TEACHING AND LEARNING FOR LIBRARY AND INFORMATION STUDIES DURING THE COVID-19 LOCKDOWN AT THE UNIVERSITY OF LIMPOPO, SOUTH AFRICA.

by

TUMELO JACOB SEEMA

DISSERTATION

Submitted in fulfilment of the requirements for the degree.

MASTER OF INFORMATION STUDIES

in the

FACULTY OF HUMANITIES
(School of Languages and Communication Studies)

at the

UNIVERSITY OF LIMPOPO

Supervisor: Prof. MA Dikotla

2023

DECLARATION

I declare that **TEACHING AND LEARNING FOR LIBRARY AND INFORMATION STUDIES DURING THE COVID-19 LOCKDOWN AT THE UNIVERSITY OF LIMPOPO, SOUTH AFRICA** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

07/05/2023

_____   _____

SEEMA TUMELO   Date

ACKNOWLEDGEMENTS

DEDICATION

This work is dedicated to the soul of my father. May his soul rest in peace.

ABSTRACT

The World Health Organization declared Covid-19 as a pandemic that posed a contemporary threat to humanity. This pandemic forced a global shutdown of several activities, including educational activities, and this resulted in tremendous crisis-response migration of universities with online learning serving as the educational platform. Many venue-based institutions such as the University of Limpopo approved the shift of their traditional pedagogical approach to entirely online teaching and learning.

The aim of this study was to investigate teaching and learning for Library and Information Studies during the Covid-19 lockdown at the University of Limpopo, South Africa. The study adopted quantitative approach and a self-administered questionnaire was the main instrument used to collect data from fourth-level students registered for a Bachelor of Information Studies at University of Limpopo. Forty-one questionnaires were returned, and the study used descriptive analysis to analyse quantitative data.

The study found that library and information studies (LIS) students had a negative perception towards online teaching and learning. The study also found that a lack of technical skills, loadshedding and an unconducive learning environment are major challenges for students to accept online teaching and learning. Furthermore, the study established that the university management does not provide adequate support for students to cope with online teaching and learning. Based on these findings, the study recommended training for students to have the required technical skills to use for online learning. The study further recommended that online classes should always be recorded for students who missed online classes due to loadshedding to catch up. The university management should confirm that all students are in an environment that is conducive to online learning.

Keywords : Online learning, Library and Information studies, Covid-19, Lockdown, University of Limpopo, and South Africa.

Table of Contents

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVITIONS

UL	University of Limpopo
SA	South Africa
IT	Information technology
LIS	Library and information services
ICT	Information and communications technology
TAM	Technology Acceptance Model
LMSs	Learning management systems
CMC	Computer-mediated communication
HEIs	Higher educational institutions
BB	Blackboard
MMR	Mixed method research
NETD	National Electronic Theses and Dissertation
EFL	English Foreign Language

CHAPTER ONE

1.1 BACKGROUND AND MOTIVATION.

Institutions of teaching and learning had to adjust the modes through which they convey their pedagogies and epistemologies due to the prevalent Covid-19 pandemic. This pandemic was reported originally in Wuhan, China, in December 2019 and it quickly spread throughout the world and was declared a pandemic by the World Health Organization (WHO) on 11 March 2020 (World Health Organization, 2020). The Covid-19 outbreak had a devastating impact on human life and shattered economies around the world with a massive shock on the education systems in both developed and developing countries (Xiang, Li, Zhang, Jin, Rao, Zeng, Lok, Chow, Cheung & Hall, 2020). The pandemic quickly led to the closure of universities and colleges around the world with government instructions to follow social distancing that could help to flatten the infection curve and reduce the total of fatalities from the virus. Social distancing or physical distancing reduced interpersonal contact, thereby minimising the kind of community transmission that could develop quickly in dense social networks like the university campus (Weeden & Cornwell, 2020). These restrictions disrupted millions of university students' education worldwide and significantly altered universities' operations.

Consequently, universities that mainly offered face-to-face teaching and learning, had to switch to online teaching and learning in lieu of the pandemic. Online learning is earning experience in synchronous or asynchronous environments using various devices such as mobile phones, laptops, and tablets with internet access (Hrastinski, 2008). In these environments, students have the latitude to learn independently and to interact with their lecturers and fellow students using online devices (Singh & Thurman, 2019). Researchers such as Amory (2010); Khoza and Biyela (2019) state that online teaching and learning can make course content available online, because of the widespread use of modern technologies such as hardware resources like computers, laptops, mobile phones, and others and software resources like learning management system, software applications, social media sites and others.

1

Although the online platform is flexible, this mode of teaching and learning is associated with some challenges. Since online teaching and learning rely on technological equipment, it follows that there is a need for online equipment to be made available to lecturers and students by academic institutions. Implicit in this is that academic institutions should have adequate financial resources to cater for this need. Furthermore, students with poor internet connection will struggle to access online learning, as it is entirely dependent on technological devices and the internet (Zhu, Zhang, Au & Yates, 2020). Aguilera-Hermida (2020) avers that some students do not have access to technological tools and their family conditions limit their accessibility to these tools. Moreover, poor interface design, inadequate technical support and a lack of IT skills are the primary barriers that hinder the successful implementation of online teaching and learning (Mulhanga & Lima, 2017). These challenges raise questions pertaining to the feasibility of online teaching and learning in library and information studies schools, particularly at the universities that lack resources, such as the University of Limpopo (UL).

The UL was established to offer face-to-face teaching and learning, but since the outbreak of the Covid-19 pandemic, it transferred its teaching and learning activities to online. The UL consists of students from various parts of the country, many from poor socio-economic backgrounds. Therefore, online teaching and learning may pose challenges to both lecturers and students. Thus, the UL requires a more concrete approach towards the transition and acquisition of online teaching and learning methods (Shenoy, Mahendra & Vijay, 2020). Hence, the study intended to focus on online teaching and learning of library and information studies during the Covid-19 lockdown, with the UL as its case study.

1.2   RESEARCH PROBLEM.

The Covid-19 pandemic resulted in the enforcement of lockdown regulations, which forced various Library and Information Studies schools, including the one at the University of Limpopo, to suddenly modify or change from face-to-face teaching and learning to online teaching and learning. LIS schools in many universities were affected by these

sudden changes (Carroll & Conboy, 2020) because universities did not have enough time to reflect on how the new mode of teaching and learning should be introduced and integrated into their existing setup. It suffices to assert that universities require a more concrete approach to facilitate the transition from face-to-face to online teaching and learning (Shenoy et al., 2020). The researchers observed that some students and lecturers struggled with the new changes which might affect teaching and learning. Yates, Starkey, Egerton, and Flueggen, (2020) stated that students and lecturers with poor internet connections are liable to be denied access to online learning because online learning depend solely on technological devices and the internet. To the researcher's knowledge, the readiness of LIS students towards online teaching and learning is yet to be fully investigated. Therefore, this study sought to close this knowledge gap by investigating online teaching and learning for Library and Information Studies during the Covid-19 lockdown at the University of Limpopo, South Africa.

1.3   PURPOSE OF THE STUDY.

1.3.1 Aim

The aim of the study was to investigate teaching and learning for Library and Information Studies during the Covid-19 lockdown at the University of Limpopo, South Africa.

1.3.2 Objectives of the study

The objectives of the study were:

- To analyse perceptions of students towards online teaching and learning in LIS at the University of Limpopo.

- To assess LIS students' skills on ICT infrastructure for online teaching and learning.

- To establish the benefits gained by students from online teaching and learning in LIS at the University of Limpopo.

- To identify the challenges faced by students during online teaching and learning in LIS at the University of Limpopo.

- To determine the role of university management in support of students during online teaching and learning in LIS at the University of Limpopo.

1.4   SIGNIFICANCE OF THE STUDY

This is one of the necessary parts of the study to ensure that the reader is convinced that the study is important and should be conducted. It is used to build an argument that research is important for theoretical perspectives, policy issues, practical concern or social issues that affect people's lives daily. It is also used as an opportunity to discuss the contribution of the study (Marshall & Rossman, 2014). In relation to this, Mouton (2001) posits that significance of the study establishes why the proposed research matters and makes an important contribution to a new body of knowledge. The significance of the study raises interest and provides the context for organising and understanding the background of the research.

The Covid-19 pandemic caused disruptions in the process of teaching and learning at the UL and other institutions. Therefore, this study sought to identify and suggest solutions to challenges encountered by fourth-level students pursuing a Bachelor of Information Studies at the UL in the era of Covid-19 through the online teaching and learning platform. With identified challenges and solutions, it is hoped that the quality of LIS online education could be improved. The results of this study can be used as a guideline for online teaching and learning by physical contact universities, including the UL and other institutions. Lastly, the study has the potential to make new contributions to the existing body of knowledge on LIS and may also assist academics and professionals who have an interest in writing articles about online teaching and learning.

1.5 SCOPE OF THE STUDY

According to Harrison (2015), the scope of the study refers to a distinctive area and parameters where the research is focused, and where data is collected. The study was conducted at the university of Limpopo, where fourth level information studies students were based. The UL is situated approximately 30 km east of Polokwane in the Limpopo province of South Africa, with four faculties, namely Health Sciences, Humanities, Management and Law, and Science and Agriculture. The study focused on online teaching and learning for library and information studies during covid-19 lockdown.

1.6. DEFINITION OF KEY TERMS

It is important to clarify and explain the key concepts that have been used in a study. According to Bless, Higson-Smith and Sithole (2013), the three main functions of concepts as used in research are to facilitate communication, aid in classification of elements, and serve as building blocks of theory. The authors argue that for concepts to be useful, they must be defined in a clear, precise, and un-ambiguous and agreed-upon way. To contextualise the concepts and avoid using them differently, the following key concepts as used in the study mean the following:

1.6.1 Online learning

Online learning, also known as distance education or eLearning, refers to the delivery of educational content and instruction through the internet. It is defined as learning experiences in synchronous or asynchronous environments using different devices such as mobile phones, laptops, etc., with internet access. In these environments, students can be anywhere (independent) to learn and interact with lecturers and other students (Singh & Thurman, 2019). The synchronous learning environment is structured in the sense that students attend live lectures, there are real-time interactions between lecturers and students, and there is a possibility of instant feedback, whereas asynchronous learning environments are not properly structured. In such a learning environment, learning content is not available in the form of live lectures or classes; it is available at

different learning systems and forums. Instant feedback and immediate response are not possible under such an environment (Littlefield, 2018).

