change theories provide a comprehensive theoretical framework for understanding and facilitating the integration of differentiated instruction in pre-service teacher education. These theories offer valuable insights into the processes of adoption and institutionalization, highlighting the roles of communication, leadership, and systemic support. By drawing on these theories, the study can develop evidence-based strategies to enhance the preparedness of academics for the post-COVID era, ultimately fostering more inclusive and effective educational practices.

Preparedness of Academics for Post-COVID-19 Era

The COVID-19 pandemic has profoundly transformed the landscape of higher education, necessitating a rapid transition to online and hybrid modes of instruction. This abrupt shift has raised critical questions about the extent to which academics are prepared for the post-COVID era. The preparedness of academics can be assessed through various dimensions, including technological proficiency, pedagogical adaptability, institutional support, and ongoing professional development.

Firstly, the pandemic has underscored the necessity for academics to be proficient in using digital technologies. According to Cutri et al. (2020), many educators were initially unprepared for the sudden shift to online teaching, highlighting a significant gap in technological skills. However, the subsequent months saw a remarkable upskilling effort, as universities provided training and resources to help faculty adapt to new teaching platforms. Despite these efforts, disparities remain, particularly among older faculty members or those in institutions with limited resources (Rapanta et al., 2020). Therefore, while there has been progress, the level of technological preparedness varies widely across the academic spectrum.

Pedagogical adaptability is another critical area of preparedness. The transition to online learning has challenged traditional pedagogical approaches and necessitated innovative teaching methods (Hodges et al., 2020). Academics have had to rethink their strategies to engage students in a virtual environment, often requiring a shift from lecture-based delivery to more interactive and student-centred learning activities. This adaptability is crucial for the post-COVID era, where blended learning models are likely to become the norm. Studies by Mishra et al. (2020) suggest that while some educators have embraced these changes, others continue to struggle, indicating a need for ongoing pedagogical training.

Institutional support plays a vital role in determining how well academics can navigate the post-pandemic educational landscape. Universities that have invested in robust IT infrastructure and provided continuous support to faculty have seen more successful transitions (Bao, 2020). However, in many developing

countries, the lack of such support has exacerbated challenges, leaving academics inadequately prepared (Crawford et al., 2020). Institutional readiness, therefore, is a significant determinant of academic preparedness, with disparities highlighting the need for more equitable resource distribution.

Professional development and continuous learning are essential for sustaining the preparedness of academics in the post-COVID era. The pandemic has highlighted the importance of lifelong learning for educators, as they need to stay abreast of evolving technologies and pedagogical innovations (Trust & Whalen, 2020). Effective professional development programs should be ongoing, context-specific, and supportive of collaborative learning among peers. However, research by König et al. (2020) indicates that such opportunities are not uniformly available, particularly in resource-constrained settings, thus impacting the overall readiness of academics.

The psychological and emotional well-being of academics is another crucial aspect of preparedness that has often been overlooked. The pandemic has introduced significant stressors, including increased workloads, health concerns, and the challenge of balancing work and home responsibilities (Watermeyer et al., 2021). Addressing these issues is essential for ensuring that educators can perform effectively in the post-COVID era. Institutions must provide mental health support and foster a supportive community to mitigate these challenges.

Moreover, the effectiveness of academic preparedness can be evaluated through the lens of student outcomes. Studies have shown mixed results regarding student engagement and performance in online learning environments (Adedoyin & Soykan, 2020). This variability often reflects the differing levels of preparedness and adaptability among educators. Ensuring high-quality instruction post-COVID will require academics to not only adopt new technologies but also to continually refine their teaching practices based on student feedback and learning outcomes.

Thus, the extent of academic preparedness for the post-COVID era is multifaceted, involving technological proficiency, pedagogical adaptability, institutional support, ongoing professional development, and mental health considerations. While significant strides have been made, there remain substantial disparities that need to be addressed. Continuous investment in resources, training, and support systems is essential to equip academics with the tools and resilience needed to thrive in a transformed educational landscape. Future research should focus on identifying best practices and developing comprehensive strategies to support academics in this ongoing transition.

The Process of Designing and Delivering a Curriculum

The curriculum is critical to teaching and learning in the education system (Ajani, 2021). Thus, the process of designing a curriculum involves many elements (Ajani, 2019). According to Schneiderhan et al. (2019), a collection of components designed to achieve specific goals can be denoted as a curriculum. The curriculum is comprised of various components, including the objective, content, approach, and evaluation (Ajani & Gamede, 2021). Drawing upon this

perspective, it is imperative to consider these four elements when formulating a curriculum at any time or context. In the post-COVID-19 era, it is imperative to reconsider education through the lens of curriculum studies. Regarding the curriculum, it offers a preview of the potential opportunities and obstacles that will confront the field of education in the forthcoming times. Through an examination of curriculum alternatives concerning their purpose, content, approach, and evaluation, professionals in the field of education will be equipped with a more comprehensive understanding of the significant concerns, options, and resolutions that necessitate thorough exploration as we transition into the new era.

