

Curriculum Delivery Through Learning Technologies in Online Classrooms: Challenges and Prospects in Higher Education

Oluwatoyin Ayodele Ajani^{1,*}

¹Department of Languages and Social Sciences Education, University of Zululand, 3886 KwaDlangezwa, South Africa

*Correspondence: Department of Languages and Social Sciences Education, University of Zululand, 3886 KwaDlangezwa, South Africa. E-mail: oaajani@gmail.com

Received: April 4, 2023

Accepted: June 12, 2023

Online Published: August 12, 2023

doi:10.5430/jct.v12n4p83

URL: <https://doi.org/10.5430/jct.v12n4p83>

Abstract

Higher education institutions in most developing African nations have been classroom-based. This practice has been in place for decades in African countries, with many benefits for stakeholders. Lessons from the COVID-19 pandemic experiences in the global space brought a new approach to curriculum delivery. Universities in most developed countries have expanded, using various digital technologies for teaching and learning. However, the case was a severe challenge in Africa, where many were cut off from teaching and learning activities for months. The study explored the transition from conventional classroom curriculum delivery to online learning as the only alternative approach during the pandemic. Although online learning encourages self-directed learning in students, the study explains the self-determination theory as it underpins online learning. A content analysis of various literature sources on the phenomenon was employed for this systematic review. Findings revealed that many universities in South Africa encountered severe challenges in fully adopting online classes for curriculum delivery. Teaching and learning activities were grounded for months until the Department of Higher Education and Training compelled all to embrace learning technologies to salvage the academic calendar. Rural-based students were reported to be significantly challenged in accessing online learning activities. Extant literature sources affirmed that higher education institutions were unprepared for the sudden transition from conventional classrooms to online learning. Hence, they needed help to take rapid measures to integrate online learning into the system. Many challenges have been encountered in this technological transformation of the teaching and learning approach; the study, therefore, recommends, among others, adequate provision of learning technologies, provision of intense technical know-how support for lecturers for effective use of online learning.

Keywords: conventional, online classrooms, COVID-19, alternative approach, South Africa, ICT

1. Introduction

It is no longer news that the COVID-19 pandemic created havoc across the globe with the infusion of several changes and impacts. The pandemic brought about a new teaching and learning approach that developing nations had ignored before or had been minimally accepted. This sudden pandemic resulted in the closure of learning institutions as part of public places and gatherings to control the spread of the pandemic globally (Dube, 2020). Education was severely hit, especially in Africa, as school systems globally became disrupted (Maringe, 2020). In South Africa, where a 'total lockdown' was announced by Mr President Cyril Ramaphosa on 23 March 2020 (Dube, 2020), movement and social gatherings of any form became restricted. Hence, all learning institutions nationwide abruptly suspended conventional teaching and learning activities to shift to online learning platforms after several months of no teaching and learning activity (Ajani, 2021). The shift was enforced with the directives from South Africa's Minister of Higher Education, compelling all higher education institutions to embrace online learning approaches as alternative measures, as a quick approach to salvage the education system during the pandemic (Dube, 2020).

The embracement of online learning prompted various alternative pedagogies different from the face-to-face classrooms in South Africa (Motala, 2020; Ajani, 2021), providing learning opportunities to students via online learning (Pravat, 2020). Stakeholders could redesign instructional delivery and assessments for students using online platforms. The various online platforms and learning technologies were integrated into teaching and learning to attain

educational goals. However, adopting online learning as the only alternative approach faced challenges for rural-based students, who needed help adjusting to the new learning spaces (Landa et al., 2021). According to Ramrathan (2021), rural students were worst hit by the introduction of online learning as they needed more knowledge and skills to embrace online teaching, learning, and assessment effectively.

COVID-19 propelled and reshaped education systems in many ways, as both lecturers and students moved teaching and learning activities from the usual conventional classroom practices to virtual classrooms, with learning experiences accessed at the comfort of students' homes, at their own learning pace (Hall et al., 2020). Virtual learning is interactive, where students can interact with fellow students and their lecturers, although the consultation is not as effective or regular as face-to-face consultations (Dick et al., 2020). The various platforms made available by the online and distance learning models have also improved work-integrated learning, which is a significant impact of COVID-19 on educational institutions. Thus, various learning platforms have been used for the significant and rapid adoption of innovative online practices. Learning technologies have been integrated into teaching, learning, and assessments in higher education. However, before the COVID-19 pandemic, many African institutions were dominantly traditional in classroom instructional delivery, with some advancing blended teaching and learning approaches creating a digital divide.

This study explored extant literature to add to the discourse on online learning in South Africa to establish various challenges facing online learning in higher education institutions. The study highlights various concepts as they affect higher education institutions.

2. Theoretical Framework

2.1 *Self-Determination Theory as a Theoretical Framework for Effective Online Learning*

The Self-Determination Theory (SDT) is based on the premise that individuals possess an inherent drive for learning and curiosity (Deci & Ryan, 2000; Ryan & Deci, 2017; Vansteenkiste et al., 2010). Essentially, individuals possess inherent, intrinsic motivation. In certain situations, students may need more motivation and demonstrate an inherent desire for learning. Based on the Basic Psychological Needs mini-theory of SDT, as outlined in the works of Vansteenkiste et al. (2010) and Vansteenkiste et al. (2020), it is essential to fulfilling individuals' basic psychological needs for autonomy, competence, and relatedness to maintain their intrinsic motivation. This concept is supported by Ryan and Deci (2017) and Vansteenkiste et al. (2010, 2020). According to Vansteenkiste et al. (2020), autonomy pertains to the requirement of self-endorsed behaviours or a well-defined task rationale, competence involves the need for a sense of capability to engage in desired tasks effectively, and relatedness encompasses the need for a compassionate and intimate connection with others. Within the educational setting, the fulfilment of these requirements is facilitated through the implementation of teachers' supportive teaching methodologies, as indicated by Reeve (2006), Vansteenkiste et al. (2012), Ryan and Deci (2017), Nalipay et al. (2020).

