Article

The benefits of the use of online learning during the COVID-19 pandemic

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Abstract: The COVID-19 pandemic occasioned significant changes in many aspects of human life. The education system is one of the most impacted sectors during the pandemic. With the contagious nature of the disease, governments around the world encouraged social distancing between individuals to prevent the spread of the virus. This led to the shutdown of many academic institutions, to avoid mass gatherings and overcrowded places. Developed and developing countries either postponed their academic activities or used digital technologies to reach learners remotely. The study examined the benefits of online learning during the COVID-19 pandemic. The participants for the study consist of 5 lecturers and 30 students from the ML Sultan Campus of the Durban University of Technology, South Africa. Data was collected using open-ended interviews. Content analysis was applied to analyze the data collected. Data was collected until it was saturated. Different ways were implemented to make online learning and teaching successful. The findings identified that the benefits of online learning were that it promotes independent learning, flexible learning adaptability and others.

Keywords: online learning; media in education; lecturers; students; COVID-19

1. Introduction

The COVID-19 pandemic brought about a massive shift in how the education sector, especially the mode of learning. With a significant portion of the world's population under different forms of social distancing measures and restrictions, face-to-face learning mode became challenging. Given this challenge, educational institutions at all levels embark on drastic reforms in the mode of learning. This occasioned the transition from the physical learning mode to virtual classrooms. This shift is reflected in all areas of education; from the integrated technology in traditional lecture-based sessions to entirely autonomous, self-directed online courses. This paper explores the considerable benefits of online learning during the COVID-19 pandemic, including not only the social distancing regulations but also the broader educational philosophy and associated learning outcomes that this new type of mode of learning education can offer.

Learning is a process built to develop students' creative thinking (Sánchez-Elvira and Simpson, 2018). The term 'daring' is an abbreviation of 'Dalam jaringan,' which is the Indonesian substitute for the word 'online that is often related to internet technology (Chandler and Sweller, 1996). The learning process, whether using learning applications or social networking, is called online learning. According to Stoja et al. (2022), online learning is the experience of knowledge transfer using video, audio, images, text communication, and software supported by Internet networks (Falode et al., 2020). The essential factor in online learning is the readiness of educators and students to interact online. There have been challenges since the shift to

online learning was an unplanned virtual educational platform during a global emergency that compromised the quality of education (Stojan et al., 2022). The challenges of online learning are evident: a lack of students' motivation, a negative attitude towards online learning, and a lack of training to use online learning tools. Even though online learning was not planned for, it had benefits, such as that students can achieve their desired outcomes regardless of location. Online learning during the COVID-19 pandemic forced instructors and students to adapt to different online learning technologies and become technologically advanced.

1.1. Literature review

An online learning platform is an educational mode of using integrated technologies to teach and deliver messages to students in different locations (Coman et al., 2020). Online learning, open learning, web-based learning, computer-mediated learning, and blended or hybrid learning allow students to study at any time and from any location. Online learning encourages students to be more creative and adaptable (Dhawan, 2020). According to Lazim et al. (2021), students and instructors must have a positive attitude when studying online, as well as accept and learn to use new technologies to succeed academically, because institutions and students were not prepared for such a rapid transformation due to the COVID-19 pandemic.

Online learning has played a significant role in meeting the demand for educational access (Beltekin and Kuyulu, 2020; Turu et al., 2023). Since the COVID-19 pandemic has caused a shift in education, institutions have had to find new ways to reach students because face-to-face communication is no longer an option. Given the technological experiences that students have, online learning technologies are widely used in universities to increase the quality of learning. Most students are used to traditional learning methods; however, some students are experiencing their first exposure to online learning at the university level during the COVID-19 pandemic (Ellis and Bliuc, 2019).

Information and Information Technology (ICT) is one of the technologies that assist in online learning by making education accessible to students timeously (Händel et al., 2020). Blackboard, Moodle, Microsoft Teams, and other virtual learning platforms, are used by different universities for online learning purposes. These platforms allow instructors to upload notes, share slides, and share students' notices. Online discussion groups are used to share students' information and communicate with their instructors anytime (Medina, 2018; Sengkey et al., 2021). Thus, this study further discussed the following tools used during COVID-19 for online learning by different universities: Microsoft Team, WhatsApp, Moodle Platform, Google Classroom, Skype, and Telegram.