Incorporating readiness information into the curriculum is deemed crucial as per the findings of Christensen and Knezek (2017). The COVID-19 pandemic has imposed limitations that may prompt the adoption of a novel curriculum that incorporates content integration. This methodology enables a reduction in the total time allocated to various subjects while simultaneously fulfilling all the requirements outlined in the curriculum. According to Dean and Campbell (2020), the implementation of this approach will facilitate the integration of educational programme content requirements from diverse disciplines into the development of pedagogical practices. An approach to integrating content in teaching literature, science, and history involves examining historical periods and highlighting scientific innovations and literary productions that emerged during each era (Simmonds & Ajani, 2022). It is imperative to streamline the curriculum by prioritising the instruction of "significant" subject matter while excluding "inessential" content. Nevertheless, the proposal regarding the delineation of "significant" material poses a noteworthy concern. According to Pokhrel and Chhetri (2021), it is advisable to consider three key factors when developing curricula in the aftermath of the COVID-19 pandemic (Gamede et al., 2022):

1. *Significance*: The principle of significance is relevant when examining content concerning its fundamental relevance to the theme being analysed. When the substance is regarded as valuable to the topic, it is considered significant and therefore suggested for incorporation into a syllabus.
2. *Relevance*: This standard is based on the premise that educational material ought to be connected to the viewpoints of a society's values, ambitions, ethics, and predicaments, which would facilitate students in becoming proficient members of the community.
3. *Utilities*: Curriculum developers ought to consider the dual purposes of educational material, namely its present and prospective applications. The acquisition of certain knowledge is necessary for students to apply in the present, while other knowledge is essential to equip them to handle future challenges.

The period following the COVID-19 pandemic presents a valuable educational prospect for material that holds significance, relevance, and utility. Prioritising the educational requirements of the students is of utmost importance in both the implementation and modification of the curriculum. According to Xie et al. (2021), to establish a rudimentary curriculum framework, it is imperative to incorporate essential elements such as goals, information, instructional activities, and assessment. The conventional schools of thought in curriculum planning are the content approach, the process approach, or a blend of both. Faturoti (2022) posits that the content approach, akin to the process approach, is a pedagogical framework that is led by the teacher and tailored to meet the needs of the students, thereby fostering active participation of the students in the learning process. The curriculum must place emphasis on the critical aspects of language and its tangible impact on the process of teaching and learning, as posited by Liasidou (2022).

It is of paramount importance that academics possess an understanding of the significance of virtual education. The importance of digital accessibility in fostering inclusive learning environments has become increasingly significant considering the growing enrollment of students with disabilities in higher education, as well as the potential preference of some of these students for online learning owing to its temporal and spatial flexibility (Xie et al., 2021). To ensure equitable learning opportunities for students with disabilities in online courses, course materials must be made accessible. According to Dean and Campbell's (2020) research, a teacher's philosophy plays a crucial role in his/her approach to online teaching, including his/her selection and utilisation of e-learning technology. Similarly, Rotar (2022) recommends that academics prioritise critical aspects of online teaching and learning. It is recommended to expand one's focus beyond the technological and pedagogical aspects of virtual education. Ajani and Gamede (2021); and Nordmann and colleagues (2021) argue in favour of the creation of more efficacious and "inclusive" online educational designs as a means of achieving effective online instruction. Gamede et al. (2022) examine the potential of virtual learning environments to facilitate communication and interaction, specifically in the context of online peer support and mentoring. Similarly, Rotar (2022) argues that establishing a compassionate and sympathetic online learning community that values and acknowledges all students' voices, experiences, and concerns is a crucial initial step toward promoting online inclusion among students. The aforementioned factors may exert a significant influence on the accessibility of virtual learning environments. Lackovic (2020) posits that online communities of practice should function as crucial sites for contesting and disrupting established social hierarchies and dominant norms, to foster greater diversity.

Gamede et al. (2022) assert that to effectively harness the emancipatory potential of pedagogy to instigate socially equitable transformation, the teaching process must be characterised by rigour, liveliness, and a genuine passion for the act of teaching. The enthusiasm of academics encompasses a fervour for the

specific field or area of study, separate from yet intimately connected to their passion for the act of teaching. Enthusiasm in teaching can be manifested through personal experience or instructional demonstration, thereby encompassing both affective and behavioural aspects. According to Dewaele and Li (2021) and Ajani (2022), students who receive positive encouragement to engage actively and meaningfully in the learning process and subsequently demonstrate enthusiasm for this process are more likely to transmit this attitude to others. To mitigate students' anxieties and foster rapport, online academics must exhibit enthusiasm, motivation, reassurance, and a willingness to confront obstacles and capitalise on prospects.