Facilitators employ various instructional strategies to fulfil the fundamental psychological requirements of students within the classroom setting. As an example, an academic can elucidate the reasoning behind academic assignments to fulfil students' autonomy requirements, emphasise the significance of exertion over outcomes to fulfil their competence requirements or motivate and support students to instil a sense of confidence and trust that fulfils their relatedness requirements (Reeve, 2016; Ryan & Deci, 2017; Ahmadi et al., 2022). The teaching practices can be utilised to address specific needs, such as autonomy-supportive teaching to fulfil autonomy needs, as Reeve et al. (1999) and Reeve (2016) suggested. However, it is worth noting that a single need-supportive teaching practice can also fulfil multiple needs, as demonstrated by Leenknecht et al. (2017), Olivier et al. (2021), and Vansteenkiste et al. (2020), who have reported non-orthogonal effects of need-supportive teaching.

Therefore, implementing Need-Supportive Teaching (NST) practices can serve as an effective strategy for promoting intrinsic motivation in students. Students must receive adequate support to achieve successful learning outcomes in online education. The COVID-19 pandemic has resulted in a sudden shift to online learning, which has naturally impeded these practices. In addition, it should be noted that while academics can still address the fundamental psychological needs of their students in online settings, the available strategies and pedagogical approaches could be more open, as per the findings of Oga-Baldwin (2015) and Turk et al. (2022). Nevertheless, Need-Supportive Teaching (NST) practices retain their significance in the online realm and can impact the adaptive outcomes of students, such as engagement and achievement (Chen & Jang, 2010; Chiu, 2022).

According to Pelikan et al. (2021), a recent study across 17 countries highlighted the significance of fulfilling basic psychological needs for enhancing students' intrinsic motivation in distance learning amidst the pandemic. Research

findings indicate that fulfilling fundamental psychological needs is crucial in facilitating online learning amidst the COVID-19 pandemic, as evidenced by longitudinal and empirical studies (Chiu, 2022; Holzer et al., 2021). Even with these factors, the asynchronous nature of online learning, which provides minimal opportunities for immediate teacher-student interaction, remains a fundamental obstacle to fulfilling students' fundamental psychological requirements. While students are responsible for learning, their lecturers must provide effective and sustainable online teaching and learning support.

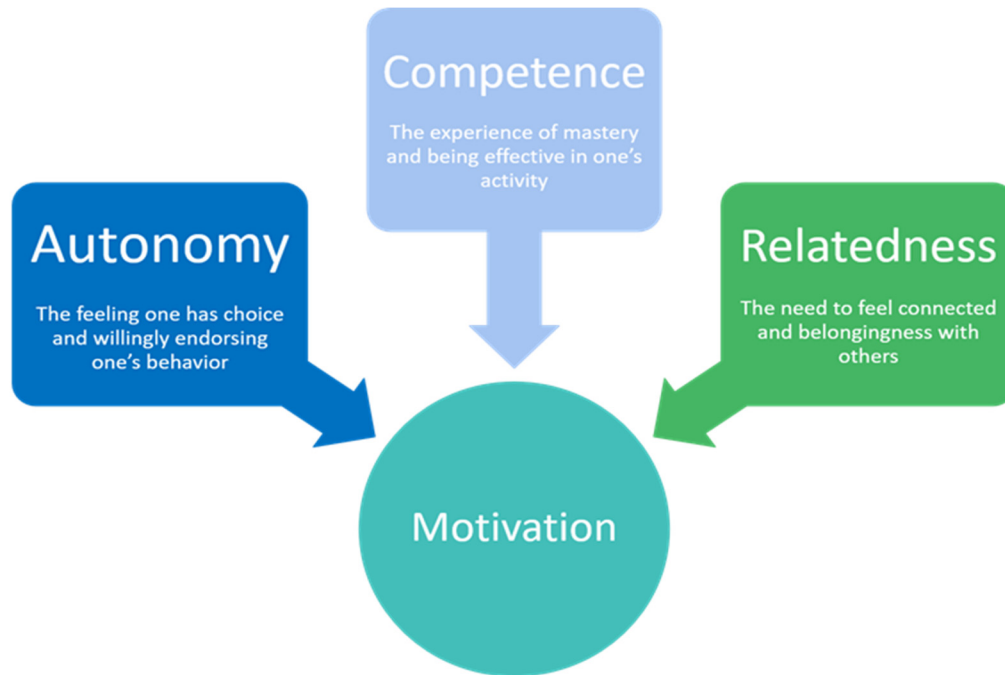


Figure 1. *Self-determination Theory* (According to Vansteenkiste et al. 2020)

Students' involvement or participation in online learning can be effectively enhanced when students who take responsibility for their learning possess competence that enables them to maximise the opportunities presented in online learning. By taking responsibility for what, how, when, and why they learn, students are autonomous in deciding learning activities they access or participate in, which are related to what they need to connect with other students in their academic spaces. The influence in their behaviours that learning experiences can drive spurs their motivation to control what they learn in online teaching and learning activities.

3. Methodology

Due to scoping review employed for this study, various literature sources were sourced to collect information. The sources were screened and narrowed down to only relevant sources. The interpretive qualitative method became significant for the various published literature. Thus, content analysis came in handy to analyse all these retrieved relevant articles. Luo (2021:1) argues that “content analysis is a research method used to identify patterns in recorded communication.” The use of content analysis enables researchers to access many articles as a research method for data collection. Luo (2021) posits that content analysis uses a variety of approaches for analysis.