1.6.2 Library and information studies (LIS)

LIS is an interdisciplinary field of study that deals generally with organization, access, collection, and protection/regulation of information, whether in physical or digital forms (Bates, & Maack, 2010). In spite of various trends to merge the two fields, some consider the two original disciplines, library science and information science/ studies, to be separate (Hjørland, 2018). However, it is common today to use the terms synonymously or to drop the term "library" and to speak about information departments or I-school (Matusiak, Stansbury, & Barczyk, 2014). The common ground between library science and information science/ studies, which is a strong one, is in the sharing of their social role and in their general concern with the problems of effective utilization of graphic records (Rayward, 2004).

1.6.3 Information and communication technology (ICT)

ICT is an extensional term for information technology (IT) that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary wireless enterprise software, middleware, storage and audiovisual, that enable users to access, store, transmit, understand and manipulate information (Murray, 2011). ICT is also used to refer to the convergence of audiovisuals and telephone networks with computer networks through a single cabling or link system. ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliances with them such as video conferencing and online learning (Ozdamli, Fezile, Ozdal, Hasan, & 2015).

1.6.4 Covid-19 pandemic

The Covid-19 pandemic, also known as the coronavirus pandemic, is a global pandemic of coronavirus decease 2019 (Covid-19) caused by severe acute respiratory syndrome

coronavirus 2 (SARS-CoV-2). (Ritchie, Mathieu, Rodés-Guirao, Appel, Giattino, Ortiz-Ospina, Hasell, Macdonald, Beltekian, & Roser, 2020).

1.6.5 Lockdown

A lockdown is a restriction policy for people, community or a country to stay where they are, usually due to specific risks such as Covid-19 that could possibly harm the people if they move and interact freely. During the covid-19 pandemic, the term lockdown was used for actions related to mass quarantines or stay-at-home orders (Bryan , Bryan, & Baker, 2020).

1.7. OUTLINE OF CHAPTERS

The dissertation is made up of five chapters and the summary below outlines the way chapters are arranged in the dissertation and briefly explains the contents presented in each chapter in the following manner:

1.7.1 Chapter One: Introduction and background

This chapter introduced the topic and gave a brief background and motivation of the study with regards to the research problem, aim and objectives, significance of the study, scope of the study and the definition of key concepts. The research problem was outlined as the anchor of the entire research, whereas the significance of the study captured the rationale, importance, and relevance of the study. The chapter concluded by giving key concepts in this study, which included online learning, library, and information studies (LIS), information and communication technology (ICT), Covid-19, and lockdown.

1.7.2 Chapter Two: Literature review

The chapter covered the theoretical framework and literature pertaining online teaching and learning for library and information studies during covid-19 lockdown at the University of Limpopo, South Africa. The theoretical framework included the technology acceptance model and constructive learning theory, whereas the literature included perceptions of

students towards online teaching and learning, students' skills on ICT infrastructure for online teaching and learning, benefits gained by students from online teaching and learning, the challenges faced by students during online teaching and learning, and the role of university management in support of students during online teaching and learning.

1.7.3 Chapter Three: Research methodology

This chapter outlined the methodology employed to tackle the study. The chapter covered the research paradigm and approach, justification of the chosen research design, study population and sampling, and study area. The research paradigms employed in this study included positivism, post-positivism, and pragmatism together with the quantitative research approach. Data collection instrument, questionnaire design and layout, data collection procedures, instruments, validity, reliability, and objectivity of instruments, data analysis and ethical considerations were also covered in this chapter.

1.7.4 Chapter Four: Presentation and analysis of results

The chapter presented the demographic analysis of the study. The chapter further presented findings of the study on perceptions of students towards online teaching and learning, findings on students' skills on ICT infrastructure for online teaching and learning, findings on benefits gained by students from online teaching and learning, findings on the challenges faced by students during online teaching and learning, and the role of university management in support of students during online teaching and learning.

1.7.5 Chapter 5: Summary, Conclusions, and Recommendations

This chapter summarised, concluded, and recommended on the perceptions of students towards online teaching and learning, on students' skills on ICT infrastructure for online teaching and learning, benefits gained by students from online teaching and learning, challenges faced by students during online teaching and learning, and the role of university management in support of students during online teaching and learning.

1.8   CHAPTER SUMMARY.

This chapter presented the background and motivation of this study. It also outlined the problem statement of the study. Furthermore, this chapter highlighted the purpose of the study, significance of the study, as well as its aims and objectives. The chapter further gave operational definitions, i.e., Online learning, Library, and information studies (LIS), information and communication technology (ICT), Covid-19 pandemic, and lockdown. The next chapter covers theoretical framework and literature pertaining to teaching and learning for library and information studies during covid-19 lockdown at the University of Limpopo, South Africa.

CHAPTER 2

LITERATURE REVIEW

2.1   INTRODUCTION.

The preceding chapter gave the introduction of the study. In this chapter, the researcher reviews the literature relating to the study. Literature review involves the collection and synthesis of existing information relating to the research topic. It is important to review literature relevant to the topic being investigated. This is the case because it adds to an understanding of the problem under scrutiny, and it helps the researcher to identify the gaps and thus avoid unnecessary repetition of research. The purpose of this chapter is two-fold; it gives the theoretical framework and the latest literature relating to the study.

In relation to this, Bless et al. (2013) mentions the purpose of literature review as: to identify gaps in knowledge and weaknesses in the previous studies; to discover connections, contradictions, or other relations between different research results by comparing various investigations; to identify variables that must be considered in the research, as well as those that might prove to be irrelevant. The purpose of building on earlier research is two-fold. Firstly, the aim is to clarify which research had been carried out previously that could provide answers to the research questions and, secondly, to establish whether this research is needed and to choose an appropriate methodology for the research (Ngulube, 2009).

Sources consulted in this study for literature review were online journals accessed through online databases such as Ebscohost, Science-Direct, Sabinet, Sage, and others, and books. Articles, conference papers and e-books accessed through Google Scholar as well as electronic theses accessed through the National Electronic Theses and Dissertation (NETD) were also consulted to gain a deeper understanding of what previous research studies found about the topic. Searches were done using the combination of the following key terms: online teaching and learning, library and information studies, and Covid-19 lockdown.

2.2   THEORETICAL FRAMEWORK.

According to Tavallaei and Abutalib (2010), theoretical framework gives the researcher an opportunity to examine and distinguish relevant portions of the events being investigated, despite certain aspects of the events being hidden. It outlines who and what is studied. McMillan and Schumacher (2000) contend that a theory can develop scientific knowledge congruent with the following criteria: firstly, provide simple explanation about the observed relations regarding their relation to a phenomenon; secondly, be consistent with an already founded body of knowledge and the observed relations; thirdly, provide a device for verification and revision; and fourthly, stimulate further research in areas in need of investigation. Therefore, in principle, for a system of concepts and claims to be called a theory, the system should be:

- stable, which means that it remains unchanged over a longer period.
- coherent, which implies that the components of the system must be linked in a comprehensive and non-contradictory way.
- consistent, in the sense that it should not be possible to arrive at contradictory claims by means of the types of derivation permitted in the theory (Klette, 2011).

This study used a dual theoretical framework, namely the Technology Acceptance Model and the Constructive Learning Theory. The researcher anchored this study on the two theoretical frameworks because each theory alone could not address the objectives of this study. This means that the limitations of one theory were offset by the other. They were selected based on their relevance both to online teaching and learning of library and information studies and to understanding the roles of the students and lecturers in an online teaching and learning context.

2.2.1 Technology Acceptance Model.

Technology Acceptance Model, developed by Davis (1985), is one of the most influential research models in studies of the determinants of information systems and information technology acceptance to predict intention to use and acceptance of information systems

and information technology by individuals. The TAM has received considerable attention from researchers in the information system field over the past decade. It proposes that perceived ease of use and perceived usefulness of technology are predictors of user attitude towards using the technology, subsequent behavioural intention, and actual usage. Perceived ease of use was also considered to influence perceived usefulness of technology. Figure 2.1 presents the original version of TAM (Davis, 1985).
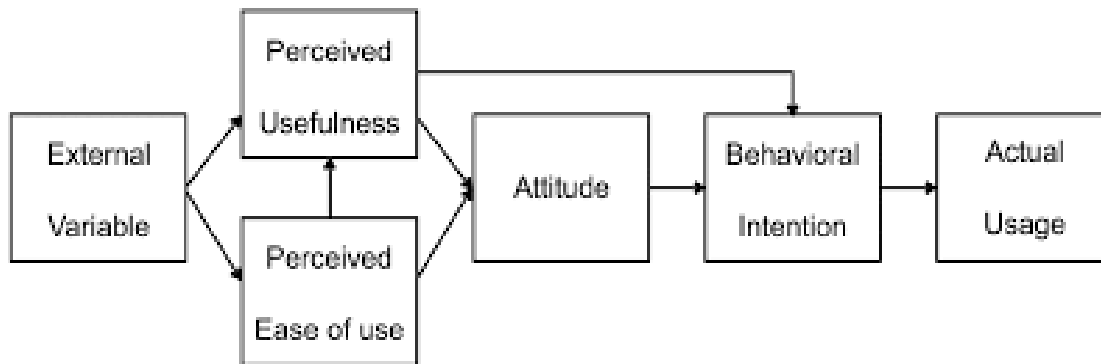
Figure 2.1: Original Technology acceptance model Davis (1985)

TAM has been applied in numerous studies testing user acceptance of information technology, for example, word processors (Davis, 1985), spreadsheet applications, e-mail, web browser, telemedicine, Websites, e-collaboration, and Blackboard (Arthur-Nyarko, Gyan, & Asante, 2021). In this study, online learning was considered a system that makes use of the internet and web technology in accomplishing its mission of delivering information to and interacting with the students through a computer interface.

In TAM, perceived usefulness refers to the degree to which the user believes that using the technology will improve his or her work performance, while perceived ease of use refers to how effortless he or she perceives using the technology will be (Davis, 1985). Both are considered distinct factors influencing the user's attitude towards using the technology, although perceived ease of use is also hypothesized to influence perceived usefulness and attitude towards using the technology. Finally, such an attitude towards using the technology determines the behavioral intention to use that technology.