1.2. Common benefits of online learning

Research done by Parkes and Barrs (2021) found that more than anything else flexibility makes e-learning programmers attractive to learners. In online learning, students can register for courses from their preferred locations convenient for their schedules. Dhawan (2020) supports this assertion, stating that this advantage is appealing to most adult learners because it accommodates their work schedules and

permits flexibility in managing their family life. The COVID-19 crisis shifted all learning to online learning, which requires a Learning Managing System (LMS) (Dutta, 2020). During the COVID-19 pandemic, online learning allowed universities to keep their academic calendars running. Because of the COVID-19 pandemic, students were able to complete their qualifications on time.

Mukhtar et al. (2020) classified quality costs as "convenience of analysis and control, "failure, prevention, and appraisal costs. However, the author has attempted to cite "educational" examples for comparison. Failure costs are those caused by failure to achieve through design, manufacture, supply and service. They can be broken down into two different categories. The first is internal failure cost occurring within the organization, including scrap, re-work and downgrading to "seconds". Associated with these costs are loss of production (service provision) capacity, resetting costs (to make additional items), investigation costs and correction costs (redesign and re-specification). The second is external failure cost occurring after products (or services) are with the customer. These costs include the cost of rejection at customer premises, product (or service) liability and warranty, providing replacement product (or service), loss of future orders with customers, damaged public relations and loss of credibility due to bad publicity. Singh, Singh and Steele (2021) believe "the unmeasurable cost of loss of future business may be much greater" than the others.

Technology advancements have made online learning simple and enjoyable (Dhawan, 2020). Students and instructors have become more technologically advanced in online learning and teaching due to the use of ICT. According to Babu and Sridevi (2018), using ICT also assists in improving virtual learning through online learning. To succeed in online learning, technology in online learning has developed students not only technologically but also as independent, responsible, and self-disciplined individuals. During the COVID-19 pandemic, the online learning transformation forced instructors and students to adapt to various online learning technologies and become technologically advanced. In the case of the COVID-19 pandemic, information technology is essential because there is no other way to communicate than through information technology.

Student participation in online learning makes it more effective (Martin and Bolliger, 2018). The instructor must collaborate with students to help them understand the modules. According to Humanika et al. (2020), instructors should frequently have quizzes and activities for students, especially if they are studying online. This helps to ensure that students are engaged and understand what is expected of them. Online learning strengthens the bond between the student and the instructor. Students communicate independently, but to receive proper guidance and succeed, they must communicate with the instructor and seek clarification. The online discussion tools also help students and instructors communicate more effectively during the COVID-19 pandemic.

Flexible learning as a delivery modality must be adapted in public and private higher education institutions to respond to the needs of learners in higher education institutions (Susilana et al., 2020). For higher education institutions, the transition to online learning due to COVID-19 has been difficult. Lam et al. (2018) state that education is inexperienced and susceptible to external threats and that measures should

be implemented to solve the challenges brought about by the epidemic. Apart from the teachers' competence, the learners' circumstances and situation, and the learning environment's efficacy, as described by Susilana et al. (2020), should also incorporate E-learning resources and tools, an online learning system or LMS, and skills to be utilized in the new normal.

1.3. Advantages of online learning during the COVID-19 pandemic

South Africa is one of the countries that had to abide by the COVID-19 restrictions (Van der Berg and Spaull, 2020). Online communities and social networks are also ways of networking online There are studies on the impacts of online networking, such as interaction with online communities, on students' learning (Cui et al., 2023; Ismail and Arshah, 2016; Rovai, 2002; Troussas et al., 2021; Yu et al., 2010). It is found students who are good at building and maintaining relationships with other students and understanding their needs in the community can achieve higher learning outcomes than those who are not (Rovai, 2002). The COVID-19 pandemic encouraged building good relationships among students, lecturers and the community. Thus, online learning is a good way of helping those who want to learn more effectively, especially during an emergency. Virtual institutions of higher learning and degrees are rising in popularity, which is good for people who have busy work and life schedules. However, we should also consider the amount of commitment and self-discipline that are prerequisites to success in online learning. In addition, online education can help students to learn more effectively and improve their learning experience. According to (Kasradze and Zarnadze, 2021), online or digital learning is a veritable way of knowledge sharing and impartation in the era of the Fourth Industrial Revolution (4IR) since everything is digital. With constant improvements and discoveries in digital technology, virtual learning systems will become common practice. This will boost participation in future innovative research and knowledge production. It is fascinating to uncover the beneficial contributions, of virtual learning, to students' academic development and the improvements in the education sector (Susilawati et al., 2021).