Thus, the content analysis used in this study was used to scoop in-depth and relevant reviews that identified the gap in the existing phenomenon. The sudden transformation from conventional classrooms to online learning, forced by the COVID-19 pandemic in South African Higher Education Institutions, became a social phenomenon. Adopting technological gadgets and computer skills for teaching and learning became a ‘new normal.’ Content analysis for this study went through five systematic phases. The phases identified the research questions, identification of appropriate studies, study selection, data charting, collating, summarising, and reporting results (Tinoca et al., 2022). The research objective guided articles to source from Scopus and Web of Science sources. All articles on online transformation in education systems were included in the search, with much focus on South Africa during the COVID-19 pandemic. In contrast, articles that did not include these keywords were excluded. These articles were

rigorously reviewed, and shared ideas were generated for the presentation and discussion of the findings in the study (Luo, 2021).

4. The Findings and Discussion

4.1 The Realities of the Digital Divide

Teaching in most parts of Africa had been conventional for many decades from generation to generation. COVID-19 brought about a new standard different from conventional classroom instructional delivery to online only. This is a new transformative and revolutionary shift in the curriculum delivery for higher education institutions across the globe. According to Dube (2020), the COVID-19 pandemic compelled higher education institutions worldwide to use various learning platforms for online teaching and learning activities remotely. The shift from traditional methods to online learning is a landmark transformation in education.

The integration of various technological devices allows the use of WeChat, Blackboard, Moodle, Microsoft Teams, Google Meet, Google Classroom, TronClass, Zoom, Canvas, and others, all acknowledged (UNESCO, 2020). Thus, using various learning technologies by academic staff members and students brings them to online learning. The ICT knowledge and skills of ICT users for online classes determine the extent of the use of online learning. Inadequate computer skills and lack of learning technologies, indices of the digital divide that long exists in South Africa, became more visible during the lockdown. The effectiveness of online classes remains a challenge to many users in education. Ouma (2021) asserts that academic staff and students need to possess adequate knowledge and skills that enable the effective use of information technology in online learning, especially in Africa.

COVID-19 emphasises the value of interpersonal relationships and creativity in the contemporary teaching and learning environment (Alvarez, Jr. 2020). More innovative teaching and learning methods have been introduced to enable teaching and learning. Ali (2020) asserts that it is necessary to capacitate users of ICT on alternate teaching and learning strategies. Students can access education from the convenience of their homes if they have the necessary skills, a key advantage of online learning. Students access learning without physical contact with the facilitators, which differs from the usual face-to-face classrooms. Learning through this online approach is self-directed or regulated by students. Some institutions combine face-to-face classrooms with online learning as hybrid or blended learning, even before the pandemic, with this blended approach more effective in the learning system (Rashid & Yadav, 2020).

Curriculum delivery through various learning technologies/online platforms involves diverse learning tools, bringing online learning to the limelight and prominence in South Africa. Students in various historically disadvantaged universities face the realities of the digital divide and adjust themselves to online learning against the traditional classroom practices they were used to. Online learning has many insufficiencies that influence users. Ali (2020) mentions that the lack of computer skills by students and some lecturers, the lack of resources in students' homes, and the uncondusive environments at students' homes are some of the challenges of online learning. Koumpouras and Helfgott (2020) further assert that online classes must match some attributes of face-to-face classroom learning experiences. These include the online inability to engage students' interactions adequately with their lecturers, no in-class monitored exercises, lack of critical discussions, lack of consultations between students and lecturer, and the lack of students' capability that can be established promptly during face-to-face classes. Dick et al. (2020) support that online teachings are not as helpful as contact classes because tests and exams are not feasible for the proctor to ensure a completed assessment.

Dhawan (2020) asserts that the lack of adequate resources in many higher education institutions to expedite online teaching, learning, and assessment hindered effective learning between academic staff and students. Most universities in developing nations need more resources and skills to transform face-to-face teaching and learning to online. Institutions with inadequate infrastructures continue to need help in online learning. In addition, good internet facilities are required for digital uploading and accessing learning materials and assessments in higher learning institutions (Mathivanan et al., 2021). Despite the limitations, the situation demands action so that student education is unaffected. To provide effective online teaching and learning, Ajani (2021) suggests an effective information communication technology (ICT) support system for students to maximise online learning. Visibly, the integration of ICT as an instructional device for academic courses in higher institutions of learning has been intensified speedily across many institutions in South Africa during the COVID-19 pandemic (van Schalkwyk, 2021).

4.2 Lecturers' Computer Competencies in Online Teaching

The pandemic forced all to embrace ICT for teaching; staff members in various institutions critically need computer

skills to deliver digital curricula (Ali, 2020) effectively. This implies that their computer competencies and perceptions of online learning drive ICT into teaching and learning effectively. However, most lecturers, especially those at rural universities, need more adequate and relevant knowledge of ICT, which is needed for effective online teaching (Pravat, 2020). Mseleku (2020), in a study conducted, reports that 25% of lecturers have adequate knowledge and skills necessary for curriculum delivery through various Moodle learning platforms. Moodle is a learning platform mostly endorsed by universities as a learning management system. Inadequate skills make lecturers need help making learning and assessments available in online classes (Ajani, 2021) and using diverse platforms to meet students' social backgrounds. According to Gamede, Ajani & Afolabi (2021), students' learning readiness is driven by their online teaching and learning adoption. This is because students' access to online learning depends on their rural/urban location, availability of learning technologies, internet data, and many more.