The demand for online learning-based courses is rising as university students become more varied (Puri, 2012). To aid in the system's development, factors affecting online learning's acceptance and utilization must be identified. Effective implementation of online learning initiative requires that several issues be considered, including technological, pedagogical, and individual factors. Technology, pedagogy, and individual variables must all be considered when implementing an online learning effort effectively. However, the absence of theoretical or conceptual frameworks in many earlier studies examining the efficacy of online learning systems led to conflicting findings and left open the question of what constitutes the determining variables of an effective delivery of online learning. The advent of online learning technology has recently made training, teaching, and learning feasible on the internet. Online learning is essentially any form of education that is facilitated by the internet and its technologies and encompasses the use of the World Wide Web to support instruction and to deliver course content (Puri, 2012).

Chae, Lee, and Seo, (2016) points out that online learning represents one form of technology mediated learning, which is defined as an environment in which the student's interactions with the online learning materials, peers, and/or lecturers is mediated through advanced information technologies. Integrating ICT in teaching and learning is high on the educational reform agenda. Often ICT is seen as indispensable tool to fully participate in the knowledge society. ICTs need to be seen as "an essential aspect of teaching and learning cultural toolkit in the twenty-first century" (Leach, 2005:18).

The TAM was built based on the Theory of Reasoned Action (TRA) of Tsai, Chin, and Chen, (2010) which posits that beliefs could influence attitudes (feelings of favourableness or not favourableness towards using the technology), which lead to intention to use (indicates the strength on one's intentions to use the technology in the future), and, finally, a usage behaviour. The TAM assumes that external variables predict usage only through their effect on perceived usefulness and perceived ease of use. It describes that a person's behavioural intention to use technology is determined by perceived usefulness and perceived ease of use. The TAM suggests that when students

are presented with new technology, several factors influence their decision about how and when they will use it (Mahdizadeh, Biemans, & Mulder, 2008).

The researcher used the TAM to find out whether LIS students find the use of technology for online learning useful and easy to use. The TAM also guided the study to find out whether the usage of online systems is goal perpetuated or whether the users are comfortable with it. The TAM further guided the study to establish what type of attitude influenced the behaviour of LIS students towards online teaching and learning of LIS. At the stage of actual use, TAM was used to assess the attitudes of LIS students to determine the main cause of their refusal or acceptance of the actual use of online teaching and learning of LIS.

The TAM proposes that perceived ease of use and perceived usefulness of technology are predictors of user attitude towards using the technology, subsequent behavioural intention, and actual usage. Perceived ease of use was also considered to influence perceived usefulness of technology.

2.2.2 Constructive Learning Theory.

The second theory that undergirded this study was the Constructive Learning Theory, which stipulates that individual students construct their own reality based on their perceptions of experiences. The main idea behind teaching and studying methods is to get the students to participate actively and take responsibility for their own learning. Constructivism is a learning theory that attempts to explain how students learn by constructing understanding on their own. This is in tandem with the concept of constructivism in which students are assumed to construct their own meanings, goals, and strategies from the information available in the environment and existing information in their own minds (Pintrich, 2004). Therefore, students must undertake knowledge construction and should not expect lecturers to do it for them.

Constructivism is viewed as a meaning-making theory that explains the nature of knowledge and how human beings learn (Alemu, 2010). According to this explanation of

learning, individuals create or construct their own new understandings or knowledge through the interaction of what they already know and believe, and the ideas, events, and activities with which they come into contact (Boudourides, 2003). Knowledge is gained through three learning processes: assimilation, accommodation, and construction. The construction of new knowledge starts with a process of disorientation after exposure to the new situation (assimilation). The student then progresses to self-examination and critical assessment by connecting the disorientation to similar learning experiences (accommodation). This results in the construction of new knowledge, built on existing knowledge (construction) through a personal interpretation of the learning experience (Yeom, Miller, & Delp, 2018). An individual's knowledge is a function of prior experiences, mental structures, and beliefs that are used to interpret objects and events (Sultan, Woods, & Koo, 2011). Applefield, Huber, and Moallem, (2000) contend that constructivism is an active process in which students actively construct knowledge as they try to comprehend their worlds. This implies that constructivism holds that all prior knowledge is necessarily a product of people's own thinking actions. Therefore, it can be deduced that learning is the process of constructing knowledge and not acquiring knowledge. By building on the previously constructed knowledge of using ICT tools, students can use the same tools to grasp the content of the modules and consequently move from knowing about the modules to understanding them. This means that knowledge transmission is not passed from lecturer to student but is created by the student through interaction with his or her environment. However, lecturers should create an environment that is conducive for students to participate actively in the learning process to enhance their learning experience.

The implications of this theory for education practice are that students should be placed in learning situations where they must stretch their understanding capabilities and go beyond comfortable concepts (Welman, 2013). The learning environment is an important aspect of constructivist theory. McLoughlin and Luca (2001) postulate that in a constructivist learning environment, there is interaction, communication, exchange of views, collaboration, and support for students, but students need to take responsibility for

the learning process. The learning environment should be structured in such a way that it creates opportunities that encourage and support self-directed understanding. According to McLoughlin and Luca (2001), constructivist learning environment features include:

- authenticity (learning located in actual contexts or real tasks).
- group work (the social interaction and feedback instrumental in communication and higher order thinking processes).
- Student control (students active in defining and negotiating learning tasks).
- scaffolding (support of students as they progress from novice students to self-regulated experts).

Since knowledge transmission is not passed from lecturer to student but is created by the student through interaction with his or her environment, Alemu (2010) contends that teaching is not transmitting knowledge but helping students to actively construct knowledge by assigning them tasks that enhance this process. This, however, does not mean that LIS module lecturers should be entirely removed from the learning processes. Rather it means that lecturers should be accompanied by assignments in which students must reflect on and use the information given them in the lectures (Alemu, 2010). In line with this statement, the UL LIS lecturers give lectures and assessments followed by practical work at libraries and various LIS institutions. This study used the Constructive Learning Theory to understand how students in LIS construct their own understanding or knowledge of online teaching and learning during the Covid-19 lockdown.

The core arguments of these theories are summarized in the following statements:

- Technological equipment used in LIS online teaching and learning during the Covid-19 lockdown at the University of Limpopo.

- Access to online teaching and learning in LIS schools at the UL using online facilities and network coverage.

- Access to LIS online teaching and learning during the Covid-19 lockdown at the UL brings about participation in online classes and assessments.

- Access to LIS online teaching and learning during the Covid-19 lockdown at the UL depends on the methods of teaching and learning.

- The student's understanding and construction of knowledge towards LIS teaching and learning during the Covid-19 lockdown at the UL.

In view of information above, the researcher used these theories to investigate how online teaching and learning during the Covid-19 lockdown at the University of Limpopo affected teaching and learning in LIS at UL. The researcher anchored this study on the two conceptual frameworks because neither of the theories alone addressed the objectives of this study. This means that the limitations of one theory were offset by those of the other. For instance, the TAM was used to measure the technological acceptance of students, while the constructive learning theory was used to determine how students construct their own learning and understanding towards online teaching and learning of library and information studies during the Covid-19 lockdown at UL.

2.3   LITERATURE REVIEW.

A literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge, allowing you to identify relevant gaps in the existing research. A good literature review does not merely summarize sources, it analyzes, synthesizes, and critically evaluates to give a clear picture of the state of knowledge on the subject (McCombes, 2019). The literature review of this study was based on the objectives of the study.

2.3.1 The perception of students towards online teaching and learning.

Different students perceive online learning differently. Some students respond positively to the implementation of online learning (Almarabeh, 2014), while other students who

prefer traditional on-campus learning respond negatively to the implementation of online learning because they hold the view that online learning can cause uncertainty (El Gamal & Aziz, 2011).

There is a substantial growth in the use of online teaching and learning platforms in higher education from universities around the world (Paechter, Maier & Macher, 2010). Usually, new systems fail because the end users do not accept and use them, either because they do not see any benefits from using these systems or they regard these systems as too complex, which causes much trouble for them. Online teaching and learning system are one of these new systems that can be accepted or rejected by university students. According to Ozkan and Koseler (2009), online teaching and learning systems are multidisciplinary, where the success of online learning depends on two factors:

- Technological factor – software and hardware that are used to build online learning system.
- Human factor – students and lecturers.

A qualitative study by Armstrong (2011) on students' perceptions of online learning and instructional tools established that students do not perceive the negative attributes of technology as being inherent. Fedynich, Bradley, & Bradley, (2015) investigated graduate students' perceptions of online learning at South Texas University and found that interactions between students and lecturers have a major impact on their satisfaction with online learning. Platt, Amber, and Yu (2014) proffer that online and face-to-face courses are relatively comparable in terms of learning outcomes. However, students generally perceive online courses as significantly more flexible. Numerous students enrolled for English classes at the University of Suwon in South Korea perceive educational learning systems such as the Blackboard application as a supplementary learning tool and not as the only source of learning in a time of crisis (Robinson, Basco, Mathews, Dancel, Princena, & McKeever, 2017) like the covid-19 pandemic where universities were compelled to use online teaching. The perception and use of Blackboard research could evaluate the efficiency of Blackboard (Alharbi, 2015; Kashghari & Asseel, 2014). In other

words, a student's attitude towards online learning plays an important role in determining a student's intention to use Blackboard. This interrelationship between perceptions and use controlled the efficient use of online learning tools. A review of previous studies in English foreign language (EFL) Saudi context showed inconsistent results of the perceptions of students towards the implementation of learning management systems (LMSs) (Blackboard) as a blended learning model or as a supplementary and ancillary tool of learning. Some of the previous studies showed positive attitudes of students towards Blackboard and other studies showed negative attitudes while a few were neither positive nor negative (Kashghari & Asseel, 2014). However, all the studies described the use of Blackboard and the shift to blended learning as a situation surrounded by challenges. At the time of the Covid-19 pandemic, the sudden shift from offline learning courses to online learning through Blackboard became the current challenge faced by students (Basilaia, Dgebuadze, Kantaria & Chokhonelidze, 2020; Saidy & Sura, 2020; Yan, 2020).

