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Common challenges of online learning during the COVID-19 pandemic

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Abstract: The advent of the COVID-19 pandemic has not only led to devastated economies but has also affected education systems globally. The unpredictability of this pandemic and its restrictions have necessitated the adoption of a multi-modal approach involving both contact and online learning platforms by Higher Education Institutions. Thus, due to the COVID-19 pandemic, educational institutions shifted to online learning platforms. The study employed qualitative methodology within a case study design. Data was collected using pure qualitative semi-structured interviews with open-ended questions. The researchers interviewed selected students and lecturers from the ML Sultan Campus of the Durban University of Technology. The study employed a purposive sampling technique under the non-probability method. The findings of this study indicate that the implementation of the tools used for online learning and teaching during the COVID-19 pandemic has been scattered across different platforms. An exciting finding was demonstrated by a high percentage of the selected participants among the DUT staff members and students who showed a wavering response, somewhat agreeing that although the tools used for online learning and teaching during the COVID-19 pandemic have impacted lives, they successfully assisted both the lecturers and students. The study results revealed that the most popular tools used by learners throughout the pandemic were Microsoft Teams, Modular Object-Oriented Dynamic Learning Environment (Moodle), Queens, Zoom, and Learn Wise. The thematic analysis method was used to analyze data using Nvivo. The data captured from both sessions (interviews and focus group discussions) were deductively coded using software (Nvivo version 12). In this process, the transcribed interview data were divided into different meaningful codes. The codes were developed based on the differences, similarities, and meanings from the transcribed data. This process allows the researcher to fine-tune data into convenient themes and subthemes. During the analysis phase, information gathered from structured interviews was verbatim transcribed, and pertinent quotes from this data were used to support the discussion on themes. The study does not disclose the identities of the main informants to protect their anonymity.

Keywords: *Academic performance, Load shedding, Online learning, COVID-19 pandemic, Power outage.*

1. Introduction

Since the world declared COVID-19 a pandemic, learning in institutions of higher learning shifted to online platforms. Online learning is not a new concept; it predated the outbreak of the COVID-19 pandemic. Given its unplanned challenges, the automatic shift from the traditional physical contact learning mode to the online platforms was evident. The research objectives were to investigate different tools used to offer online learning and teaching during COVID-19, to explore the importance of student support services in online learning, to determine the benefits of the use of online learning during the COVID-19 pandemic and to find challenges and solutions to online learning use during the Covid-19

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pandemic. The study offers new insights into the different online platform learning tools in higher education institutions. Therefore, universities and colleges need to understand the strengths of staff members (employees) and students. Online learning allows students to learn through electronic information, using Microsoft Teams, Moodle platforms, emails, discussion forums, videos and other Information and Communication Technologies (ICT)-backed platforms.

COVID-19, at its outbreak, was a disease that attacks the human respiratory system [1]. It was discovered in Wuhan, China, in December 2019. It spread rapidly globally with devastating effects that necessitated the search for measures to curtail its spread. With unprecedented challenges, as the pandemic restricted a series of human activities, COVID-19 had damaging consequences on the education system globally. Aside from the paralysis of economic activities, educational institutions suffered greatly from the restrictions that followed measures to curtail the spread of the epidemic [2].

In South Africa, the government was conscious of the need to safeguard the lives of citizens and reduce the rate of fatalities caused by COVID-19. To this end, on 24 March 2020, the Department of Education and Culture rolled out regulatory frameworks in the education system during the emergency. This necessitated the implementation of policies that enforced virtual learning thereby eliminating face-to-face learning activities at all levels of education. This was the initial reaction, as a state, to the clamour for the right measures to insulate the education system from the consequences of the rapid spread of COVID-19. Thus, online learning platforms became the meeting points thereby replacing physical classrooms and lecture halls. Initial studies showed diversity in the implementation of virtual learning methods [3]. During an emergency, it was proven that virtual classrooms were an effective solution to safeguarding the lives of learners against the rapid spread of COVID-19 and its fatal consequences [3]. The online learning method exposed educators as well as learners to new technologies in e-learning thereby encouraging them to master the necessary intricacies of virtual learning [4].

The challenges of online learning are evident challenges such as lack of students' motivation, negative attitude towards online learning, and lack of training to use online learning tools. Even though online learning was not planned for, there were benefits of its use such as that students can achieve their desired outcome regardless of their location. Online learning during the COVID-19 pandemic made instructors and students forcefully adapt to different online learning technologies and become technologically advanced.