2. Materials and methods

This study adopts a qualitative research design method. The qualitative design method focuses on the interpretation of meaningful data. It answers the why and how questions to address the research problem (Ismael 2021; Salkid 2018). Scientists and researchers investigating human behavior rely more on qualitative research designs. The qualitative research design method emphasizes the overall aspect of the investigation (Vu, 2021). Semi-structured interviews were used as a data collection instrument for deeper insights into the perceptions and feelings of participants about the use of online learning during the COVID-19 pandemic. This study employed a case study design, with data collected primarily at the Sultan Campus of the Durban University of Technology (DUT). The target population comprised students in their first and second years of study at the Department of Public Management and Economics, DUT, in 2020 and 2021, as well as instructors from several faculties on the DUT ML Sultan Campus. The non-probability sampling strategy proved to be

optimal, and purposive sampling enabled the researcher to contact an appropriate number of respondents who benefited from learning and teaching online during the COVID-19 epidemic. The study included thirty students of Public Management and Economics who were admitted and completed their degrees during the COVID-19 pandemic lockdown. The students completed their studies without attending physical classes on Campus. The five lecturers were drawn from the Departments of Public Management and Economics, Business Administration, Marketing, Human Resources Management and Applied Management. They taught students during the COVID-19 lockdown through the university's online teaching platform, Microsoft (MS) Teams. Before the COVID-19 lockdown, academic staff of the university were conversant with the use of online platforms, Moodle and Blackboard, to interact with students. Thus, migration to online teaching during the lockdown was seamless. The university provisioned WiFi data for all students and lecturers for ease of access to the online teaching platforms. Data was gathered until saturation. The data, arranged into themes with the use of the Nvivo application, was analyzed thematically. Responses from the interview were sorted and arranged into various themes and subthemes. The study utilized focus group discussions and semi-structured interviews with students and lecturers to explore their views on online learning during the COVID-19 pandemic, identifying relevant themes and subthemes. The main study's themes and sub-themes are listed in **Table 1**.

Table 1. Identification of themes and sub-themes.

Theme	Sub-themes
Online learning tools	• Microsoft Teams (MS Teams) • Modular Objective-Oriented Dynamic Learning Environment (Moodle) • Queens • Zoom • Learn Wise • Electronic mail (e-mail) • WhatsApp groups
Benefits of online learning	• Promotes independent learning • Flexible learning • Adaptability • Increases student self-confidence • Enables remote learning • Supports working and schooling • Helped in controlling the COVID-19 outbreak on campus • Reduces cost of learning • Technological skills acquisition • Promotes collaborative learning • Encourages participatory learning
Strategies for effective online learning	• Formative assessments • Collaborative learning • Active learning • Independent learning • Interactive learning • Participatory learning • Use of tutor

Table 1. (*Continued*).

Theme	Sub-themes
Challenges of online learning	• Network connectivity issues • Inadequate data • Power failure (Loadshedding) • Delay in an email response by staff • Lack of technological infrastructure • Plagiarism • Poor student attendance • Unstructured timetable • Unconducive learning environment
Suggestions to improve online learning	• Provision of adequate data • Inclusion of online learning in the school curriculum • Staff responsiveness to email • Training of students on digital technology • Early completion of registration • Student-centred learning

Source: Authors compilation.

The COVID-19 pandemic caused global disruption, including temporary closures of educational institutions worldwide. As a result, traditional face-to-face classes had to be moved online to ensure continuity of education. This shift has led to a new version of online learning, where lectures, lessons, and activities are conducted remotely. This shift in South African higher education during the pandemic requires investigation into the technological tools that support online learning, as it is crucial to understand the impact of the pandemic on education.