During a shift from traditional to online learning the importance of Blackboard and other tools of online learning as the only substitutes to the traditional instruction in times of crisis should be communicated (Fageeh, 2011). However, the perceptions of students toward LMSs applications as a substitute to the traditional instructions were affected by the challenges and fears caused by the sudden and quick shift in the period of Covid-19) (Dhawan, 2020). Affouneh, Salha and Khlaif (2020) state that the adoption of online learning during the lockdown had its disadvantages, which demotivated students to learn online via LMSs. Other scholars assert that students faced many technical difficulties, which hampered and slowed down the learning process (Hoq, 2020; Favale, Soro, Trevisan, Drago & Mellia, 2020) and minimized or stopped the direct communication between lecturer and student. Dhawan (2020) opines that many students in schools, colleges, and universities in India also faced psychological problems during the lockdown. Students suffered stress, fear, anxiety, depression, and insomnia, which led to a lack of focus and concentration. Still, many students perceived the Blackboard application as a supplementary learning tool and not as the only source of learning in the time of crisis

19

(Robinson et al., 2017). Some of them even feared that online interaction between a lecturer and students would replace face-to-face interaction (Alshwiah, 2010). Moawad (2020) points out that students' perceptions of Blackboard were affected by difficulties and worries experienced during the quick and sudden shift from an offline to an online learning mode. Moawad (2020) lists some of these worries as assessment and its fairness, home, and academic settings, required tech skills and internet and uncertainty.

Keller and Cernerud (2002) studied the perceptions of university students in Sweden with experience of at least two online learning courses and considered the variables gender, age, IT literacy, and attitudes toward technology and learning. Keller and Cernerud (2002) found that students did not generally regard access to online learning as a benefit and that the individual variables were less important than how the university implemented online learning. Of the variables, there was no relationship between age or learning style and the students' perceptions; however, women were more positive than men and students with lower IT literacy were more positive than those identifying themselves as early adopters. It may be worth noting that since this study was done, technology has become a lot more common and widespread and, as such, attitudes towards it may have changed.

In accordance with TAM, most students in a survey of university students in the USA Song, Singleton, Hill, & Koh (2004) perceived that the success of online learning depends on student motivation, course design, time management and level of ease with internet technology.

2.3.2 Students' skills on ICT infrastructures for online teaching and learning.

Trends and development coupled, with the Covid-19 pandemic, have prompted the need for new teaching and learning approaches and skills that are different from those used in teaching face-to-face courses (Hampel & Stickler, 2005). These new teaching and learning skills are crucial for online courses, especially at the final level of studying where there is a need to focus on the form of interaction as well as the content (Hampel & Stickler, 2005). Additionally, it requires skills that are different from learning other subjects

online. However, there seems to be little concerted effort in this direction as the increase in online learning has not been matched with an increase in lecturers training for lecturers beyond the technical and software-specific skills. Moreover, the vast research and best practices for teaching online may not translate well for online teaching.

Online teaching and learning require both lecturers and students to be computer literate. Haywood, Macleod, Haywood, Mogey, & Alexander (2004) suggest that students should enter university with at least a basic level of ICT skills, and they should have access to and a willingness to use ICT for study as well as social and recreational activities. Online learning needs efficient infrastructure (Elida, Nugroho, & Suyudi, 2012).

Universities do not need only good technical connectivity, but also professional management of courses, applications, and superior pedagogical soundness (Costa & Silva, 2010). Higher education resists that online learning needs technical skills and the experience in marketing and customer service necessary to support and develop this new market. From this field, one can see that online learning only provides the learning skills but does not provide the technical skills. Students can learn much from online learning, but they do not have basic knowledge of the technical skills. Technical skills can only develop when students involve themselves and take experience from it. Besides that, many universities are attempting some online learning initiatives, but on a very limited scale (Kamsin, & Is, 2005). This happens because funding for such initiatives at university level is another challenge that needs the right base of skills. Shifting from face-to-face class to online learning is challenging for lecturers, students, families, and the country's government due to a lack of technical skills, ICT infrastructure, internet access, and educational resources (Basilaia & Kvavadze, 2020). Furthermore, computers and other IT equipment are difficult to learn and use at home for most students in developing countries (Sahu, 2020).

There are a limited number of computers, internet access, and mobile network access, and a lack of ICT-trained lecturers in developing countries (O'Hagan, 2020). Therefore, even if online teaching and learning were a good opportunity to continue education during

the pandemic, it was problematic for developing countries (Sun, Tang & Zuo, 2020). Online students and lecturers must acquire the skills necessary to use the technology associated with online courses (Krishnan, Norman, & Md Yunus, 2021). For final-year students in LIS, even the amount of typing typically associated with text-based communication in online learning can be a challenge (Stinson, 2004). Additionally, issues associated with student–interface interaction (Hillman, Willis & Gunawardena, 1994), such as learning to navigate a course site, protocol for posting and reading discussion posts, facilitating discussions online, and submitting assignments, can be challenging for the novice online students (Arbaugh, 2004). Lecturers' abilities and skills to teach online are critical to the quality of online education. Studies found that the most important skill for online lecturers is the ability to moderate or facilitate learning and how to develop or plan for high-quality online courses. Being a subject matter expert was a very important skill (Ralston, 2007). In effect, the results indicated that planning and moderating skills might be more important than actual "teaching" or lecturing skills in online courses. As pointed out, online lecturers are moderators or facilitators of student learning (Ralston, 2007).

The efficiency of the online learning platform has been fundamentally influenced by the proactive involvement in setting a sound infrastructure such as laptops, computers or mobile phones that will make it easier for students to participate and listen to their lecturers' explanations during the online teaching and learning process (Teo, Kim, & Jiang, 2020). These multimedia and interactive modes of use make ICT the most important means of communication in online teaching and learning (Teo et al., 2020). It is important for lecturers to embrace advanced technology throughout the process of teaching and, therefore, learning has a range of skills in information and communication technology (ICT) (Aithal & Aithal, 2016). As higher education institutions implement online learning, they must ensure that the right technological tools are in place to best support student learning (Worldwide technology, 2020). Zakariah, Alias, Abd Aziz, and Ismail, (2012) add that the new technologies provide opportunities for creating online learning environments that enhance students' learning and achievement. However, the

inappropriate use of technology can become ineffective during the online teaching and learning process. Thus, it is important to understand what technology is and how to use it and, most importantly, how comfortable it is (Zakariah et al., 2012).

Technological skills are divided into three levels of expertise: novice, proficient, and expert (Hampel & Stickler, 2005). At each of the levels, there is a main emphasis underlying technological skills. The emphasis at the novice level is for the lecturers to become a proficient user of technology. Familiarity with a range of technology can then help to increase the lecturer's confidence in using the technology for teaching purposes. At the proficient level, the emphasis is on being an effective judge of different technologies so the lecturers can choose the best technology given a certain set of conditions. Creativity is separated from choice and reserved for the expert lecturer who has become confident and successful at using, choosing, and modifying relevant technologies for online teaching.

At the first level, the basic technological skills as defined by Hampel and Stickler (2005) are necessary prerequisites for any novice lecturer. This includes the ability to turn on a computer and use a mouse, as well as basic knowledge of simple applications, such as word processing and the internet. Based on these basic skills, a novice online lecturer should proceed to be a proficient user of various technologies that could be used for online learning. Since communicative competence is an important face of learning, the novice lecturer should also learn about the differences between asynchronous and synchronous technologies and be comfortable to use computer-mediated communication (CMC) technologies, which include text, audio, and video conferencing. Additionally, a novice lecturer should also be familiar with CMS (e.g., Blackboard, WebCT and Moodle) and be able to navigate through one or more systems. While learning to use different software, the novice lecturer should be able to identify and compare features in similar software (e.g., Yahoo Messenger versus Skype or WebCT versus Moodle) (Hampel & Stickler, 2005).

Skills needed for online teaching and learning of library and information studies during the Covid-19 lockdown were as follows.

a. **Pedagogical skills:** Effective online lecturers should understand the fundamentals of online teaching and pedagogy. They must demonstrate this understanding through applying many principles and strategies. These principles and strategies include:

- Designing and implementing appropriate instructional strategies, as well as classroom assessment and student engagement techniques.
- Organizing and facilitating students' participation and providing guidance and support as needed.
- Encouraging knowledge construction based on students' prior knowledge and life experience.
- Promoting group interaction, collaboration, and teamwork (Abdous, 2011).

b. **Content skills:** Online students and lecturers must be able to do the following:

- Express and master extensive knowledge of the content.
- Develop a course outline that includes all course components and elements.
- Design a teaching proposal at the general level and identify each of its phases or elements.
- Develop and select appropriate and varied learning resources that accommodate different learning styles and preferences.
- Link the subject and content with scientific, social, cultural, and any other relevant phenomena.
- Develop an inventory of existing content and resources and any additional content and resources that will be needed (Albrahim, 2020).

c. **Design skills:** Designing and developing online courses are demanding tasks. It requires having a design and production team, which consists of an instructional designer, instructional technologist, graphic and media designers and production team, and librarians (Abdous, 2011). These individuals work collaboratively to

produce high-quality online courses (Haughton, Sandt & Slantcheva-Durst, 2014). However, online lecturers must be able to do the following:

- Understand and apply instructional design principles, models, and theories.
- Organize and present the learning materials in different formats.
- Cooperate with the production team to design learning activities and select appropriate tools and techniques to present these activities.
- Use students' previous feedback to develop and design new courses and assess the course design quality by using quality assurance tools and instruments, such as the Quality Matters Rubric (Abdous, 2011).

d. **Technological skills:** Although online learning relies heavily on technology, there is no imperative need for online lecturers to be technologically advanced. Online lecturers must possess adequate technological literacy skills to be able to do the following:

- Accessing various technological resources and tools, such as email, internet browsers, LMSs, text and video chat applications, and productivity software and applications.
- Being aware of the technical potential of and procedures used to create e-content, such as e-books and instructional videos.
- Being alert to the latest updates and renovations of educational technology and software (Alman, Tomer, & Lincoln, 2012; Bailie, 2011).

e. **Management and institutional skills:** As classroom management is an important aspect of face-to-face education, managing courses and learning is essential in online learning environments. An awareness of institutional policies and norms is also an important aspect of being a successful online instructor. Skills and tasks related to these two aspects include the following:

- Managing the course time and applying time-saving techniques.