In a dynamic circumstance where the educational learning environment is constantly changing, academic staff must prioritise students as their priority. Engaged teaching and learning will be made possible by doing this. According to Tadesse and Muluye (2020), academic staff should think about implementing current mobile technologies because it will give students access to a consistent curriculum. It can be challenging for the academic staff. Academic professionals can only work from home with adequate and appropriate tools to support good online teaching, learning, and evaluation. Despite all the challenges academic staff face, the COVID-19 epidemic allowed academic staff and students to grow as digital natives.

4.3 The Integration of Learning Technologies into the Online Classrooms

The influx of various learning technologies into the education system transformed teaching and learning into the 4IR era (Mahaye, 2020). Various technological tools and platforms signified a shift from conventional to technology-driven curriculum delivery in higher education. Sintema (2020) argues that just a few developing countries have been able to integrate learning technologies into teaching and learning due to many challenges. Hence, the sudden emergence of online education during the COVID-19 pandemic, as witnessed across the global institutions of learning, came with challenges to many developing nations (Molise & Dube, 2020). The significant impact of learning technologies lies in self-directed learning by students, making students responsible for their learning, with various opportunities to construct knowledge. Mahlaba (2020:123) asserts that "we should not keep our students permanently dependent on us (as teachers) for their learning because we will not always be there to provide learning."

Various studies assert that self-directed learning by students promotes academic success (Khlat, 2017; Tekkol & Demirel, 2018; Mahlaba, 2020). Hedding et al. (2020:1) posit that shifting teaching and learning online requires technology-based tools that "encourage a move away from 'rote learning to focus more on problem-solving, critical thinking and applied understanding by using a holistic and integrated approach because traditional assessment techniques are no longer viable." Pokhrel and Chhetri (2021) assert that some scientific laboratory testing and research work could not be accomplished via online learning and teaching, which is one of the methods' limitations. This makes it challenging for students to complete their laboratory research tasks. Additionally, because of COVID-19, most tests intended to be taken outside of the classroom have been rescheduled, and all tests that were supposed to be taken internally have been cancelled. The magnitude effect of cancelling assessments has harmed students' learning. Even though different colleges and universities manage internal assessment in diverse ways, putting off external assessment directly affects a student's education and future (Pravat, 2020).

The biggest issue is that switching from traditional class-based to online learning is challenging for students. Since most students were at home, family chores occupied a substantial portion of their time, leaving little time for academic work. Dick et al. (2020) claim that face-to-face learning is significantly favoured due to the challenges associated with studying online due to the problems encountered using online platforms. Similarly, Pokhrel and Chhetri (2021) argued that some scientific topics, particularly mathematics, physics, and biology, are inappropriate for online instruction. The claim is that this research necessitates fieldwork, which is rarely done online. Singh and Thurman (2019) assert that despite the growing popularity of online learning and instruction, most students still prefer face-to-face instruction in a classroom setting. It is thought that in-person instruction in the classroom enables students to converse with their professors and fellow students. As a result, while online education may appear to be a viable alternative to traditional classroom instruction, it has drawbacks that negatively impact students in higher education.

The World Economic Forum (2020) avowed that online learning has proved that teaching and learning can be designed to cater to individual learners' educational needs, and lecturers can also be creative in content delivery, which affirms a paradigm shift in the education system. Online learning can be accessed by a large number of

students, conveniently at various locations, more than even face-to-face classroom teaching. This is conveniently innovative classroom teaching and learning, which has changed the faces of education globally. Ramrathan (2021) agrees that online learning will continue to dominate higher education, even after the COVID-19 pandemic. Conversely, COVID-19 led to the massive adoption and use of various learning technologies, for classroom instruction, across various higher education institutions in South Africa. Hence, students and academics were forced to learn necessary computer/ICT skills that could enable them to use the technologies effectively.

4.4 The Realities of ICT Challenges in Higher Education

Online learning became an alternative approach to curriculum delivery in higher education institutions across the globe during the pandemic (Morgan, 2020). Thus, the tasks of curriculum delivery in South Africa's higher education institutions became uncertain with face-to-face teaching and learning, but the adoption of online to continue the academic calendars (van Schalkwyk, 2021). Virtual classrooms have become a new approach which all must embrace (Mavundla & Mgutshini, 2021).

Mhlanga and Moloji (2020:8) affirm that "integration of learning technologies is the beginning of the process that will move education to 4IR effectively, where learning is mostly digital, with a few occasions of face-to-face engagements". Thus, the pandemic brought transformative teaching and learning. With many higher education institutions in South Africa needing to catch up with the sudden transformation, their efforts to adjust to virtual classrooms were challenging and came with some delays (Mahlaba, 2020). Curriculum delivery in these universities became accessible to students through internet-driven ICT tools/platforms, with rural students facing challenges accessing online learning effectively. Huber and Helm (2020) opine that 4IR in higher education highlights the digital divide in a country's education, mostly in developing countries. Ajani (2021) concurs that the digital divide is prominently emphasised between rural and urban students in South African communities.

The COVID-19 outbreak has established the inability of some academic staff to use online platforms effectively (Ouma, 2021), with various inequitable levels at which can make their students receive information (Osman, 2020), thus, presenting an unfavourable learning environment (Tadesse & Muluye, 2020), and the inability of various of online platforms to attain certain academic functions are some identified issues (Pokhrel & Chhetri, 2021). Due to the drawbacks of online learning and teaching during the COVID-19 pandemic, students' levels of academic performance declined because of the reduced number of hours they spent studying. Additionally, they cannot consult with their lecturers, especially when they have academic issues.