3. Results and discussion

3.1. Presentation of results

This section begins with the presentation of participants' focus group discussions with the students as well as the semi-structured interviews with the lecturers about their views on the benefits of online learning during the COVID-19 pandemic. The analysis of the data obtained from the semi-structured questions led to the identification of subthemes and relevant themes. Furthermore, the data were coded as Lecturer (01) and Student (01) to be able to identify the theme and the coding. The figure below has the benefits of online learning as a main theme and different sub-themes under it which are eleven in total.

Figure 1 indicates the theme and the subthemes of the benefits of online learning during the COVID-19 pandemic. Many subthemes were identified such as the promotion of independent learning, flexible learning, adaptability, increasing student self-confidence, enabling remote learning, supporting working and schooling, helping in controlling the COVID-19 outbreak on campus, reducing cost of learning, technological skills acquisition, promoting collaborative learning, encourages participatory learning. Due to the closure of schools in most parts of the world caused by the lockdown measures, online learning has become an effective means to run educational activities functional and prevent the possible loss of academic sessions. This theme explores the benefits of online learning for students during COVID-19.
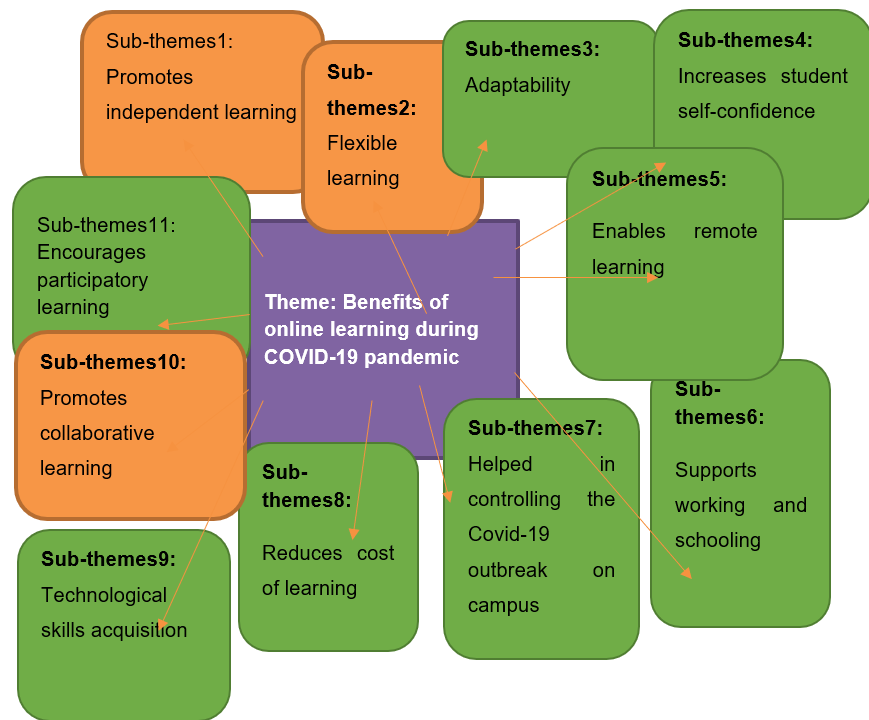
Figure 1. Identification of themes and sub-themes of benefits of online learning during COVID-19 pandemic.

3.2. Promotes independent learning

The students revealed that online learning allowed them to study in their own space. The benefit of this was that it helped in reducing stress. "We can study at our own pace, reducing stress" (Student 1). Also, students can recap the classes since it is recorded. This helps promote self-learning. With online learning, the classes are recorded, and we can go back to the recording when we forget something and learn until we understand (Student 2). The lecturers also support the above narrative interview, who noted that online learning promotes independent learning. For example, lecturers could share teaching notes and materials with students ahead of time, allowing them to study the materials before lectures. Also, students who missed lectures could independently access the recordings and learn on their own time.