2. COVID-19 and Online Learning

There was no doubt that most universities and their students were not adequately prepared for the emergency online learning process and platforms at the outbreak of the COVID-19 pandemic. The shift from the traditional physical classroom mode of learning to online learning platforms was a sudden measure that changed the phase of education across the globe. Since the gatherings were prohibited, the only way for universities and students to continue their studies was through online learning [5]. According to Hermanto and Srimulyani [6] successful online learning implementation necessitates the full commitment of both students and instructors. The transition to online learning came with some challenges in South African education because universities did not have enough time to prepare their students for the new mode of learning. According to Yusuf and Ahmad [5] the new learning method affected learners because they were accustomed to being in class and seeing the instructors in person, a situation that facilitated their focus. Thus, they found it difficult to focus during online teaching because it was an entirely new learning environment that would require time to grow. Some students who were not accustomed to concentrating even in a face-to-face learning environment were mostly affected [7].

In Africa, the rapid emergence of the COVID-19 pandemic changed numerous aspects of lives and various sectors [8]. They had to learn how to adapt to new changes to keep the ball rolling. In education, teaching and learning activities had to undergo rapid transitions, making educational institutions at all levels have to adapt and be able to provide alternative learning models so that students can continue to study without being separated from existing curricula [9]. Changes to the

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teaching and learning model were made by providing tasks that were made online and teaching materials that were accessed electronically by students. With online learning and teaching, some students find it difficult to concentrate.

Another challenge was the level of satisfactory students' internet access during the COVID-19 pandemic. In most areas, especially rural environments, access to fast, affordable, and reliable internet connections remained a major issue [10]. It was difficult for the students to obtain a reliable internet connection. Only registered students receive data from the institution, leaving unregistered students unable to attend classes. In South Africa, many students graduate while still owing university fees. However, some universities allow students to attend classes while they wait for the money to register [11]. Because the students were not registered at the time, it was difficult for them to participate in online classes.

There are two major categories of users of the internet, according to Saber [12]. They are heavy and light users. The main reason for using the Internet during COVID-19 was academic. Thus, students classified as heavy Internet users were more oriented towards recreational purposes than light Internet users. The scholar argued that learners' use of the Internet for academic activities exerted positive outcomes because the more they used the Internet for learning purposes, the more they perceived it as a positive force that influenced their academic performances [12].

Some other scholars agreed with the position of [12] that the use of the Internet impacted learners' academic performance positively [7]. They contend that learners who tended to explore the use of the Internet more educational materials were less likely to fail their examinations. Thus, the lack of the lack of internet facilities was more disadvantageous and detrimental to learning during the COVID-19 pandemic. Learners who were involved in interactive activities with their peers and teachers recorded greater achievement and better performances when they balanced the use of the internet tools for their studies [13]. The COVID-19 emergency measures have made the use of the Internet a routine mode of communication and interactions. It should be noted, however, that individuals who are excessively addicted to the use of the features of the internet are at risk of potential victims of its adverse effects such as impaired sleeping patterns, social relationship break-ups, job losses, mental and physical health as well as poor academic performance.

According to Martin, et al. [14] for an online environment to be successful, students must be skilful in computers, the internet, and information-seeking. The COVID-19 pandemic has compelled universities globally to innovate and use ICT (Information and Communications Technology) to continue academic activities [15]. According to Dube [16] there are 11252 rural schools in South Africa. Students from these communities do not have access to the necessary computer skills due to the COVID-19 pandemic. For online learning to be effective and successful, students and instructors must be familiar with it. They must also be familiar with and understand the online learning technologies that universities use for online learning.

There has been a shift in human activities due to the COVID-19 pandemic, with the activities shifting to digital media, which includes the way teaching and learning are conducted [6]. The lack of social interactions between students and instructors has caused students to lose focus and forget that they are even studying; some students are not used to online learning [17]. Students may also encounter difficulties when entering a working environment because they are accustomed to working alone when studying online.

The solution for online learning was that proper training must be provided to students and instructors who are not technically advanced; when students are adequately trained to use the learning, technologies used for online learning, online learning can be a success [7]. Students must be provided with sufficient data to access the required information and attend classes. Students can attend classes without fear of data depletion and missing out on the class if there is enough data. Data also ensures good internet access for educators and students, essential for smooth and uninterrupted online classes [5]. Students and lecturers must be able to communicate effectively. The lecturers must implement

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strategies such as quizzes, questions, and weekly assessments to help students understand what the instructors teach [14].