With the digital divide or inadequate/lack of resources in higher education institutions, social justice, equity, and access to education, as advocated by the South African constitution, are not visible in the education system (Mhlanga & Moloji, 2020), with particular reference to rural-based students. Maringe (2020: 1) asserts that "issues of exacerbating inequalities for the already disadvantaged students have to be interrogated and mitigated lest the gains already achieved may be wiped out in an instant". Similarly, Dube (2020: 1) declares that "rural learners face unprecedented challenges in adjusting to a new mode of life and learning". Dube (2020), in his study, using primary school and secondary school learners as participants, submits that findings can be extended to rural-based university students from deprived geographic locations. Dube (2020), Ajani (2021), and Ajani & Gamede (2021) avow that most first-year students from rural high schools need more ICT experience and training that can benefit them in online learning. The sudden rise in online learning in South Africa's higher education institutions places most rural students at a disadvantage as they lack needed resources like laptops and computer skills to access learning content online or participate effectively in online assessments (Ajani, 2020; Mukuna & Aloka, 2020). This fosters inequities in the education system and disadvantages many willing rural students, giving them emotional stress to access online learning (Jimola & Ofodu, 2021).

The COVID-19 pandemic heightens social gaps and inequalities created by the apartheid education system. Students in many historically disadvantaged universities in South Africa need more access to online learning and more support to participate effectively in online learning (Ramrathan, 2021). Morgan (2020) argues that various learning resources, digital platforms, and educational applications aim to facilitate learning continuation. Mhlanga and Moloji (2020) also agree that using these platforms creates social interactions and care for the students during the lockdown. Various platforms ensure continuity of teaching and learning during the pandemic (Dipa, 2020). Hence, varieties of these platforms provide options for the facilitators of learning to choose convenient approaches to reach out to all students. The pandemic also highlights the situational analysis of each university's readiness for ICT in teaching and learning processes. The platforms also need more resources and technical knowledge/skills among students in traditional or historically disadvantaged higher education institutions in South Africa.

In contrast, the digital divide between rural and urban students becomes evident (Gamede et al., 2021). According to

Mahlaba (2020), integrating ICT into teaching and learning in the global education system was the initial paradigm shift to the Fourth Industrial Revolution (4IR), with the conversion of learning contents into digital, with limited physical classes. This is why many higher institutions in developed countries could quickly shift to absolute online, using various 4IR tools (Landa et al., 2021). These global institutions use multi approaches to accommodate individual differences in students and lecturers to access and deliver learning content (Ramrathan, 2021).

4.5 Malpractices in Assessment among Students

On the other hand, the evaluation of online learning reveals that cheating among students is one of the most prominent shortcomings that affect the quality of education. Students in South Africa displayed this during the COVID-19 pandemic. Studies have established that collaborative online learning communities among students actively and continually encourage malpractices among students (Espasa & Meneses, 2010; Kuo et al., 2014). Students' collaborative engagements in online learning activities are crucial to their learning and academic achievements, as teamwork and group commitment are encouraged. However, the various forms of collaborative effort among students have continued to be abused as students collaborate to cheat. Cross (1998:4) defines learning communities as "groups of people engaged in intellectual interaction for learning". The transition to online teaching and learning encourages students to use social instant messaging applications like WhatsApp to exchange and share assessment answers. Sharing assignments and other assessments among students from online learning and assessments intensifies cheating practices and drawbacks that challenge the quality of education (Rahim, 2020; Mavundla & Mgutshini, 2021).

Students use different online platforms to share information related to assessments, which results in cheating during assessments, as against assessments in traditional classrooms which are typically supervised. Church and de Oliveira (2013) argue that WhatsApp is a prominent communication tool that also has the advantage of being able to send/receive instant messages from one individual/group to another instantly (Adedoyin & Soykan, 2020). Online learning activities and assessments are conducted online, where monitoring and supervision are limited, thus calling for regulation. Transformation into online learning, however, provided prospects and diverse opportunities for students to access online learning, self-regulate their learning experiences, and construct knowledge. At the same time, they can also engage in unethical behaviours that lead to malpractice.

5. Conclusion

The pandemic caused by COVID-19 has resulted in a new transformation within the educational system, with teaching and learning moving to an online format. Students have shown a positive attitude toward the change by adopting various learning platforms to access learning. There is no doubt that the experiences of online learning will prepare higher education institutions for academic reviews during the post-pandemic. The first-hand experiences motivate educational institutions and stakeholders to engage in careful planning that can adapt to unforeseen system shifts. Students have been given more opportunities to explore, learn, control, and maximise the necessary skills for learning in the 21st century.

As driven by the pandemic, the transition of the global learning communities from blended learning to complete online learning brought changes in teaching and learning approaches using various learning platforms. The COVID-19 pandemic demonstrated that South Africa's higher education institutions are framed with a digital divide but are ready and prepared to incorporate 4IR into teaching and learning. These establishments, forced to make hasty adjustments to the new status quo, made several efforts to adopt and use learning technologies. Many of these institutions transformed from the age-old traditional classroom pedagogies to online classrooms. Students' adaptation to learning technologies for teaching and learning continues to be enhanced. Thus, traditional or historically disadvantaged universities continue improving the transition from physical to online classrooms. Online learning has brought a new transformation in higher education. However, the change has also affected the quality of education because of students' malpractices and other forms of academic dishonesty when taking online tests.