Santiago et al. (2021) found that students prioritize preparedness in their online learning. According to them, "students strongly agreed on preparedness as the most vital to engagement in online learning" (Santiago et al., 2021). These perceptions negated the findings of Händel et al. (2020), Koç (2020), Mercan (2018), and that students had negative views on the effectiveness of the distance learning system occasioned by the COVID-19 pandemic. Handel et al. (2020) in particular noted the "lack of feedback from the instructor, inadequate communication and interaction, and the lack of regular follow-up of the courses by the students due to the low motivation, were all negative aspects of distance learning" as antithetical to students' learning. However, these perceptions did not take into consideration the regular feedback, which was mandatory as part of continuous assessment at the Durban University of Technology during the COVID-19 pandemic. One of the lecturers stated that the mandatory feedback system forced students to study at home ahead of the next lecture

because it constituted part of their continuous assessment. The students also confirmed this as a motivation for them to study at home knowing that poor performance would affect their funding.

3.3. Flexible learning

The participating students revealed that online learning is flexible. This meant that online learning enabled students to attend classes at any time and from any location. "Online learning is flexible. It enables us to attend classes at any time and from any location" (Student 3). Another participant stated that online learning "allowed us to access classes anywhere since we could not go to campuses because of the COVID-19 restriction" (Student 2). This resonates with the findings of Santiago et al. (2021) that the various online learning platforms were "accessible, equitable, communicative, monitorable and sustainable to use", thereby enhancing flexible learning at any point in time, irrespective of locations or other engagements. Other studies support this finding (Müller and Mildenberger 2021; Strauß and Rummel 2020; Turan et al., 2022).

The lecturers also considered the flexible learning environment created by online learning as a good development. "I can afford to do other things while engaging my students in the corners of my room, inside my car or any other convenient place, unlike the face-to-face learning environment" (Lecturer 5). It was revealed that online learning gave both flexibility to students and lecturers. For example, lecturers can teach at any time and place. Santiago et al. (2021) found that "strengthening online teaching and delivery of methods by creating contents tailored to the needs of the students during flexible learning will propel to ensuring the efficacy of teaching and learning processes". Lecturers do not need to be physically present in classes for teaching thereby making them flexible in time allocation for teaching. This enables them to arrange and coordinate their teaching responsibilities around their other necessary commitments.

3.4. Adaptability

It was revealed that online learning is a more adaptable method of learning. This was attributed to the fact that students can still attend their classes and participate even while travelling or at home. It is a more adaptable learning method, and it is safe to use or participate in classes while travelling or at home using Microsoft Teams. It is also adaptable to the schedules of the classes (Student 2).

3.5. Increases student self-confidence

Online learning also increases student self-confidence, particularly those who are too shy to participate or contribute to classroom discussions. There is more freedom in online learning because it allows us to ask questions freely. Because some of us are shy, we can participate in class without embarrassment because no one can see us (Student 1). Some lecturers also confirmed that online learning promotes self-confidence among their students.

3.6. Enables remote learning

Online learning enables remote students to learn remotely. This implies that students could continue learning in the comfort of their homes without physically being on campus. "Online learning allowed us to continue with our academics; academics did not stop us; we could learn without physically going to campus" (Student 30). Another student respondent added that remote learning was convenient, particularly for those who live far away and reside in rural areas (Student 19). The benefit of remote learning is that it reduces the difficulties associated with transportation, especially for students living outside the campus "My house is far from school because I cannot afford the rent. The opportunity to learn remotely was the saving grace for me to have my degree because I do not know how I could have be able to cope" (Student 17).

Ferri et al. (2020) found in their study that remote learning and teaching have boosted online learning significantly by opening up new opportunities for indigent students to learn, a reflection on the progressive educational system. Remote learning, as experienced during the COVID-19 pandemic, bridged the widening inequality gaps between students in different situations in education systems.

However, remote learning comes with its challenges. "I lived in rural areas where the internet is not always stable. I lost some sessions in class because of the glitches in the internet connectivity in my village" (Student 22). This finding aligns with the observations of Ferri et al. (2020) that technological glitches were a significant obstacle to online learning during the COVID-19 pandemic. "Students and teachers have faced different obstacles in remote teaching due to the existing limitations related to technological, pedagogical and social challenges, which will be analyzed in the following sections" (Ferri et al., 2020).