3. Research Design

This is a qualitative study based on interviews to gain the perceptions and feelings of participants about the use of online learning during the COVID-19 pandemic. The qualitative design method focuses on the interpretation of meaningful data and answers the why and how questions to address the research problem [18]. In this research, data were collected and interpreted accordingly to give meaningful insight and findings of the study. The qualitative research design focuses on the social process, like change and growth patterns in society. This method was employed since there have been drastic changes in learning due to COVID-19. A qualitative design was used in this study to collect information about participant experiences and perceptions of the research problem. The qualitative method also provides information about participants' human behaviour, feelings, and attitudes [19]. Since DUT is the centre of KwaZulu Natal (KZN), all students were represented in this study. Given that every participant on campus originated from both rural and urban areas, the study's scope was diverse. All participants came from both deep rural and urban areas of KZN.

4. Research Strategy

This is a case study research strategy, designed to explore the challenges of online learning at the Durban University of Technology during the COVID-19 pandemic). Since the DUT is the centre of KwaZulu Natal (KZN), all students were represented in this study. Given that every participant on campus originated from both rural and urban areas, the study's scope was diverse. All participants came from both deep rural and urban areas of KZN.

5. Target Population

Lecturers in the departments were also included in the study because they were used to face-to-face teaching, they had to adjust to the latest changes brought on by the COVID-19 pandemic. Changes include using Microsoft Teams and other online learning and teaching resources. The participation of lectures in the study ensured the quality of the study since they are experts and have experience in teaching before, during and after the COVID-19 pandemic. When participants are experts, they make a study of high quality with reliable outcomes. They have been exposed to the research problem with a thorough understanding of the field and the research problem [20].

The students were chosen as the target population because they were required to shift their mode of study from traditional physical contact classes to online platforms. Some students, particularly first-year students, came from rural areas and were not exposed to computers and the Internet [21]. Second-year students were also chosen as part of the target population because they were used to the physical contact classes, and the unexpected transition to online learning was difficult for some of them [22]. This population may vary depending on their background; some are from KZN's rural areas and are not accustomed to technology or online learning resources; others do not even own smartphones; still, others are accustomed to using computers because they are not in their first year of college. Some urban students are accustomed to technology because their parents can afford to buy them smartphones, and they also have experience with online learning tools. Based on their experience, financial situation, and background, students' performances can vary.

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Table 1.
Sample size estimation.

Durban university of technology (Faculty of management sciences)	Target population (Related to online learning)		Sampling method	Sample size
	Staff	Students		
Public management and economics	3	14	Purposive sampling	12
Marketing and retail	2	12	Purposive sampling	12
Human resource management	1	13	Purposive sampling	11
Total				35

6. Case Study

A case study is a study of people or one person. It also investigates real-life cases to generalise. Davies [23] states that a case study focuses on a specific issue or problem. A case study is preferable when a researcher has little or no control over an event [23]. Durban University of Technology's ML Sultan campus departments were used for the case study. The chosen campus was used because when conducting research, the time set to complete the research project, and it is impossible to collect data for all campuses because of the time limit issue. Focusing on one campus gave the researcher more time to get in-depth research because there is a time frame set to complete the research study with all that the researcher can get all relevant information about the research study but if the study included other campuses the research would not have enough time to get more information in all the research participants because of time and also financial constraints. The belief that we can experience and study events taking place in the world; and the idea that research is the only way to truly understand mental events and events is through the use of case study.

7. Data Collection and Instruments

Qualitative semi-structured interviews were used to collect data. One of the advantages of semi-structured interviews is that the researcher can formulate questions before the interview. This assists the researcher in not deviating from the research study topic and questions. The questions were open-ended in both isiZulu and English. Qualitative social scientists can conduct effective research and produce reliable findings. Qualitative researchers generate rich, deep, and comprehensive data. They can make a strong case for their argument using this material [24]. However, when compared to the standards of realist or positivist research, the procedures used to arrive at their claims can appear speculative, and the results can be less convincing. Self-reported data may not always be reliable due to the bias of both the researcher and the participant. Some researchers become biased at some point because they already have an idea of how they want their research results to be. Participants may also become biased because they dislike the research topic.

7.1. Interviews Schedule for Lecturers

The interview protocols were considered to ensure that the data collected was of excellent and high quality, no participants were forced to participate, and all participants signed and concern form Yeong, et al. [25]. Interviews are one of qualitative research's most used data collection instruments [26]. During interviews, the researchers, had an opportunity to hear the participants' views about the research problem and their moods and expressions when answering questions during the online interviews. The interviews were for a minimum of five lecturers. Several five lecturers participated in the study 20% of the participants were Indians, 20% were Whites, and 60% were Africans. 60% of the participants were Males, and 40% were females. All the participants (100%) were lecturing in 2020 and 2021 during the COVID-19 pandemic. NVIVO software was used to analyse this data.