- Establishing and declaring rules and regulations for participation, submission of assignments, timeliness, sending and seeking feedback, and communication protocols.
- Conducting research on classroom teaching then interpreting and integrating research findings and results.
- Maintaining contact and networking with online teaching and administrative teams, and complying with legal, ethical, and copyright issues and standards (Craddock & Gunzelman, 2013).

f. **Social and communication skills:** Active communication and social presence are vital to engaging online learners. Using different communication tools (e.g., email, video chat, text messages, etc.), online instructors must efficiently communicate and promote interactivity among the learners. Some activities to achieve this include the following:

- Ensuring the quality and accuracy of written messages and feedback and detecting typographical and grammatical errors.
- Using different communication methods to ensure accessibility among the instructor and learners, and the learners with their peers.
- Offering advice and suggestions and clarifying doubts and suspicions (Craddock & Gunzelman, 2013; Fuller & Yu, 2014).

According to Alqahtani (2011), the computer-based learning comprises the use of a full range of hardware and software that are generally available for the use of ICTs and each component can be used in either of two ways: computer-managed instruction and computer-assisted-learning. In computer-assisted learning, computers are used instead of the traditional methods by providing interactive software as a support tool within the class or as a tool for self-learning outside the class. In computer-managed instruction, however, computers are employed for the purpose of storing and retrieving information to aid in the management of education.

The internet-based learning, according to Arkorful and Abaidoo, 2015, is an improvement on the computer-based learning, and it makes the content available on the internet, with the readiness of links to related knowledge sources, for example e-mail services and references which could be used by students at any time and place, as well as the availability or absence of lecturers or instructors (Arkorful & Abaidoo, 2015). Arkorful, and Abaidoo (2015) classifies this by the extent of the use of such features in education, mixed, or blended mode, assistant mode, and completely online mode. The assistant mode supplements the traditional method as needed. The mixed or blended mode offers a short-term degree for a partly traditional method. The completely online mode, which is the most complete improvement, involves the exclusive use of the network for learning (Chinedu, 2021).

Students and lecturers need to have knowledge of educational learning systems such as Blackboard. Blackboard is one of the most popular marketable systems adopted in higher education institutions (Narwani & Arif, 2008). Using Blackboard, lecturers and students can change their old and traditional methods of teaching and learning to new online learning methods (Mohsen & Shafeeq, 2014). It offers a collaborative learning platform that can be tailored to suit students' needs (Alharbi, 2015). Alshwiah (2010) and Al Zumor, Al Refaai, Eddin, and AI-Rahman (2013) found that the two major deficits of learning via Blackboard were internet access and a lack of technical skills. Therefore, students require more training and orientation in learning via Blackboard. Al-Maqtri (2014) found that removing all barriers that hamper online learning via blackboard guarantees success.

Salter and Hansen (1999) contend that no single set of skills can be isolated, as online teaching and learning occurs in many different contexts. In addition, technology is evolving so rapidly that new teaching possibilities arise regularly. Use of online teaching and learning ranges from simple supplements to more traditional methods, through to distance courses run entirely online. The level of teaching, learning, and technological expertise of academics varies enormously, as does the range of software products that may be incorporated (Salter & Hansen, 1999).

2.3.3 Benefits gained by students from online teaching and learning.

Online teaching and learning in education are favourable in multiple contexts (Raspopovic, Cvetanovic, Medan & Ljubojevic, 2017). Online learning is considered as an entertaining way to learn. It has a positive impact on both students and lecturers. Both lecturers and students have optimistic opinions about online classes (Kulal & Nayak, 2020). Teymori and Fardin (2020) further remark that during Covid-19, online learning provided access to education for many students but they stressed the importance of increased digital awareness. An online learning system helps in a diversity of education curricula and create an interaction that ensures attracting the interest of students, providing immediate feedback, encouraging interaction with other students and the lecturers, providing digital culture for students, and contributing to enriching the learning process. Many students found that attending online courses gave them the ability to learn in a non-classroom environment that may be more suitable for some students who are failing in the face-to-face learning system (Buheji & Buheji, 2020).

Some studies give the advantage of online learning as its ability to focus on the needs of individual students. For example, in his book review on online learning strategies for delivering knowledge in digital age, Marc (2002) noted that one of the advantages of online learning in education is its focus on the needs of individual students as an important factor in the process of education (rather than on the lecturers' or educational institutions' needs). Online learning always takes into consideration the individual students' differences. Some students, for instance, prefer to concentrate on certain parts of the course, while others are prepared to review the entire course. It also allows self-pacing (Algahtani, 2011). Students who study online can plan their own time schedule, without having to make personal sacrifices to meet the class attendance requirements of lecturers and traditional universities. Self-paced learning leads to increased student satisfaction and reduced stress, resulting in improved learning outcomes for everyone involved. Some of the advantages of self-paced learning include efficiency, effectiveness, convenience, scalability, and reusability (Tamm, 2021).

Online learning is quite effective for self-regulated students (Kirtman, 2009), as these students tend to use various cognitive and metacognitive strategies to accomplish their learning goals (You & Kang, 2014) and they have the skill of metacognition to reflect on their own learning (You & Kang, 2014). Self-regulation and motivation have been identified as two critical factors for determining success in online courses (Matuga, 2009). In a qualitative study conducted at California State University, Fullerton, by Kirtman (2009), a student responded to online coursework by stating that, "It is more self-guided, so I can spend more time on the concepts that I need help with and less on concepts that I can pick up quickly" (Kirtman, 2009:103). This resonates with the constructive learning theory which stipulates that there is interaction, communication, exchange of views, collaboration, and support for students, but that students need to take responsibility for the learning process (McLoughlin & Luca 2001).

Davies (2014) and Fuller and Yu (2014) aver the benefits of online learning for the students include offering more flexible learning experiences, opening channels for synchronous and asynchronous communication and interaction, allowing for more collaboration and interaction with peers, providing access to learning resources in various formats, and promoting authentic and situated learning. Bell and Federman (2013) argue that online learning is affordable and supports access to higher education for those who have socioeconomic, academic, and health issues that prevent them from attending on-site classes. Keengwe, Schnellert and Kungu (2014) add to the noted benefits of online learning as the potential to offer cross-cultural experiences in which students can learn about, and communicate with, people from other cultures. They also cautiously mention feeling anonymous as another benefit of online learning. Although anonymity may have some disadvantages, it can give the students more freedom to participate in learning activities. Online lecturers can also benefit from conducting online sessions. The advantages that lecturers may gain include more flexibility regarding teaching location and hours; being able to reuse and immediately update the learning materials; increasing the number of ways to individually communicate, supervise, and direct students; enhancing their ability to determine students' educational needs; and designing

personalized learning experiences accordingly (Albrahim, 2020). Alman, Tomer, & Lincoln, (2012) note that teaching online may provide opportunities for online lecturers to learn about the principles of instructional design and technology, online pedagogies, and emergent technologies. Online teaching, therefore, would help faculty members to expand their professional community, exchange best practices and feedback, and enhance their teaching and career portfolios (Alman, Tomer, & Lincoln 2012).

Online teaching and learning provide opportunities for students to participate in a course or programme of study, regardless of where they reside (Milheim, 2014), and enable students to pursue a course from different institutions other than what they are currently studying (Sive & Sarma, 2013). Online learning is flexible when issues of time and place are taken into consideration. Every student has the luxury of choosing the place and time that suits him/her. Without geographical limitations, students can interact independently and learn from lecturers and fellow students (Singh & Thurman, 2019), thus ensuring accessibility and flexibility of online teaching and learning. Online learning has the potential to open the pathways for more opportunities for students in small, rural, or low socioeconomic school districts (Doomun, & Van Greunen, 2022) to take courses that generally would not be offered.

Online learning is a relatively cheaper method in terms of the lower cost of transportation, accommodation, and the overall cost of institution-based learning. It allows students to work at a place and time compatible with their learning needs and enables them to have sufficient time to focus on content and not on issues like traffic and other problems that may arise in the traditional classroom environment (Hartini, Liliasari, Setiawan, & Ramalis, 2020; Thomas, 2010). Several lecturers and students commented on their ability to focus more of their attention on the content of the course and less on issues such as parking, traffic, and other problems that may arise when attending a traditional classroom environment (Thomson, 2010). Online learning not only enables opportunities for flexible learning environments, but it is also a global initiative to provide quality education for all students, irrespective of their location (Ogbonnaya, Awoniyi, & Matabane, 2020). Proponents of online learning suggest that the quality of online learning is embedded in

the method of delivery, asserting that the quality of instruction affects learning outcomes (Figueroa, Figueroa, Calvo-Mena, Narvaez, Medina, & Prieto, 2020; Mahama, 2016).

According to Mansbash (2015) technology can promote critical thinking and problem-solving skills among students, which are required in the 21st century. Online lecturers can make use of various technologies such as Google Docs and Discussion Forums in Blackboard and create various activities that can help to develop the critical thinking skills of students. Chernova, Litvinov, Telezhko, and Ermolova, (2022) state that through online learning, objectives can be accomplished in the shortest time with the least amount of effort. According to Khan (2005), the impact of online learning on educational ethics is ensured. This is because environments for online learning are tolerant, with good ways of offering equal access to information, irrespective of the location of the users, their age, ethnic origin, and race (Khan, 2005). The environment for online learning also encourages students to depend on themselves because lecturers are no longer the sole source of knowledge. Instead, they become advisors and guides (Al-salem, 2004). Online learning also aids in preparing society to globally communicate and dialogue with others (Phutela, & Dwivedi, 2020).

2.3.4 Challenges faced by students during online teaching and learning.

The Covid-19 pandemic forced the shutdown of many physical activities worldwide, including educational activities. This situation left educational institutions no choice but to migrate to online learning. Even though online learning is not a novel phenomenon, this sudden transformation to online learning posed substantial challenges for educational activities globally, and particularly in resource-scarce environments such as South Africa, where educational institutions, lecturers, and students are generally not ready for this unexpected disruption to traditional teaching and learning methods.

A qualitative study by Adedoyin and Soykan (2020) indicated several concrete challenges caused by the abrupt digital transformation of instructional operations during the period of the Covid-19 pandemic. Key challenges are related to technological infrastructure and digital competence, socio-economic factors (educational inequality), assessment and

supervision, heavy workload, and compatibility (some subjects require physical interactions).