References

- Adedoyin, O. B., & Soykan, E. (2020). COVID-19 pandemic and online learning: the challenges and *Interactive Learning Environments*, 1-13. Retrieved from <https://www.tandfonline.com/doi/full/10.1080/10494820.2020.1813180>.
- Ahmadi, A., Noetel, M., Parker, P. D., Ryan, R., Ntoumanis, N., Reeve, J., Beauchamp, M., Dicke, T., Yeung, A., Ahmadi, M., Bartholomew, K., Chiu, T., Curran, T., Erturan, G., Flunger, B., Frederick, C., Froiland, J. M.,

- Gonzales-Cutre, D., Haerens, L., ... Lonsdale, C. (2022). A classification system for teachers' motivational behaviours is recommended in self-determination theory interventions. *PsyArXiv*. <https://doi.org/10.31234/osf.io/4vrym>
- Ajani O. A. (2021). Use of Moodle for curriculum delivery in higher institutions during the COVID-19 pandemic, *International Journal of Innovation, Creativity, and Change*, 15(4), 708-727.
- Ajani O. A., & Gamede, B. T. (2020). Challenges of high school learners' transition into universities: a case of a South African rural university, *Gender & Behaviour*, 18(2), 15803-15812.
- Ajani, O. A., & Gamede, B.T (2021). Curriculum Delivery and Digital Divide in South African Higher Institutions during COVID-19 Pandemic: A case of social injustice, *International Journal of Innovation, Creativity, and Change*, 15(8), 590-603.
- Ali, W. (2020). Online and Remote Learning in Higher Education Institutes: A Necessity in light of COVID-19 Pandemic. *Higher Education Studies*, 10(3), 16–25.
- Alvarez, J., A. (2020). The phenomenon of learning at a distance through emergency remote teaching amidst the pandemic crisis. *Asian Journal of Distance Education*, 5(1), 144-153.
- Beaunoyer, E., Dupéré, S., & Guitton, M. J. (2020). COVID-19 and digital inequalities: Reciprocal impacts and mitigation strategies. *Computers in Human Behaviour*, 111, 106424.
- Chen, K.-C., & Jang, S.-J. (2010). Motivation in online learning: Testing a model of self-determination theory. *Computers in Human Behavior*, 26(4), 741-752. <https://doi.org/10.1016/j.chb.2010.01.011>
- Chiu, T. K. F. (2022). Applying the self-determination theory (SDT) to explain student engagement in online learning during the COVID-19 pandemic. *Journal of Research on Technology in Education*, 54(sup1), S14-S30. <https://doi.org/10.1080/15391523.2021.1891998>
- Chiu, T. K. F., Lin, T.-J., & Lonka, K. (2021). Motivating online learning: The challenges of COVID-19 and beyond. *The Asia-Pacific Education Researcher*, 30(3), 187-190. <https://doi.org/10.1007/s40299-021-00566-w>
- Church, K., & de Oliveira, R. (2013). *What's up with WhatsApp? Comparing mobile instant messaging behaviours with traditional SMS*. Proceedings of the 15th International Conference on Human-computer Interaction with Mobile Devices and Services (pp. 352-361). ACM.
- Cross, K. P. (1998). Why learning communities? Why now? *About Campus*, 3(3), 4-11.
- Dean, B., & Campbell, M. (2020). Reshaping work-integrated learning in a post-COVID-19 world of work. *International Journal of Work-Integrated Learning, Special Issue*, 21(4), 356-364.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crises. *Journal of Educational Technology*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>
- Dick, G., Akbulut, A., & Matta, V. (2020). Teaching and learning transformation in the time of the Coronavirus crisis, *Journal of Information Technology, Case and Application Research*, 22(4), 243-255. <https://doi.org/10.1080/15228053.2020.1861420>
- Dipa, K. (2020). COVID-19 Presents Curricula Crunch for SA's Universities. Retrieved from <https://www.iol.co.za/saturday-star/news/COVID-19-presents-curricula-crunch-for-sasuniversities47191206>
- Dube, B. (2020). Rural online learning in the context of COVID-19 in South Africa: Evoking an inclusive education approach. *Multidisciplinary Journal of Educational Research*, 10(2), 135-157.
- Espasa, A., & Meneses, J. (2010). Analysing feedback processes in an online teaching and learning environment: an exploratory study. *Higher Education*, 59(3), 277-292.
- Gamede, B. T., Ajani, O. A., & Afolabi, O. S. (2021). Exploring The Adoption and Usage of Learning Management System as Alternative for Curriculum Delivery in South African Higher Education Institutions During COVID-19 Lockdown. *International Journal of Higher Education*, 11(1), 71-84.
- Gulli, C., Kohler, N., & Patriquin, M. (2007). The great university cheating scandal. *Maclean's*, 120(5), 32-36.
- Hall, A., Nousiainen, M. Campisi, P., Dagnone, J., Frank, J., Kroeker, K., Brzezina, S., Purdy, E., & Oswald, A. (2020). Training disrupted: Practical tips for supporting competency-based medical education during the