7.2. Interviews Schedule for Students

Since this research relied on primary data, a focus group interview was conducted with 30 students from the targeted population. The participants in the study were all Africans. The participants were

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70% female and 30% male. Of the participants in their first year in 2021 were 27% followed by 17% of students in their second year in 2021. In the class of 2020 first year, 7% participated, and 50% of second-year students in 2020 also participated. NVIVO software was used to analyse this data.
Questions were asked with open-ended questions to allow students to express their thoughts, perceptions, feelings and experiences about the research problem. Reja, et al. [27] state that open-ended questions allow participants to express their thoughts and knowledge about the research problem.

7.3. Documents

This study relied on data and materials from in-depth interviews of participants. The study also used public documents to complement primary data from the interviews. Information from diverse sources of primary documents is a useful source of data [28]. The study scooped useful data from the 2018/2019 DUT (Durban University of Technology) Annual Report and the various Auditor-General Reports of 2018/19-2020/21. These documents provided ready evidence that informed online learning. Government documents were crucial as they provided well-researched, dependable quality and relevant data [29].

8. Data Quality Control

8.1. Reliability and Validity

The methods by which data is collected should always be stable and not change for the data to be considered reliable. The most important indicator for validity is the face validity data which should be an accurate representation. The indicator should always be a valid measure of the results.

8.2. Trustworthiness Approach

Qualitative researchers establish the trustworthiness of their findings by using four principles of credibility, transferability, dependability and conformity [28]. Trustworthiness infers that the study was carried out ethically and objectively with rigour in the analysis procedure of the principles of the trustworthiness approach and the relationship to this study. Credibility, transferability, dependability and confirmability are discussed next.

8.3. Credibility

The credibility of the research results was ensured by prior institutional knowledge of the internal and external environment that characterises the Durban University of Technology. Besides, credibility was ensured by triangulating research results from interviews with published literature on the internal and external complexities that influence the effectiveness of leaders.

8.4. Dependability

The study's reliability was ensured by applying strict procedures related to how field data was integrated into the results. Rigour was used to minimise transcription errors in data transcription from finding aids. Besides, a cross-check was conducted to verify if there were any omissions or transcription errors to ensure that all data collected in the field had been entered and considered.

8.5. Confirmability

This research ensured conformability by first reviewing past studies on the same topic. Confirmability was further established through an audit trail whereby the researcher documented the procedure for checking and rechecking the obtained data throughout the research to avoid presenting the researcher's perceptions of the respondents.

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8.6. Pilot Study

This study used two lecturers from the target population to test the interview questions. The results of the pilot study were used to help improve interview questions. Interviews lasted about 15-20 minutes. A pilot study of three students was conducted before the primary focus group interviews. The responses of the pilot study were not used in the main study.

8.7. Data Analysis

The thematic analysis method was used to analyse data using Nvivo. The thematic method allows researchers to group findings according to similarities like participants' perceptions and insights about the research topic [28]. When the participants' responses are similar, or the research gets the same, the response to different participants means the data is saturated. With the use of thematic analysis in this research, the researcher was able to find patterns and themes and come to a valid and reliable conclusion about the research problem in this study.

8.8. Ethical Considerations

According to Davies [23] ethical consideration is one of the most critical aspects of research, which is why it was considered in this research study. The researcher worked with the participants throughout the research, so it was important for the researcher to consider the following ethical issues: Participants' dignity and respect were prioritized. In this research, study data was collected under strict conditions of anonymity. In this research study, validity was evaluated using trustworthiness, which refers to the quality and veracity of the findings. The gatekeeper's letter was obtained from the institution. It was explained to participants that the process is voluntary and confidential.

9. Results and Discussion

The analysis of the data obtained from the semi-structured questions led to the identification of subthemes and relevant themes.