Higher education institutions have encountered a myriad of pedagogical challenges they should overcome if their attempts to adopt online learning are to bear any fruit. Some of the problems emanated from the students' lack of confidence in using technology and their interaction with lecturers. Students need to be prepared to adapt to advances in technology, especially for learning and communication purposes. Untimely, online learning initiatives create unproductive learning environments in which students encounter difficulties with course material, are unsure how to prepare for online assessments, and are reluctant to contact lecturers for assistance (Heng & Sol, 2021). A major challenge for contemporary universities such as the University of Limpopo is to offer students more client-orientated educational programmes (Mapuva, 2011) and this requires an educational understanding of the students' need for a more flexible, easily accessible learning environment, which can be offered through distance learning (Fry, 2011). Moreover, contemporary students need to communicate and require the ability to share knowledge and skills from a distance.

By its nature, online learning depends entirely on technological devices and the internet, so it is undeniable that technology is the most pressing challenge to online learning if those involved in the process of teaching and learning are not digitally competent due to inexperience or insufficient training. Some typical technological issues faced by LIS students during Covid-19 included a lack of knowledge of how to use applications, unstable/slow internet connection, outdated communication devices, and incompatible browsers. Jalli (2020) argues that a lack of internet access poses great challenges for students in Southern Africa to study online. The underdeveloped areas such as Limpopo, as in other parts in African continent, face challenges in accessing information technology as a result of poor infrastructure (Molawa, 2009). When compared to other countries of the world, the digital divide in Africa is a main constraint. This is a major barrier to the use of technology for online teaching and learning. According to Oladokun and Aina (2011), blocking the online students' realization of their information needs is the digital divide,

which further marginalizes the underclass of "info poor". It was also noted that cultural barriers also pose problems to technology innovation in Africa (Oladokun & Aina, 2011). Cultural barriers are part of our daily lives. Online courses never stand alone. To a student with a different cultural background than the lecturer's, online learning can act as a window to another culture. Cultural barriers should be mindful of when designing an online course (Edmundson, 2006). Educational technology continues to represent the dominant culture, therefore limiting individuals who are not included in the dominant culture (Oswal & Meloncon, 2014).

Another factor that has become a concern to the implementation of online learning in the new normal after Covid-19 era is the availability of internet access. If the signal is bad, it would certainly hamper the teaching and learning process (Andarwulan, Fajri & Damayanti, 2021). Technical errors, bugs, and slowness are critical if students are to use the system and are critical to the success of the online learning technology. If the system does not function correctly, the technology will not be used and negativity will arise in using online learning technology, which has a big ramification for institutions, as they have invested hugely so the technology would be used effectively for the return on investment. (Nielsen, White & Zhou, 2011). These difficulties and problems associated with modern technology range from downloading errors, issues with installation, login problems, and problems with audio and video quality (Nielsen et al., 2011). Al-araibi, Mahrin, and Yusoff, (2019) state that the technological issues are the main criteria for the success of the online learning system.

According to Nedeva, Dimova, and Dineva, 2010, due to the hidden barriers to access to online learning to students, there are limitations of making an online course accessible to all. Some communication tools may not suit some students. For example, the streaming of audio on Blackboard may not be heard by a hearing-impaired student and thus this tool is not accessible to all. Another disadvantage of online learning is that it can only be successful if the communication tools used in the classroom are "in the student's possession, accessible to the student and operable by the student" (Lehmann, 2004:18). Although synchronous communication tools are usually perceived as an advantage

because of their similarity to communication in- the traditional classroom, they can also be a disadvantage. This is because they consist of real-time, text-based communication in which responses are often out of sequence because of different students have varying typing abilities (Idiegbeyan-Ose, & Esse, 2016). Students must have adequate typing skills and communication skills, as most of the learning is text based and self-paced, and if they are used to being in a structured, scheduled environment, they will be disadvantaged and most likely get confused and fall behind (IOWA State University, 2001). Lecturers are not as readily available in the virtual classroom as they are in the traditional classroom, therefore students who usually make continual use of the support of the lecturers may feel isolated, according to the IOWA State University (2001). The fact that there are technological requirements to enable full participation in the virtual classroom is also another disadvantage to students. For example, if the student does not have a high bandwidth and adequate computer memory needed to access the internet, and hence the virtual classroom and download course material, they will be disadvantaged. In addition, the technological dependence of the virtual classroom can be a disadvantage if there is an internet connection failure or a similar technological problem that prevents students from completing a task. If there is no backup plan in the case of a technological hindrance, students will miss the learning activity that was scheduled (Nedeva, Dimova, & Dineva, 2010).

Another challenge relates to difficulties with software. The disadvantages of online learning are the managing of computer files, software compatibility, and learning new software, including online Learning (Nedeva, Dimova & Dineva, 2010). For students with beginner-level computer skills, it can sometimes seem complex to keep their computer files organized. "The lesson points you to download a file which the student does and later cannot find the file. The file is downloaded to the folder the computer automatically opens rather than a folder chosen by the student" (Nedeva et al., 2010:277). This file may be lost or misplaced by the student without good computer organizational skills. It takes time to complete online learning, especially programmes with assignments and interactive collaborations. This means that students must be highly motivated and responsible

because they do all the work on their own. Learners with low motivation may not complete modules (Nedeva et al., 2010).

Sometimes, students find online teaching and learning to be boring and unengaging. Personal attention is also a huge issue facing online learning. Students want a two-way interaction, which sometimes becomes difficult to implement. The learning process cannot reach its full potential until students practice what they learn. In most cases, online content is mainly theoretical and does not let students practice and learn effectively. Mediocre course content is also a major issue (Mishra, Gupta, & Shree, 2020). Students feel that a lack of community and difficulties in understanding instructional goals are the major barriers to online learning (Song et al., 2004). There are many other challenges that have been discussed in recent research studies on online learning during the Covid-19 pandemic. For instance, online or distance learning amid the pandemic created more stress, frustration, and isolation for students who have lost the opportunity for peer interactions (Daniel, 2020; Gillett-Swan, 2017). Students may feel isolated and unsupported while learning and instructions are not always available to help them, so they must have discipline to work independently without assistance. Online students may also become bored with no interaction. The unprecedented shift to online learning also increased concerns regarding cybersecurity, cyberbullying, online violence and exploitation, and other psychological issues caused by difficulties and uncertainties associated with online learning during the Covid-19 pandemic (Daniel, 2020; Yan, 2020).

Assessment is no doubt vital to any learning, whether face-to-face or online learning. However, online learning during the global Covid-19 pandemic made the assessment more complicated, as it had to be conducted online (Adedoyin & Soykan, 2020). Therefore, new approaches to assessment are imperative. With online assessment, lecturers have limited control over students' work, so it is difficult for lecturers to regulate cheating and ensure that students complete the assessment tasks by themselves. For many educational institutions, the sudden shift to online learning created an unexpected workload, particularly in building online platforms and integrating external applications into their systems in a timely manner (Adedoyin & Soykan, 2020).

2.3.5 The role of management in support of students during online teaching and learning.

The university management has the responsibility to enhance online learning and the success of students from diverse backgrounds (Schreiber, Moscaritolo, Perozzi, & Luescher, 2020). According to New York University Shanghai, (2020), the university management staff assist students by using technology effectively and giving timely feedback to achieve better learning for students. This is essential, particularly in online learning environments where students might be unable to ask questions as they usually did in a direct classroom environment. It further indicates that the university management has a responsibility to increase their students' awareness by using the technology effectively, including distance learning.

Inoue (2007) argues that aspects that need to be considered by the management in online learning are students, lecturers, learning material that includes quality and flexibility, the quality of technology or platforms used, and the learning environment. Moreover, management must ensure that online learning dimensions include three things, namely the quality of the system and infrastructure, the quality of information and learning, and the quality of institutions and services (Pangondian, Santosa, & Nugroho, 2019). Naffi, Davidson, Patino, Beatty, Gbetoglo, and Duponsel (2020) conducted collaborative research at the Université Laval, Concordia University, Florida State University, University of Southern California, and San Francisco State University and they suggested eight ways which university management can improve equity and access to online learning. These eight ways were creating accessible materials; choosing adequate digital technologies; recording lectures and caption videos and audio content; adopting inclusive culturally responsive teaching; adopting a flexible approach to student participation; ensuring financial support and equipment; understanding student needs; and addressing systemic racism (Naffi et al., 2020).

Institutional management determines the direction and thrust of an institution towards learning programmes that must be assimilated into the institution. The rigor with which

institutions implement online learning among their students and staff is based on the institutional leadership's thrust and initiatives towards the realization of this goal. There are considerations that institutional management must consider making the implementation come to fruition. One of the most crucial prerequisites for successful implementation of online learning is the need for careful consideration of the underlying pedagogy, or how learning takes place online (Qu, & Cheung, 2014). This is the prerogative of institutional management to ensure that the right approach is adopted, and the appropriate infrastructure and attitude are inculcated in those whose task it is to finally implement online learning. Leadership and management are seen as key to effective online learning implementation. A lack of leadership among people in senior positions throughout the education system can be one of the most important barriers to effective online learning implementation (Thorpe, & Gordon, 2012). Institutional management is a determining factor in higher educational institutions, given their decision-making roles, which could make or break the online learning projects by either facilitating or impeding its implementation within their institutions (Levin & Arafeh, 2002).

Fry (2011) expresses the view that if universities are to compete in a global higher education market, they must embrace technological advancements and use them as a strategic tool, capable of transforming educational and business practices. Fry (2011) considers that online learning initiatives will not only give universities a new channel of educational deployment. The success of online learning implementation depends on the institutional structures that institutional management creates within their institutions in preparation for the incorporation of any new technological innovations for improving the efficiency of their lecturers and the effectiveness of the pedagogical methods that lecturers use in disseminating educational material to students. It is therefore necessary to explore HEI organisational structures that enable the adoption of online learning. During these trying times, HEIs must ensure that they sufficiently support online learning usage, not only technically as required by students as discussed previously, but also financially. Financial support may come in the form of budgetary provision and ensuring

that the online learning implementation project is not delayed (Almaiah, Al-Khasawneh & Althunibat, 2020).