- COVID-19 pandemic. *Medical Teacher*. <https://doi.org/10.1080/0142159X.2020.1766669>
- Hedding, D. W., Greve, M., Breetzke, G. D., Nel, W., & Van Vuuren, B. J. (2020). COVID-19 and the academe in South Africa: Not business as usual. *South African Journal of Science*, 116(7-8), 1-3.
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*, 27(1), 1–9.
- Holzer, J., Lüftenegger, M., Kaser, U., Korlat, S., Pelikan, E., Schultze-Krumbholz, A., Spiel, C., Wachs, S., & Schober, B. (2021). Students' basic needs and well-being during the COVID-19 pandemic: A two-country study of basic psychological need satisfaction, intrinsic learning motivation, positive emotion and the moderating role of self-regulated learning. *International Journal of Psychology*, 56(6), 843-852. <https://doi.org/10.1002/ijop.12763>
- Huber, S. G., & Helm, C. (2020). COVID-19 and schooling: evaluation, assessment, and accountability in times of crises—reacting quickly to explore key issues for policy, practice, and research with the school barometer. *Educational Assessment, Evaluation, and Accountability*, 32(2), 237-270.
- Jimola, F. E., & Ofodu, G. O. (2021). Sustaining learning during COVID-19 seismic shift: The need to develop flexible pedagogy. *Interdisciplinary Journal of Education Research*, 3(1), 14-26.
- Khiat, H. (2017). Academic performance and the practice of self-directed learning: The adult student perspective. *Journal of Further and Higher Education*, 41(1), 44–59.
- Kopish, M., & Marques, W. (2020). Leveraging technology to promote global citizenship in teacher education in the United States and Brazil. *Research in Social Sciences and Technology*, 5(1), 45-69.
- Koumpouras F, Helfgott S. (2020). Stand together and deliver challenges and opportunities for rheumatology education during the covid19 pandemic. *Arthritis Rheumatol*. <https://doi.org/10.1002/art.41278>
- Kuo, Y. C., Walker, A. E., Schroder, K. E., & Belland, B. R. (2014). Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. *The Internet and Higher Education*, 20, 35-50.
- Landa, N., Zhou, S., & Marongwe, N. (2021). Education in emergencies: Lessons from COVID-19 in South Africa. *International Review of Education*, 67(1), 167-183.
- Lipowsky, F., & Rzejak, D. (2015). Key features of effective professional development programmes for teachers. *Ricercazione*, 7(2), 27-51.
- Lowenthal, P. R., & Snelson, C. (2017). In search of a better understanding of social presence: An investigation into how researchers define social presence. *Distance Education*, 38(2), 141-159.
- Luo, A. (2021). Content analysis: A step-by-step guide with examples. Scribbr. Retrieved 14 July 2022 from <https://www.scribbr.com/methodology/content-analysis/>
- Mahaye, N. E. (2020). *The impact of COVID-19 pandemic on education: navigating forward the pedagogy of blended learning*. Retrieved from https://www.academia.edu/42842598/The_Impact_of_COVID_19_Pandemic_on_Education_Navigating_Forward_the_Pedagogy_of_Blended_Learning
- Mahlaba, S. C. (2020). Reasons why self-directed learning is important in South Africa during the COVID-19 pandemic. *South African Journal of Higher Education*, 34(6), 120-136.
- Maringe, F. (2020). *The Quarantined Academy: Emerging Opportunities and Risks*. Heltasa. Retrieved from <http://heltasa.org.za/the-quarantined-academy-emergingopportunities-and-risks/>
- Martin, M., & Furiv, U. (2020). COVID-19 shows the need to make learning more flexible. University World News. *The Global Window on Higher Education*. Retrieved from <https://www.universityworldnews.com/post.php?story=20200324115802272>
- Masutha, M. (2020). *Redressing or Reproducing Inequalities? Narrative Accounts of Working-class Students' Experiences of Completion and Non-completion in South African Higher Education*. Unpublished doctoral dissertation, University of Bath.
- Masutha, M., & Naidoo, R. (2021). Stories from the margins, stories from the margins. *Knowledge Beyond Colour Lines: Towards Repurposing Knowledge Generation in South African Higher Education*, 59.

- Mathivanan, S., Jayagopa, P., Ahmed, S., Manivannan, S., Kumar, P., Raja, K., S. Sree Dharinya, S., & Prasad, G. (2021). Adoption of E-Learning during Lockdown in India. *International Journal of Systematic Assurance Engineering Management*. <https://doi.org/10.1007/s13198-021-01072-4>
- Mavundla, A. O., & Mgutshini, T. (2021). Contexts during the COVID-19 pandemic in South Africa. COVID-19. In T. Mgutshini, K. Oparinde, & V. Govender (Eds.), *COVID-19: Interdisciplinary Explorations of Impacts on Higher Education* (pp. 97-111). African Sun Media.
- Mhlanga, D., & Moloi, T. (2020). COVID-19 and the Digital Transformation of Education: What Are We Learning on 4IR in South Africa? *Education Sciences*, *10*(7), 180-198.
- Molise, H., & Dube, B. (2020). Emergency online teaching in Economic and Management Sciences necessitated by the COVID-19 pandemic: The Need for Healthy Relations in a Rural Schooling Context. *International Journal of Learning, Teaching, and Educational Research*, *19*(6), 387-400.
- Morgan, H. (2020). Best practices for implementing remote learning during a pandemic. *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas*, *93*(3), 135-141.
- Motala, S., & Menon, K. (2020). In search of the 'new normal': Reflections on teaching and learning during COVID-19 in a South African university. *Southern African Review of Education with Education with Production*, *26*(1), 80-99.
- Mseleku, Z. (2020). A Literature Review of E-Learning and E-Teaching in the Era of the COVID-19 Pandemic. *International Journal of Innovative Science and Research Technology*, *5*(10), 588-597.
- Mukuna, K. R., & Aloka, P. J. (2020). Exploring Educators' Challenges of Online Learning in COVID-19 at a Rural School, South Africa. *International Journal of Learning, Teaching and Educational Research*, *19*(10), 134-149.
- Nalipay, M. J. N., King, R. B., & Cai, Y. (2020). Autonomy is equally important across East and West: Testing the cross-cultural universality of self-determination theory. *Journal of Adolescence*, *78*, 67-72. <https://doi.org/10.1016/j.adolescence.2019.12.009>
- Odeku, K. O. (2021). Using Blackboard Collaborate for Law Pedagogy Amid a Spiraling COVID-19 Pandemic in a Historically Disadvantaged Black South African University. *Journal of Educational and Social Research*, *11*(3), 241-241.
- Oga-Baldwin, W. L. Q. (2015). Supporting the needs of twenty-first-century learners: A self-determination theory perspective. In C. Koh (Ed.), *motivation, leadership, and curriculum design: Engaging the net generation and 21st-century learners* (pp. 25-36). Springer Singapore. https://doi.org/10.1007/978-981-287-230-2_3
- Osman, M.E. (2020). Global Impact of COVID-19 on Education Systems: The Emergency Remote Teaching at Sultan Qaboos University. *Journal of Education for Teaching*, pp. 1-10. <https://doi.org/10.1080/02607476x.2020.1802583>
- Ouma, R. (2021). Beyond "carrots" and "sticks" of online learning during the COVID-19 pandemic: A Case of Uganda Martyrs University, *Cogent Education*, *8*(1), 1974326. <https://doi.org/10.1080/2331186X.2021.1974326>
- Pelikan, E. R., Korlat, S., Reiter, J., Holzer, J., Mayerhofer, M., Schober, B., Spiel, C., Hamzallari, O., Uka, A., Chen, J., V" alim" aki, M., Puhari'c, Z., Anusionwu, K. E., Okocha, A. N., Zabrodskaia, A., Salmela-Aro, K., K" aser, U., Schultze-Krumbholz, A., Wachs, S., ... Lüftenegger, M. (2021). Distance learning in higher education during COVID-19: The role of basic psychological needs and intrinsic motivation for persistence and procrastination-a multi-country study. *PLoS One*, *16*(10), Article e0257346. <https://doi.org/10.1371/journal.pone.0257346>
- Pokhrel, S., & Chhetri, R. (2021). A Literature Review on the Impact of the COVID-19 Pandemic on Teaching and Learning. *Higher Education for the Future*, *8*(1), 133-141. <https://doi.org/10.1177/2347631120983481>
- Pravat, K. J. (2020). Impact of COVID-19 on higher education in India. *International Journal of Advanced Education and Research*, *5*(3), 77-81.
- Rahim, A. F. A. (2020). Guidelines for online assessment in emergency remote teaching during the COVID-19 pandemic. *Education in Medicine Journal*, *12*(2), 59-68.
- Ramrathan, L. (2021). The school curriculum in South Africa in the COVID-19 context: An opportunity for education for relevance. *Prospects*, *51*(1), 383-392.
- Rashid, S., & Yadav, s. (2020). Impact of COVID-19 Pandemic on Higher Education and Research. *Indian Journal*