Challenges and Opportunities of the COVID-19 Pandemic

Prior to the pandemic, teaching and learning activities had been predominantly face-to-face in many developing countries (Ouma, 2021). The emergence of COVID-19 revealed the digital divide that long existed in South African HEIs (Ajani, 2022). Hence, the significant lesson is for higher education to re-strategize for better performance in the future occurrence of a pandemic or other crises. To reconsider and restructure higher education through curriculum development and implementation, it is imperative to consider the novel educational prospects and challenges that have arisen because of the COVID-19 pandemic (Ajani, 2022; Maatuk et al., 2022). The current state of higher education must be reimagined with a focus on the role of higher education in cultivating more comprehensive e-learning environments.

The COVID-19 pandemic has presented unprecedented challenges to the global education system, fundamentally disrupting traditional modes of teaching and learning. One of the primary challenges has been the abrupt transition from in-person to remote learning, which exposed significant inequities in access to technology and the internet. This digital divide has been particularly pronounced in low-income and rural areas, where students often lack the necessary devices and stable internet connections to participate in online education (UNESCO, 2020). Consequently, many students experienced significant learning losses, exacerbating existing educational disparities. Furthermore, educators were often unprepared for the rapid shift to online teaching, lacking both the training and resources needed to effectively deliver instruction in a virtual environment (Bozkurt & Sharma, 2020).

Despite these challenges, the pandemic has also catalysed innovation and transformation within the education system. The necessity of remote learning spurred the rapid development and adoption of digital tools and platforms. Educational institutions and educators were forced to experiment with new pedagogical approaches, such as flipped classrooms and blended learning, which have shown potential for enhancing student engagement and learning outcomes (Hodges et al., 2020). Moreover, the widespread use of technology in education has led to increased digital literacy among both students and teachers, a skill set that will be invaluable in the increasingly digital world. This period of forced innovation has opened up opportunities for rethinking traditional educational

models and integrating technology more deeply into teaching and learning practices (OECD, 2020).

The pandemic has also highlighted the critical importance of social and emotional learning (SEL). The disruption of normal school routines, combined with the stress and uncertainty caused by the pandemic, has had a profound impact on students' mental health and well-being (Loades et al., 2020). This has underscored the need for educational systems to prioritize SEL and provide support for students' emotional and psychological needs. Schools and educators have had to find new ways to connect with students and provide a sense of community and support, even in a remote learning context. This focus on SEL is likely to persist beyond the pandemic, leading to more holistic approaches to education that address the full range of students' needs (Jones & Kahn, 2020).

Moreover, the pandemic has revealed the potential for more flexible and inclusive education systems. The traditional model of education, which often relies on fixed schedules and physical attendance, can be exclusionary for students with various needs and circumstances. The shift to remote learning has demonstrated that education can be more adaptable, offering different pathways and modes of learning to accommodate diverse learners (Daniel, 2020). This flexibility can benefit students who face challenges such as health issues, caregiving responsibilities, or employment, allowing them to balance their education with other aspects of their lives. As educational institutions plan for the future, there is an opportunity to build on these insights and create more inclusive and equitable learning environments.

Conclusively, while the COVID-19 pandemic has posed significant challenges to the education system, it has also created opportunities for innovation and reform. The rapid adoption of digital tools, the increased focus on SEL, and the shift towards more flexible and inclusive educational models are positive developments that can enhance the resilience and effectiveness of education systems in the long term. However, realizing these opportunities will require sustained effort and investment to address the digital divide, support educators, and prioritize students' holistic needs. By learning from the experiences of the pandemic, educational systems can emerge stronger and better equipped to meet the diverse needs of all students (Reimers et al., 2020).

The Impact of the COVID-19 Pandemic on the Delivery of Educational Curricula

The global COVID-19 pandemic has profoundly impacted educational systems worldwide, revealing significant shortcomings in the realm of online education. Research indicates that many academic personnel lack adequate proficiency in utilizing digital platforms, a critical gap highlighted by Ouma (2021) and Gamede et al. (2022). Furthermore, online platforms often fall short in performing specific academic tasks, as noted by Ali (2020) and Gamede et al. (2022). These limitations are compounded by disparities in information absorption among students and the unfavourable learning conditions some students face at home (Ajani, 2019; Pokhrel & Chhetri, 2021). Additionally, the

absence of peer interaction in online settings has reduced opportunities for socialization, which is essential for student engagement and learning (Rashid & Yadav, 2020).