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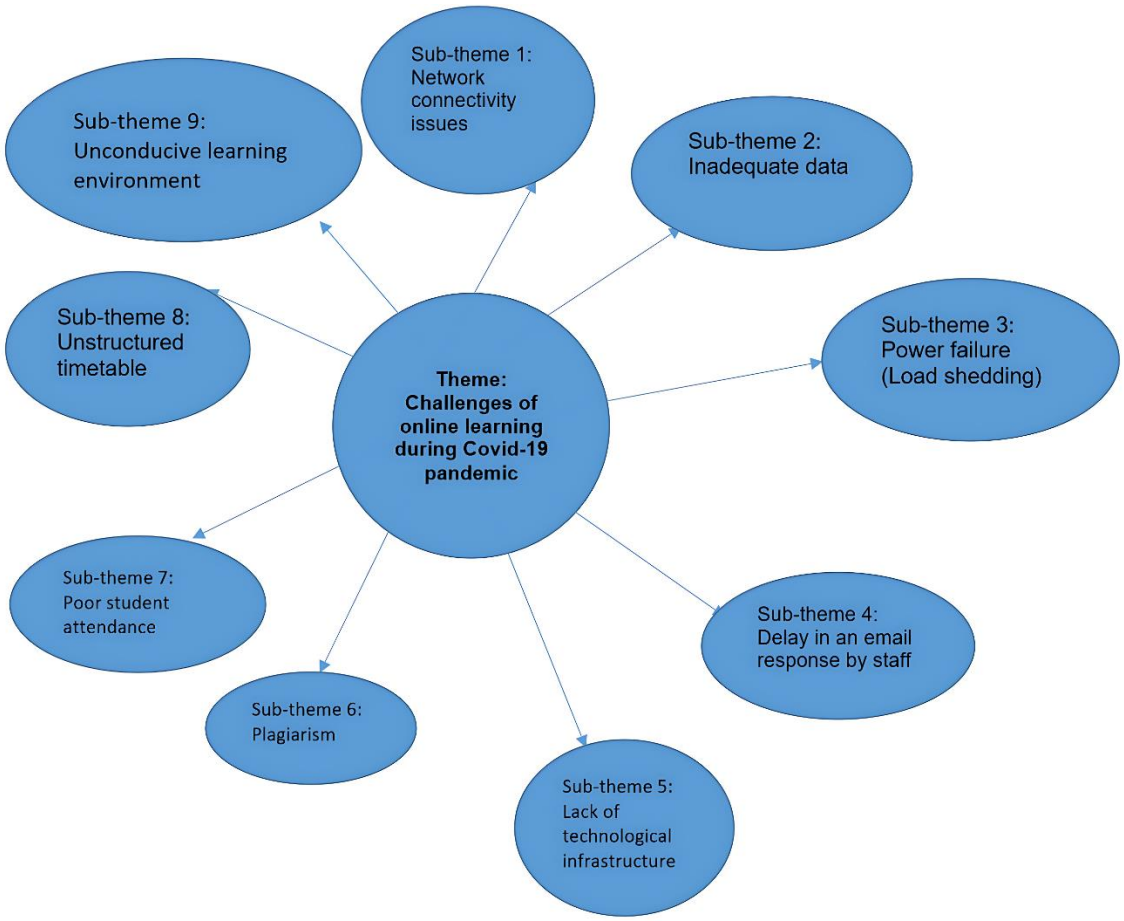

Figure 1.
Identification of themes and sub-themes.

9.1. Theme: Challenges of Online Learning

According to Heng and Sol [30] the sudden transition to virtual learning platforms was challenging for stakeholders in the education sector. Even though the challenges varied, depending on the pre-COVID-19 learning infrastructural facilities in countries globally, it was evident that the initial take-off of virtual learning was with unintended hiccups. Existing learning systems, institutions, and stakeholders struggled to adapt to sudden shifts in the learning environment. Considering this, it was vital to know students' perspectives and the challenges they encountered in their online learning classes during the pandemic. These challenges are discussed in subsequent sections.

9.1.1. Subtheme 1: Network Connectivity Issues

Students note that network connectivity was a major issue they faced in their online classes. These negatively affect their class attendance and ability to submit their assignments. One student said,

> The network is still a major issue. Sometimes when a person wants to be in class, but the network is so poor that he or she cannot attend, even when we want to have our group discussions and presentations. Because of a student's location, network quality worsens at some point. We were unable to submit assignments at times (Personal Communication, Student 1).

Two other lecturers confirmed the views of the students. They noted that connectivity issues, particularly for students residing in rural areas, were a major challenge.

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> Connectivity was one of the major challenges because some students live in rural areas, while others indicated that they live in the mountains and must travel to the nearest town for network access, which defeats the purpose of online learning. It was one of the reasons why students were absent from class (Personal Communication, Lecturer 1).

Another lecturer said that online learning was a big challenge in the sense that students from rural areas complained of network problems (Personal Communication, Lecturer 4).

The consequence of network issues may contribute to an increase in workload for the lecturers. As an example, lecturer 4 revealed to redo things already done due to network failures. 'I would occasionally find myself redoing things. I would occasionally find myself redoing assessments because students were unable to write due to network failure' (Lecturer 4).