Nevertheless, this obstacle is temporary because students would be able to retrieve the audio recordings of missed classes and materials from the platforms. All the students who participated in the study indicated that they encountered such problems especially when there was no electricity supply but that they were able to retrieve the audio recordings of the lectures including the materials posted by the lecturers. The study by Jena (2020) supported this finding. The study found that, unlike the physical class, online learning platforms often help learners have full access to study materials including the audio recordings of the class.

3.7. Supports working and schooling

Another benefit of online learning is that it supports students who are working and studying at the same time. Since students need not be on campus, online learning makes it easier to work and study. It enables us to continue working while studying without having to relocate to be closer to campus (Student 1). It makes things easier for us because of some of our work; it saves money because we do not have to relocate to be close to the institution (Student 2).

3.8. Helped in controlling the COVID-19 outbreak on campus

Online learning was vital in curbing the spread of the virus on campus. For instance, students could continue studying without being crowded in a traditional

classroom. This was essentially critical in curbing the spread of the virus. With online learning, we could continue to study without being crowded in libraries and classrooms (Student 1).

3.9. Reduces cost of learning

The shift in online learning meant that the university management provided students with data to enable them to access online platforms. The participating students note that this helped them save costs as they could print and save their learning materials online. There is a reduction of costs in online learning, we get data, we can print and save things without using a lot of money, and we can print books and other learning materials (Student 3). As noted earlier, online learning bridged the gaps associated with financial inequality in society. Students learn with less cost for transport, feeding and writing materials. "My ability to earn my degree is the introduction of online learning during the COVID-19 pandemic. I was one of the lucky students who gained admission in 2020 for my National Diploma. I did not spend money on transport, clothing, or food because I stayed at home" (Student 14). A majority of the students who participated in the study, especially those with low-income backgrounds, expressed a similar sentiment.

This finding aligns with the study of Erlangga (2022) who observed that online learning elicited enthusiasm among students with poor financial backgrounds. Similarly, Hussein et al. (2020) found that online learning raised the hope of students from poor financial backgrounds by not being distracted by the seemingly unending struggle to fend for funds and materials for their daily academic needs and upkeep. At the Durban University of Technology, the management often provides free data for students and staff during COVID-19 to enable them to access the internet for their routine lectures and research. Thus, apart from the flexible financial needs, the authorities of the institutions could help in reducing the cost through subsidy of materials and devices.

3.10. Technological skills acquisition

Online learning enabled both lecturers and students to sharpen their digital technological skills. It challenged them to learn by moving with time and using it to learn. "Because technology now rules our lives, online learning is advantageous because we know how to study using it' (Student 1). The necessity for students to study toward their degree and the responsibility of the lecturer to provide the necessary guidance during an emergency compelled them to stay connected because there was no alternative means of teaching and learning. "I have to master the techniques of uploading notes and materials on the various platforms and to connect with students on the go" (Lecturer 2). The students said that they had to learn how to download learning materials and interact virtually with their peers and lecturers. "Even though I was working remotely, I had to learn how to download the notes from the Moodle platform and use them, because I would need to always refer back to the notes while reading for my assignments" (Student 2).

"The benefit of applying the acquired technological skills is that it improves the students' performance. This may be connected to the fact that students with advanced

technological skills can access relevant resources to aid their studies. In terms of learning, it created a situation in which students who were more technologically advanced and had access to study resources could excel academically because they could see and access information on time" (Lecturer 3).

These findings align with the positions of Karatas and Arpacı (2021) that online learning increased metacognitive awareness among learners and lecturers. They noted that the growth of specialized knowledge demands of the 21st Century required an "increase and spread of information" accompanied by "many changes in social, economic, political and technological fields". Strauß and Rummel (2020) note, in their study, that online learning sharpens the collaborative skills of teachers and learners.), "Online education can benefit from collaborative learning, as this teaching strategy not only fosters social presence but also promotes learning of new content knowledge and of collaboration skills" (Strauß and Rummel, 2020).

3.11. Promotes collaborative learning

Some of the lecturers interviewed revealed that the information shared with the students strengthened their peer relationships. This meant that online learning promotes collaborative learning. "We attempted to share more information with the students and class representatives, which strengthened peer relationships by allowing the students to communicate on their own" (Lecturer 3). According to Strauß and Rummel (2020), collaborative learning provides students and lecturers with additional support to design learning activities for productive interactive engagements.