- of Human Development*, 14(2), 340–343. <https://doi.org/10.1177/0973703020946700>
- Reeve, J. (2016). Autonomy-supportive teaching: What it is, how to do it. In W. C. Liu, J. C. K. Wang, & R. M. Ryan (Eds.), *Building autonomous learners: Perspectives from research and practice using self-determination theory* (pp. 129–152). Springer Singapore. https://doi.org/10.1007/978-981-287-630-0_7
- Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology*, 98(1), 209-218. <https://doi.org/10.1037/0022-0663.98.1.209>
- Reeve, J., Bolt, E., & Cai, Y. (1999). Autonomy-supportive teachers: How they teach and motivate students. *Journal of Educational Psychology*, 91(3), 537-548. <https://doi.org/10.1037/0022-0663.91.3.537>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Singh, V., & Thurman, A. (2019). How many ways can we define online learning? A systematic literature review of definitions of online learning. *Am J Distance Edu*, 33(4), 289-306.
- Sintema, E. J. (2020). E-Learning and Smart Revision Portal for Zambian Primary and Secondary School Learners: A Digitalized Virtual Classroom in the COVID-19 Era and Beyond. *Aquademia*, 4(2), ep20017. <https://doi.org/10.29333/aquademia/8253>
- Tadesse, S., & Muluye, W. (2020). The impact of COVID-19 pandemic on education system in developing countries: A review. *Open Journal of Social Sciences*, 8(10), 159-170. <https://doi.org/10.4236/jss.2020.810011>
- Tekkol, İ. A., & Demirel, M. (2018). An investigation of self-directed learning skills of undergraduate students. *Frontiers in Psychology*, 9, 2324.
- Tinoca, L., Piedade, J., Santos, S., Pedro, A., & Gomes, S. (2022). Design-Based Research in the Educational Field: A Systematic Literature Review. *Education Sciences*, 12(6), 410.
- Troop, D. (2007). You're never gonna believe this one. *Chronicle of Higher Education*, pp. 53, 4. Retrieved from <http://www.chronicle.com/article/youre-never-gonna-believe/16333>
- Turk, M., Heddy, B. C., & Danielson, R. W. (2022). Teaching and social presences supporting basic needs satisfaction in online learning environments: How can presences and basic needs happily meet online? *Computers & Education*, p.180, Article 104432. <https://doi.org/10.1016/j.compedu.2022.104432>
- UNESCO (2020). *Distance Learning Solutions*. UNESCO. <https://en.unesco.org/covid19/educationresponse/solutions>.
- 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.
- Vansteenkiste, M., Niemiec, C. P., & Soenens, B. (2010). The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions. In T. C. Urdan, & S. A. Karabenick (Eds.), *The Decade Ahead: Theoretical perspectives on motivation and achievement* (pp. 105-165). Emerald Group Publishing Limited. [https://doi.org/10.1108/S0749-7423\(2010\)000016A007](https://doi.org/10.1108/S0749-7423(2010)000016A007)
- Vansteenkiste, M., Ryan, R. M., & Soenens, B. (2020). Basic psychological need theory: Advancements, critical themes, and future directions. *Motivation and Emotion*, 44(1), 1-31. <https://doi.org/10.1007/s11031-019-09818-1>
- Vansteenkiste, M., Sierens, E., Goossens, L., Soenens, B., Dochy, F., Mouratidis, A., Aelterman, N., Haerens, L., & Beyers, W. (2012). Identifying configurations of perceived teacher autonomy support and structure: Associations with self-regulated learning, motivation, and problem behaviour. *Learning and Instruction*, 22(6), 431-439. <https://doi.org/10.1016/j.learninstruc.2012.04.002>
- World Economic Forum. (2020). *The Future of Jobs Report 2020*. Retrieved from <https://www.voced.edu.au/content/ngv:88417>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).