Another lecturer corroborated this viewpoint saying that the network problem was restricted to students in rural areas but also impaired lecture delivery from the lecturers, thereby decreasing the rate of student attendance in class. 'Sometimes, you wanted to have a class but there was no network' (Personal Communication, Lecturer 5). This affected the students who were eager to attend online classes but had nothing to receive from their lecturers because of the network hitches that prevented the delivery of the lectures. Some students could not attend because there was a network breakdown (Personal Communication, Lecturer 4). The findings agree with Ferri, et al. [31]. who said that the technological challenges to online learning are related to the unreliability of Internet connections, and many students lack necessary electronic devices.

During the COVID-19 pandemic, access to fast, affordable, and reliable internet connections remained a significant issue, particularly for those living in rural areas [10]. It was difficult for the students to obtain a reliable internet connection. Another huge issue of online learning is dependent on both the platform you are using, i.e., whether it be Skype, Zoom, or Google Classroom, and your location. Video and voice chat applications require a lot of bandwidth, and being at a remote location using a cellular data hotspot would likely not be sufficient. If this is coupled with being in a developing country, issues may not be based on personal internet, but on the country's network infrastructure as a whole, which can be an obstruction to the education process [8]. This can also be seen in situations where professors are trying to upload lectures onto the university portals. Being in a foreign location and trying to upload to a server located in the university may be hindered by ISPs inefficiently routing the data.

9.2. Subtheme 2: Inadequate Data

The availability of sufficient mobile data to access the Internet was another challenge and concern of students using online learning platforms. While the university provided data, the students complained that it was inadequate to meet their online learning needs. 'The data they gave us was insufficient; 10 GB is insufficient to last the entire month, and 20 GB for a night as well' (Personal Communication Student 2). The lecturers also confirmed inadequate data provision. 'Some students would indicate that they do not have data, some would go for a month without data being allocated to them, and it was slow sometimes' (Personal Communication, Lecturer 2). Another lecturer said, 'Students were getting data at different times. The students will receive data in the middle of the month' (Personal Communication, Lecturer 3). Nevertheless, some students, according to another lecturer, claimed "they didn't have it [data] because they didn't receive it' (Personal Communication, Lecturer 5).

The mode of education during the COVID-19 pandemic has significantly shifted towards online learning, especially in higher education institutions. Lecturers and students of all levels were compelled to adopt online pedagogy, and hence the shift is not only limited to the delivery of lectures. Rather, its scope has widened to include the conduction of examinations, assessment tasks, group assignments, and projects. Thus, data related to the effectiveness of online learning on students at the tertiary level is in high demand [32]. It is imperative to acquire this data to make informed decisions for planning future semesters and to judge whether the current mode of education should be continued.

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9.3. Subtheme 3: Power Failure (Load Shedding)

The online learning environment is powered by internet connectivity, which requires a power supply. In recent times, however, South Africa has faced disruption in the power supply in the form of load shedding. The students lament that electricity disruption affected their ability to attend classes. 'When there is no electricity network, load shedding becomes a problem, and we cannot attend classes as a result' (Personal Communication, Student 1). Another student said, 'Load Shedding is a huge issue sometimes when we want to attend classes and have presentations that we really can't attend, and load shedding happens at different times so if one is lucky enough that person gets to attend classes' (Personal Communication, Student 2).

Lecturers also confirmed the extent to which load shedding disrupted online learning. 'All the devices used for online learning require power, and the issue of load shedding makes it difficult to study online' (Personal Communication, Lecturer 3). Beyond disruption of classes, load shedding also prevented students from submitting their assessment exercises such as tests and examinations.

> When it came to assessments, online learning was a challenge because there was a time when students could not submit their tests. After all, there was a failure to submit an assessment because of load shedding in their areas (Personal Communication, Lecturer 4).

Not only this, but the lecturers also as well had hectic times accommodating other students when there was a power outage.

> One of the challenges was the power challenge/electricity challenge during load shedding time when trying to move a class to accommodate the other students became a challenge because the others would not attend due to the same challenge (Personal Communication, Lecturer 5).

As load shedding evolves from predictable schedules to unscheduled and erratic occurrences, the impact on students becomes even more challenging to mitigate. Unforeseen power outages can catch unsuspecting students off guard, hindering their ability to plan and adapt accordingly [33]. Consequently, these students face an elevated risk of falling behind in their valuable education. The lack of appropriate resources to make up for lost time further compounds this risk, exacerbating the potential consequences of load shedding on their academic progress [34].

9.4. Subtheme 4: Delay in an Email Response by Staff

The ability of staff to promptly respond to students' queries and or requests is an essential service quality in higher education. However, students revealed that there were usual delays in staff responding to their emails. 'Lecturers and other departments, such as faculty and finance, take a long time to respond to emails, which posed a significant challenge for some of us' (Personal Communication, Student 3).