"Educators can leverage these benefits by carefully designing learning activities and providing learners with additional support that helps them engage in productive interaction. It is important to note that these instructional means are no guarantee that productive interaction between learners occurs" (Strauß and Rummel, 2020).

Similarly, the study by Herrera-Pavo (2021) found that online collaborative learning "promotes the joint construction of knowledge, as well as the development of skills related to the interaction that results in more essential learning processes".

3.12. Encourages participatory learning

Some lecturers revealed that online learning increases students' participation in classes which was not so with the face-to-face learning model. "There was a higher level of participation in the online learning class" (Lecturer 4). This, according to Lecturer 3, was attributable to the fact that students' confidence increases when others do not watch them. This also explains why some lecturers do not audio-visual instruments in their online classes to ensure anonymity in students' participation. "I discovered that the level of participation among students in class increased with unusual confidence in responding to my questions when I did not use audio-visual component of the online teaching platform" (Lecturer 5).

Turan et al. (2022) have discovered that "the learning opportunities provided in distance education environments require students to act more autonomously and take more responsibility for regulating their learning processes to achieve their learning goals". According to them, with anonymity, online learning provides efficient and effective learning environments for students' participation to build their level of

courage and confidence in speaking without any fear of reprimand or condemnation by their peers. Thus, this flexibility-self-regulated nexus in online learning is crucial to providing satisfactions among learners and educators. This also resonates with the earlier findings of Ayu (2020) that online learning was a useful freely-participatory interactive and consultation forum. The study noted that the participatory benefit of online learning informed constructive and productive engagement with students.

4. Implications of the findings

As noticed in the results section above, the benefits of online learning were that it promotes independent learning, flexible learning, adaptability, increases student self-confidence, enables remote learning, supports working and schooling, helps in controlling the COVID-19 outbreak on campus, reduces the cost of learning, technological skills acquisition, promotes collaborative learning and it encourages participatory learning. The study established that learners evaluated online learning and traditional learning to increase knowledge and social competence. Based on these findings, it can be argued that there might be a relationship between the students' readiness and their Information Technology (IT) skills at the DUT. The results showed that students agreed that online learning is beneficial. The ability to record a meeting had the highest rate according to the students, besides the ability to stay home with comfortable surroundings. The study revealed that half of the participants find online teaching a good solution for the COVID-19 pandemic era, and more than half of them think that traditional teaching elements are lost in an online setting. They also expressed concern with some confusing aspects of the course setup.

5. Conclusion

5.1. Theoretical conclusions

It is established that online learning is beneficial, especially during an emergency. In this study, the intention was to assess the key benefits of online learning during the COVID-19. This study has shown that despite the many challenges of online teaching and learning, it also comes with benefits. The study revealed that both lecturers and students benefitted from the online teaching and learning environments during the COVID-19 pandemic. The COVID-19 pandemic has made online learning a new normal in most if not all, educational contexts across the globe. It is no longer an unfamiliar phenomenon in many developing countries where online education was not well established before the pandemic. It has been noted that the findings of the COVID-19 pandemic have made online learning a new normal in most if not all, educational contexts across the globe.

5.2. Practical implications of the findings

Given the findings of the study, it is evident that governments and institutions of higher learning should begin the gradual implementation of blended learning to incorporate both virtual and physical classes, especially in developing countries. This requires developed infrastructural facilities that support effective learning environments. ICT infrastructures, in particular, should be strengthened to cope with

the capacity of the needs of both the learners and their educators. In the Fourth Industrial Revolution (4IR), digital technology is imperative. Therefore, students and lecturers should acquire, mandatorily, digital technology skills. Constant and regular updates of facilities and infrastructures supporting digital technology should be prioritised.

5.3. Study limitations

Despite the benefits that could help the learners, some respondents abstained from responding to the question lest they were victimized by those who did not hold a similar view. Thus, it was difficult to ascertain the unanimity of responses. Besides, the study used a fractional part of an institution of higher learning, a situation that limited the scope and the extent of universal applicability of the findings.

5.4. Future research directions

Because of the limitations, there is a need to focus research on other learning environments to determine the universal application of the findings on the benefits of online learning. Such a study should focus on institutional and societal peculiarities and context.

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