The COVID-19 pandemic has led to widespread constraints on online learning and teaching, resulting in a decrease in the number of hours students dedicate to their studies and, consequently, a decline in academic performance. This decrease in engagement is further exacerbated by the inability of students to seek timely guidance from their instructors, negatively affecting their academic achievements (Dahmash, 2020). To address these issues, it is imperative to develop a curriculum that includes purpose, content, strategy, and evaluation, facilitating a seamless transition into the post-COVID era. Such a curriculum would help field instructors understand the significant concerns, options, and resolutions that require meticulous consideration during this period.

Incorporating the diffusion of innovation and institutional change theory provides a robust theoretical framework for this study. The diffusion of innovation theory, originally developed by Rogers (2003), explains how new ideas and technologies spread within a society or organization. This theory is pertinent in understanding how educational institutions can adopt and integrate digital platforms and online learning methodologies effectively. Institutional change theory, on the other hand, focuses on the processes through which organizations adapt to significant changes in their environment (Scott, 2008). This theory is crucial for analysing how educational institutions can restructure their practices and policies to accommodate the new demands of the post-pandemic world.

The application of theories, is essential for managing intellectually intricate or technically demanding subject matter. The theories suggest that learning materials should ensure that students can process information effectively (Sweller, 2020). In the context of this study, diffusion of innovation theory underpins the design of online learning resources that facilitate ease of understanding and retention, crucial for effective curriculum delivery during and after the pandemic.

The pandemic has underscored the need for higher education institutions to rethink their curriculum studies framework, emphasizing the cultivation of students' preparedness skills. Deciding what content to include or exclude in the curriculum poses a significant challenge. However, the necessity of incorporating pedagogical approaches that utilize digital platforms is evident. Toquero (2020) suggests that innovative and engaging online learning methods can enhance educational systems, making them more resilient to unforeseen crises and uncertainties.

The transformation of academic institutions during the pandemic has highlighted both challenges and opportunities. The shift to online education has provided numerous opportunities for those who were initially unprepared and rushed in their utilization of online learning platforms. The relationship between teachers and students has been reinforced, with Siow et al. (2021) characterizing

this educational transformation as an experiment. Despite instances of unsuccessful implementation, Naik et al. (2021) argue that there are still prospects and insights to be gained, promoting greater accomplishments in the long run.

Gamede et al. (2022) assert that the ability to utilize technology to establish inclusive and equitable virtual learning environments in higher education requires a combination of professional creativity and technical proficiency. This perspective aligns with the principles of diffusion of innovation theory, which emphasizes the importance of communication channels, social systems, and time in the adoption of new practices.

In conclusion, despite the challenges posed by the COVID-19 pandemic, the shift to online instruction and learning has emerged as the primary option for both academics and students. To ensure the continuity of the education system, it is essential for both parties to adapt to the diverse array of online platforms available. Developing a viable system that effectively caters to the educational needs of all students and academic personnel, while remaining practical, poses a significant challenge. The integration of diffusion of innovation and institutional change theories provides a comprehensive framework for understanding and addressing these challenges, ultimately contributing to the development of more resilient and adaptive educational systems.

Conclusion

The COVID-19 pandemic has expedited the implementation of computerised technologies in the realm of education, particularly in the areas of teaching and learning. The initiative fostered a culture of up-to-date expertise among academics and students in the utilisation of digital platforms. The outbreak of the epidemic has brought to the fore the inadequacies of the institutional framework of higher education and underscored the necessity for academic personnel to engage in digital technology training to keep pace with the swiftly evolving global educational landscape (Ali, 2020). To conclude, the COVID-19 pandemic has resulted in an abrupt transition for higher education institutions from traditional classroom lectures to remote online teaching-learning. The utilisation of the swing as a potential remedy for the predicament in higher education amidst the COVID-19 pandemic was examined in this study. However, the findings indicate that it also presented several difficulties for both students and scholars. This study suggests that despite the challenges posed by the COVID-19 pandemic, it has presented prospects for evaluating students, as well as teaching and learning.

Recommendations

COVID-19 has come and gone, but the lessons or impact of the pandemic continues to linger on, especially in developing countries. Hence, the study recommends that the curriculum for each programme of study in higher education requires review. The review is to redesign the content for what can be delivered or supported with various learning technologies. There is a need to adopt and encourage the use of learning technologies for online learning in most HEIs,

where conventional face-to-face had been the order of the day before the emergence of COVID-19. This will prepare the students for future occurrences of disruptions in the academic calendar. While it is important to support academics with knowledge and skills for effective curriculum delivery online, using various online platforms to reach out to diverse students. Students should be provided with personal laptops that are internet-connected. Learning management systems (Moodle) should be designed to enable engagements or interactive sessions between students and academics, and among students as well.

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