Through engaging in email exchanges with their instructors, students can seek clarification regarding feedback interpretation and discover methods to improve their academic performance [35]. Tragically, within the realm of asynchronous online learning environments, instructors are not always able to provide immediate responses to student inquiries.

9.5. Subtheme 5: Lack of Technological Infrastructure

Gikas and Grant [36] note that the implementation of online learning requires mobile devices such as smartphones, tablets, and laptops that can be used to access information anywhere and anytime. One could rightly assume that the absence of these infrastructures could hamper online learning. This concern was raised by some of the lecturers who see it as a challenge to online learning. It was revealed that some students lack the infrastructure such as smartphones and laptops required for online learning.

> Some students did not have laptops or smartphones, which made things difficult because some students did not even know how to type. They can take pictures with their phones

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but doing an assignment on a phone is a different story (Personal Communication, Lecturer 3).

The lack of technological infrastructure to access online learning could have contributed to the challenge some of the students face in accessing information. According to one lecturer, 'I wasn't too harsh on students because some lacked access to information despite being on campus (Personal Communication, Lecturer 1). In addition to the above, another lecturer revealed that some of the students forgot their passwords which made it difficult for them to access the online learning platforms. 'Some students were unable to gain access to their learning platform. Some students forget their passwords. To access Moodle and other platforms, students must have a student email address and password' (Lecturer 3).

The university provides data to students, but they are ineffective for students who do not have smartphones or computers to access study resources [37]. The students did not have access to the institution's computers or library books to study; not all online students have computers, data, or cellphones; and other students must go to internet cafes or even library services to learn.

9.6. Subtheme 6: Network connectivity issues inadequate data Power failure (Loadshedding) Delay in an email response by staff Lack of technological infrastructure Plagiarism

Another challenge the lecturers face using the online learning model is students' plagiarism of documents from the internet. 'The issue of copy and pasting was a huge challenge. The students found it convenient to use Google, and they could also access the library's online resources' (Personal Communication, Lecturer 1). Another lecturer believed that this act of plagiarism compromises the quality of students' assessments. 'The other challenge was the challenge of assessing the assessments that were highly compromised the quality of learning was very low compared to the face-to-face class' (Personal Communication, Lecturer 5).

During the COVID-19 pandemic, access to fast, affordable, and reliable internet connections remained a significant issue, particularly for those living in rural areas [10]. It was difficult for the students to obtain a reliable internet connection. Only registered students receive data from the institution, leaving unregistered students unable to attend classes. In South Africa, many students graduate while still owing university fees. However, some universities allow students to attend classes while they wait for the money to register [11]. Because the students were not registered at the time, it was difficult for them to participate in online classes.

9.7. Subtheme 7: Poor Student Attendance

Lecturers lamented the challenge of poor student attendance which some blame on the poor connectivity and data issues students face. 'I had no specific strategy to encourage attendance, the students' attendance was not that great on an ordinary day I would have about 50% of the students attending' (Personal Communication, Lecturer 1). This poor attendance was a common phenomenon that was beyond the control of the lecturers. 'The fact that no matter how hard you try as a lecturer, someone is left behind. We never had a full class in the online class because if the students had data, there would be other issues, such as connectivity' (Personal Communication, Lecturer 3).

Students' participation and attendance in class were low during the COVID-19 pandemic, according to Qutishat, et al. [38]. The students were able to review the classes they missed by using the recorded lectures, even though some of them thought of it as a holiday because they were not used to studying online.

9.8. Subtheme 8: Unstructured Timetable

The lockdown and remote working disrupted the normal academic calendar of the university. This created an unstructured timetable and thus contributed to class clashes. According to one lecturer, 'Class clashes because none of us was using the timetable, and a lecturer would wake up and have a class at any time which was challenging to students because they ended up having to choose which class to

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attend/join at that time' (Personal Communication, Lecturer 5). This affected the delivery of lectures since all staff used the same platform. This might also be responsible for poor class attendance.

In the pre-COVID-19 world, school timetables have often been rigid and deterministic. Teachers and students are given little opportunity to deviate from the timetable without causing major disruption. Curriculum delivery is strictly controlled by the timing of lessons, and there is little opportunity to trial new teaching approaches. This situation is unsatisfactory given the continually changing nature of teaching and learning. Student and teacher availability is no longer constant due to a myriad of school activities and extracurricular commitments. There is a need for a more flexible timetable that can adapt to changes in student learning needs and teacher availability. The pandemic has brought about substantial changes to both of these, meaning conventional timetables may be largely irrelevant given the current situation [39].