Leng and Yang (2020) offer six recommendations to ensure the successful switch to online learning and teaching. First, it is the role of leadership. Institutional management must have a genuine commitment to support the adoption of blended learning by investing in facilities and resources needed to support the digital transformation of education. Secondly, it is the development of digital infrastructure and literacy. Leng and Yang (2020) argue that HEI management should build and improve digital learning platforms, provide stable internet connection, support students from low socio-economic backgrounds who may not have access to digital devices, and improve digital literacy among students and lecturers. Thirdly, it is the role of pedagogy. Lecturers should be provided with capacity-building training opportunities that allow them to develop knowledge, skills, and innovative teaching and assessment methods that can increase student engagement and attention to online classes. Fourthly, support for students and staff, both teaching and non-teaching staff, should be offered. The authors suggest developing an e-community where students, faculty members, and staff can communicate socially and academically. Fifthly, it is the role of attitudes to learning and teaching. Leng and Yang (2020) argue that educational institution management should instil in students a culture of reading, discussion, and debate. Lecturers should keep themselves abreast of new developments in their fields, especially regarding new teaching techniques that can keep students engaged in an online learning environment. Finally, they call for government support to assist educational institutions in developing and improving ICT infrastructure, providing training programmes for staff, and improving cross-institutional communication and collaboration.

To ensure that online learning and blended learning are widely adopted in the post pandemic time in developing societies such as South Africa, more management, government support and investment are needed. Educational institutions also need to invest in developing and improving existing online learning platforms as well as expanding the provision of internet access and online library resources. Training and orientation programmes about online learning need to be offered on a regular basis so that students,

lecturers, and staff could have the opportunity to advance their knowledge and understanding of the different aspects and nuances of online and blended learning (Pangondian et al., 2019).

2.4   CHAPTER SUMMARY

This chapter focused on the literature related to this study. It started with the theoretical framework underpinning the study. Researcher anchored this study on the TAM and the Constructive Learning Theory because they were deemed important to online teaching and learning of library and information studies. The literature review dealt with perceptions of students towards online teaching and learning. This was followed by students' skills on ICT infrastructures for online teaching and learning. Literature on the benefits gained by students from online teaching and learning was also discussed. Furthermore, this chapter identified challenges faced by students during online teaching and learning. Finally, the literature focused on the role of management in support of students during online teaching and learning. The next chapter covers the research methodology.

CHAPTER 3
RESEARCH METHODOLOGY

3.1   INTRODUCTION

The previous chapter discussed the literature relating to the current study. In every study, where and how data will be collected, analysed, and interpreted make a crucial component of the research process. Therefore, this chapter covers the study approach, design, population, sampling, and data collection.

Research methodology is central to the research process because it is the lens through which a researcher looks when conducting the study. It specifies the types of research designs and research methods that may be employed to gain knowledge about a phenomenon (Ngulube, 2009). Therefore, research methodology focuses on the process of research and the decisions that the researcher must follow to execute the research project (Brynard, Hanekom, & Brynard, 2014). Thus, choosing an appropriate methodology for the study is very important, as it determines how the whole research process should be carried out (Ncube & Rodrigues, 2017). Moreover, Ngulube (2009) elucidates that the methodology is mainly concerned with the task of understanding, describing, testing, and interpreting knowledge. However, there is usually confusion when it comes to the distinction between research methodology and research methods because some scholars use the two terms interchangeably. According to Neuman (2014), as much as the concepts may seem interchangeable, methodology is wider in scope and includes methods. Methods points to a number of specific techniques employed in a study to select cases, observe and measure phenomena, collect and analyse data, and report on findings (Neuman, 2014). Nevertheless, although clearly distinct, the two terms are closely related and interdependent.

The aim of this study was to investigate teaching and learning for library and information studies during the Covid-19 lockdown at the University of Limpopo, South Africa. To explore this aim, a justification of the research procedure chosen is provided in this

chapter. The quality of the research depends on the consistency between the research objectives, research methods, processes of data collection, and data analysis.

3.2   RESEARCH PARADIGM

The paradigm concept can be traced back to Kuhn (1970), and it denotes an accepted pattern as an object for further discussion and specification under new or more rigorous settings (Kuhn, 1970). Stated more simply, a research paradigm is an approach to thinking about and doing research (Johnson & Christensen, 2019). It is a set of beliefs about fundamental areas of reality which results in a specific worldview, and it deals with key beliefs taken on faith such as assumptions about the nature of reality (epistemology) and methodologies (Maree, 2007). Ontology denotes logical beliefs about the nature of reality, or the nature and existence of social reality, whereas epistemology deals with what constitutes knowledge and the ways it can be known (Ngulube, 2009). Likewise, Creswell (2009:6) states that "the type of beliefs held by individual researchers will often lead to embracing a quantitative, qualitative or mixed methods approach." Consequently, the researcher's worldview shapes the decisions made about research in every stage of the project, from the types of research questions to be addressed, through the methodologies and methods chosen to gather data, up to the presentation of results (Given, 2016). The four worldviews that are widely discussed in literature are post positivism, constructivism, pragmatism and transformative.

Post-positivism (or postmodernism) arose out of discontentment with the strict nature of positivism. Post-positivism considers reality "as probabilistic, not certain and that one can make logical inferences about a reality by considering scientific observations with philosophical reasoning" (Bhattacherjee, 2012:18). Bryman (2016:382-383) points out that postmodernism "is not easy to pin down because, on the one hand, it attempts to understand the nature of modern society and culture, and on the other, it represents a way of thinking about and representing the nature of the social sciences and their claims to knowledge". Simply put, postpositivists are deeply untrusting of assumptions that infer a possible arrival at a definitive version of a given reality (Bryman, 2016). Postpositivism

suggests that "it is not possible to be certain of truth although rejecting false beliefs can be possible" (Bhattacherjee, 2012:8). Although the paradigm is less rigid than positivism, the study did not make use of it because of its strict nature.

Theoretically, the interpretive paradigm gives researchers the opportunity to observe phenomena through several perceptions and experiences to get 'insight' and 'in-depth' information or truth (Thanh & Thanh, 2015). Interpretivism allows the researcher to view the world through multiple perceptions and experiences of participants to get 'insight' and 'in-depth' information or truth (Thanh & Thanh, 2015). Although the paradigm affords the researcher multiple views to pursue knowledge creation, it was not adopted for this study because it did not allow the researcher the platform to use what is justified and what works best in a particular situation.

According to Kaushik, and Walsh, (2019), pragmatism as a worldview or paradigm "is not committed to any one system of philosophy and reality, but arises out of actions, situations, and consequences rather than antecedent conditions." Pragmatism holds the belief that the design of research should be planned and implemented looking at what will best enable the researcher to answer the research questions, resulting in knowledge that is pragmatic. The pragmatic approach makes use of abductive reasoning that moves back and forth between induction and deduction first converting observations into theories and then assessing those theories through action (Wheeldon, 2015). Johnson and Christensen (2019) Because of its pluralistic nature, pragmatism readily accommodates both the quantitative and qualitative research approaches.

Positivist paradigm

This study adopted positivism to investigate the problem under inquiry: Online teaching and learning of library and information studies during the Covid-19 lockdown at the University of Limpopo, South Africa. Positivism, "based on the works of French philosopher Auguste Comte, was the leading scientific paradigm until the mid-20th century and it posits that science or knowledge creation should be limited to what can be observed and measured" (Bhattacherjee, 2012:18). The positivist paradigm generates

objective knowledge that is 'out there' and considers human behaviour as passive, regulated, and influenced by its surroundings (Ngulube, 2009). This paradigm is mostly associated with the quantitative approach. The philosophy behind the positivist paradigm lies in the fact that in a study, knowledge is generated and gained through quantifiable and measurable observation that leads to statistical analysis. Positivism is rooted in quantification of variables that can be expressed in terms of numbers and frequencies (Balarabe-Kura, 2012). Positivism was appropriate for this study because it dealt with measurement in numbers, awareness levels, and the extent of adoption of online teaching and learning in LIS at the University of Limpopo, South Africa. This ensured that this research was presented objectively in an accurate manner and without bias.

3.3   RESEARCH DESIGN

Maree (2007) defines research design as a written plan of a study. Terre Blanche, Durrheim, & Painter, (2006) hold the same view as they define a research design as a strategic framework for action that serves as a bridge between research objectives and the execution of the research. Research design gives an outline of how the researcher collects, analyses, and interprets data. Hernon and Schwartz (2009) state that it covers the population or sample studied, design type – whether exploratory, correlational, experimental, or descriptive – data collection duration, reliability, and validity of threats. Robson (2011) further states that research design is concerned with turning research objectives into projects. This study adopted a descriptive research design.

3.3.1 Descriptive research design

Descriptive research design is defined as a type of quantitative research, which accurately describes population, existing phenomena, and situations. Descriptive research can be conducted through observations and allow the researcher to identify numerous details regarding the research problem; case studies, which allow the researcher to study the research problem in depth; and survey research, which allows researchers to create controllable questions to be asked and answered by participants (Purdy & Popan, 2020). The descriptive research design describes a situation and / or

look at for trends and patterns within the sample population group that can be generalised to the defined population for the study (Pickard 2013). Furthermore, the data gathered in descriptive design are usually a combination of measurements, counts, and brief narratives, which are then analysed using descriptive statistics such as measures of central tendency and standard deviations. The basic purpose of a descriptive design is to describe the characteristics of a population of interest, estimate proportions in the population, make specific predictions and test the associational relationships (Powell & Connaway 2004). In this study, a descriptive survey research was used to examine online teaching and learning and the extend of awareness and understanding by fourth level LIS students at the University of Limpopo, South Africa.

3.4   RESEARCH APPROACH

According to Hammond and Wellington (2013), there are three types of research approaches, namely qualitative, quantitative, and mixed methods research approaches.

A qualitative research approach generates non-objective data such as the participants' own written or spoken words concerning their thoughts or experience (Brynard et al., 2014). It is a research approach that is human focused in approach with the intention of understanding people's experiences and beliefs; hence, it involves direct engagement with participants during data collection and an interpretive approach to data analysis (Given, 2016). Qualitative research maintains the stance that knowledge is socially constructed by people. Likewise, Johnson and Christensen (2019) postulate that qualitative researchers often hold the belief that human behaviour is fluid and constantly changing over time and place, with little interest in applying the findings beyond the specific people who are studied.

According to Johnson and Onwuegbuzie (2004), mixed methods research entails mixing the qualitative and quantitative approaches, methods, and procedures in sequence with the aim of exploring and describing the research problem (De Vos, Strydom, Fouche, & Delport, 2011). Ngulube (2015) further postulates that quantitative research is hypothetico-deductive, whereas qualitative research is inductive and exploratory in

nature; meaning the employment of both offers a comprehensive picture of phenomenon under study. Creswell and Plano-Clark (2011) define mixed methods research as a research approach that focuses on collecting, analysing, and mixing both quantitative and qualitative data collection approaches in a single series of study. Its central proposition lies in the fact that the combination of the quantitative and qualitative approaches provides a better understanding of research problems than a single research approach does. Therefore, the mixed methods research design is useful to capture the best of both the quantitative and qualitative approaches (Starr, 2014). Using both research approaches in a single study validates research findings (De Vos et al., 2011). Mixed methods research employs both qualitative and quantitative research approaches simultaneously to create a research outcome stronger than either method individually.