9.9. Subtheme 9: Unconducive Learning Environment

While online learning created a form of flexibility for students, some others, however, are from a background that makes learning at home difficult. One lecturer noted that students many families struggled to support their children while they engaged in online learning.

> This is evidenced by the background noise, and the assigning of choirs whilst the students are receiving lectures online. The signal was also an issue, and sometimes the students' backgrounds when attending classes were not so good; sometimes you could hear people talking somewhere and being assigned to choirs because they were at home was also a challenge. Many families struggle to support their children while they are engaged in online learning (Personal Communication, Lecturer 3).

Without proper planning and comprehensive training programs, the maintenance of education through a global pandemic is at risk of accentuating the existing educational inequalities, particularly impacting the circumstances of low-income students who have limited access to technology and resources necessary for successful online learning. Moreover, students with special educational needs face additional challenges in adapting to remote learning, further exacerbating the educational divide [40]. These factors call for urgent attention and effective solutions.

10. Discussion of Key Findings

The study investigated the challenges of online learning during the COVID-19 pandemic. Despite the many advantages of online teaching and learning, it also comes with challenges. Here, the lecturers and students share the challenges they experienced with online education: "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", and "Unconducive learning environment". Some of these challenges are the high start-up costs associated with virtual universities, access issues surrounding the digital divide, the approval or accreditation of virtual schools, and student readiness and retention issues [41]. However, still, there are many debates about the sufficiency of online learning. For example, Sari and Nayır [42] stated that faculty members have love-hate relationships with online teaching and learning: the study found that they do not want to do it, however, they think that they would be better instructors if they did. The study revealed that many of the faculty agree that online learning makes higher education available to more students, but few agree that online learning helps students learn more effectively. However, it can be claimed from the study that faculty predominantly teaches courses with insufficient knowledge about the digital world.

The findings of this study indicate that very few lecturers have received formal training in computer skills. Most lecturers reported that they learned computer skills from short training or courses, often ranging from days to weeks. The participants reported that the short computer training or courses they received were sufficient for everyday tasks such as typing, emails, recording grades, etc. However, it did not fully prepare them for the big online teaching task. One interviewee also mentioned that the number

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of materials posted was higher than in regular classes, and there were too many homework assignments given to them which was affected by load shedding. A high number of participants showed a wavering response of somewhat agreeing that MS Teams and Moodle useful tools except for some minor technical difficulties like the quality of sound or internet connection. It has to be noted in the findings that the lecturers, were very helpful, understanding and punctual, which may also be true for the students, but the students might experience difficulties because there is a lack of face-to-face communication (student reflections).

This research paper recommends that the South African government should examine other countries to see how they made online learning effective. The government must also provide sufficient funding to higher education institutions. Students should be taught how to use computers from primary to secondary school. More government support and investment are needed. Online learning theory itself should be developed to address the recent challenges of online learning and teaching.

11. Conclusion and Recommendations

In this study, the intention was to assess the Key challenges, of online learning during COVID-19. This study has shown that despite the many advantages of online teaching and learning, it also comes with challenges. The study revealed that lecturers and students share the challenges they experienced with online education as network connectivity issues, inadequate data, power failure (shedding), delays in email response by staff, lack of technological infrastructure, plagiarism, poor student attendance, unstructured timetable, and an unconducive learning environment. 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 in the findings that the COVID-19 pandemic has made online learning a new normal in most if not all, educational contexts across the globe.

The findings of this study would help policymakers and decision-makers regarding the inevitable integration of digital learning of language and the conversion of some courses to be delivered entirely online when the pandemic is over. The South African government should examine other countries to see how they made online learning effective. The government must also provide sufficient funding to higher education institutions. Students should be taught how to use computers from primary to secondary school. More government support and investment are needed. Online learning theory itself should be developed.

Data from several studies indicate that online learning can be successful only if the issues raised in this study are addressed. Researchers recently discovered that increased online learning was widely used during the COVID-19 pandemic. Given the recent events in the COVID-19 pandemic, it is becoming increasingly difficult to dismiss the existence of online learning. The use of online learning during the COVID-19 pandemic has not been thoroughly investigated. However, there has been little discussion about how to improve online learning. Although some research on online learning has been conducted, there have been few empirical investigations.

12. Limitations of the Study

The Durban University of Technology is huge, and the sample population is very large which makes it difficult for the researcher to know all identities hence purposive sampling was used. In the future, conducting a research study in one department may be a solution as long as all participants are included in the study to ensure the study's reliability and validity.

Permission to collect data from Gatekeepers' letters was obtained from the institution. It was explained to participants that the process is voluntary and confidential. If the participants wished to withdraw from participation, they could do so at any time.

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Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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