Quantitative research approach.

This study adopted the quantitative research approach to investigate teaching and learning for library and information studies during Covid-19 at the University of Limpopo. The quantitative research approach was adopted because the study intended to measure the extent to which fourth-year students doing a Bachelor of Information Studies degree at the UL were aware of online teaching and learning and the extent to which they have adopted it as a new learning mode. Ramadass and Aruni (2009) state that the quantitative research approach is the systematic investigation of quantitative properties and phenomena and their relationships. The quantitative research approach involves the collection of data that can be presented in numerical form and statistical calculation to measure variables and indicate relationship between them. Brynard et al. (2014) point out that the quantitative research approach involves assigning numbers to observations to produce quantitative data through counting and measuring "things" or "objects". Quantitative research allows researchers to learn more about a given phenomenon anecdotally (Goertzen, 2017). Johnson and Christensen (2014) indicate that the quantitative research approach relies primarily on the collection of quantitative data. The researcher used the quantitative approach to measure the number of students who

supported and did not support the introduction of online teaching and learning of library and information studies at University of Limpopo based on statistical format.

3.5   POPULATION AND SAMPLING

According to Bless et al. (2013), a population is the set of elements the research focuses upon. It is a group of elements sharing the same features and feelings. The population of this study was students registered for a Bachelor of Information Studies doing their fourth year at the UL in the 2022 academic year. This population was targeted because it was directly affected by the unusual introduction of online teaching and learning in LIS at the UL, and knowledgeable about the problem under investigation. Population size is defined as the number of individuals in a population (Schindler, Le Texier & Caruso, 2022). The population size used for this study was 76 fourth-year students.

The researcher used total population sampling, which is a type of purposive sampling technique where the researcher chooses to examine the entire population (i.e., the total population) that has a particular set of characteristics (Etikan, Musa, & Alkassim, 2016; Connelly, 2013). This method is generally used where the population of the study is less than 100 units, irrespective of whether the study is quantitative or qualitative (Leedy, 1997). Hair, Anderson, Tatham, and Black, (1995) avers that "a minimum sample size of 50, is large enough to maintain the statistical power of multiple regression results". This means that the population size of 76 is sizeable for the quantitative approach.

3.6   STUDY AREA

This study was conducted at the University of Limpopo, South Africa, which is one of the universities that offers library and information studies courses. According to Taylor and Bogdan (1998), an ideal research setting is one where the observer has easy access, can establish immediate reports with respondents and can gather data that are directly related to the research interests. Thus, the UL fourth-year students studying towards a Bachelor of Information Studies degree were deemed relevant respondents who would

provide information on many issues of central importance to the purpose of this research. The researcher chose the University of Limpopo because of accessibility and proximity.

3.7   DATA COLLECTION

Data collection can be defined as a collection of organised information or facts through experience, observation, experiment, or similar situations external to the researcher (Yin, 2010).

3.7.1 DATA COLLECTION INSTRUMENTS

Two commonly used data collection instruments are interviews and questionnaires.

An interview is a dialogue between the researcher and the participant (Ndou, 2012,). It is an exchange in which the researcher requests that individuals provide accumulated data, and the researcher obtains answers concerning the musings, feelings, points of view, conclusions, and practices of individuals. Interviews are important in discovering what is in peoples' thoughts since they cannot be detected (Ngobeni, 2015). The justification for an interview with significant members is to discover the viewpoints, capabilities, and feelings as inspirations of individuals on a specific matter (Ranta, & Uusiautti 2021).

Questionnaire

The current study deployed a questionnaire to collect data. The term denotes "a technique of data collection wherein each respondent is asked to answer the same set of questions and statements in a prearranged order in the absence of the researcher" (Ngulube, 2003:177). Questionnaires are a useful and relatively cheap method of collecting a wide range of views (Roberts-Holmes, 2014). According to Neuman (2014), questionnaires can be distributed through various methods, such as face-to-face, telephone, and online surveys to collect a broad range of data such as ideas, preferences, behaviours, and facts that can be quantifiable. In line with this, the researcher created online questionnaires via Google Forms and distributed these questionnaires to students electronically through

their official university email called keyaka. This was done due to Covid-19 regulations which did not permit physical contact.

Just like other data collection tools, questionnaires have their own shortcomings. According to Kumar (2011), some of the disadvantages of using questionnaires are as follows:

- Not everyone who receives the questionnaire returns it, and this might lead to a low response rate.
- There might be a lack of clarification on some issues because there was no face-to-face interaction.

To overcome the above disadvantages, the researcher gave his contact details to address any questions that might be misunderstood. This initiative has assisted in achieving a high response rate of 54 %. The researcher opted for a self-administered questionnaire, meaning the questionnaire was completed by the respondents without the intervention by the researcher (Menter, Elliot, Hulme & Lewin, 2011). The researcher opted for self-administered questionnaires as a data collection tool in this study because it provided greater opportunity for the respondents to be as free as possible in answering the questionnaire and respondents were not under pressure to respond immediately (Cargan, 2007).

3.8   QUESTIONNAIRE DESIGN AND LAYOUT.

Babbie (2010) elucidates that a questionnaire should be spread out and uncluttered; therefore, the current researcher designed an attractive professional closed-ended questionnaire that has boxes adequately spaced apart to persuade and encourage the respondent to complete it. The researcher used a structured questionnaire which entailed close-ended questions and required the respondents to select the appropriate answer from the list of options (Kaplan Medical, 2017). Closed-ended and fixed-choice questions render primarily quantitative data (Phellas, Bloch, & Seale, 2011).

The questions in the questionnaire covered the following aspects:

PART A: Demographic information

PART B: Perception of students towards online teaching and learning

PART C: Students' Skills on ICT infrastructure for online teaching and learning

PART D: Benefits gained by students during online teaching and learning

PART E: Challenges of online teaching and learning

PART F: The role of management in support of online teaching and learning

Taking from De Vos (1998), this researcher wrote a covering letter and attached it to the questionnaire (refer to Appendix A). The covering letter outlined the purpose of the study, that participation is voluntary, and the value of the respondents' participation. There was also a consent form to be signed by those who agreed to participate in the study.

3.9   DATA COLLECTION PROCEDURE

The researcher sought and obtained approval from the university of Limpopo Turfloop Research Ethics Committee and sought and obtained permission to conduct the study from the office of the registrar of university of Limpopo. Once these steps were completed, arrangements were made with the lecturers to organise an online meeting with fourth level BIS students to request them to participate in the study by answering the questionnaire. Data were collected in September 2022. Due to Covid-19 regulations, an online questionnaire was distributed to respondents through students' official university email called keyaka. Respondents accessed the questionnaire from any computer or cell phone with an internet connection and a full-featured web browser. The researcher attached an informed consent form link to the questionnaire that informed the respondents that participation was voluntary and assured them that declining to participate in the study would not lead to unfair treatment by lecturers, and that those who participate would be anonymous. The study began once the questionnaires were returned.

During the process of data collection, the following two general points, as raised by Punch (2013:242), "were important to the researcher: the researcher ensured that the respondents were approached professionally and within limits, fully informed about the purpose and context of the research, about confidentiality and anonymity and about what use would be made and by whom, of the information they provided; thus, maximizing the response rate". To ensure validity and reliability thereof, the researcher conducted pilot testing. Structured questionnaires were pre-tested to check the clarity of questions and identify vague or non-acceptable questions.

3.10   PILOT STUDY

Prior to the administering of the questionnaire to the respondents, a pilot study was conducted. A pilot study is a small study to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study (Hassan, Schattner & Mazza, 2006). Blaxter, Hughes, & Tight, (2010) define piloting as the process whereby the researchers try out the research techniques and methods they have in mind, see how well they work in practice, and, if necessary, modify their plans accordingly. A pilot study is sometimes referred to as a pre-test that enables the researcher to identify, rectify, and clarify questionnaire items that might be misunderstood by the respondents (Dikko, 2016). The researcher also wanted to find out the time required to administer the questionnaire. "A pilot study is usually carried out on members of the relevant population, but not on those who will form part of the final sample, and it is often used to test the design of the full-scale experiment, which then can be adjusted" (De Vos et al., 2005: 206).

The questionnaire was pre-tested to check the clarity of questions and identify vague or non-acceptable questions. To do this, the researcher piloted the questionnaire with five Bachelor of Information Studies final-year students at the University of Limpopo. The selected sample shared the same characteristics with the population of the study. The pilot study enabled the researcher to determine the average time required for the respondents to complete the questionnaire. The results of the pilot were not included in

50

the main study because piloting was conducted to identify possible weaknesses in the research instruments.

3.11 DATA ANALYSIS

According to Uden, Wang, Hong, Yang and Ting (2013), data analysis refers to statistical analysis and data mining. It entails categorising, ordering, manipulating, and summarizing the data and describing them in meaningful terms. The aim of data analysis is "to transform information or data into an answer to the original research question" (Terre Blanche et al., 2006:52).

In this study, quantitative data were analysed using descriptive statistics to describe what was or what the data has shown. Descriptive analysis was employed to analyse and obtain percentages and frequency of quantitative data obtained through the questionnaire. The researcher used descriptive statistics to compile, sort, scrutinise, calculate, and organise quantitative data that were transformed into visual overviews, such as pie charts and bar charts, for easier understanding and to complement the descriptive statistics and results obtained (Hartling, Chisholm, Thomson & Dryden, 2012).

3.12   QUALITY CRITERIA

Mayer (2017) defines quality criteria as a guiding framework. As the study used the quantitative approach, the researcher addressed the following aspects: validity, reliability, and objectivity.

3.12.1 Validity

Heale and Twycross (2015) define validity as the extent to which a concept is accurately measured in a quantitative study. Neuman (2014) outlines that validity refers to how well an idea "fits" with actual reality and suggests truthfulness. Validity looks at whether the instrument adequately covers all the content that it should cover with respect to the variable. In this regard, the researcher ensured that the questions asked in the

questionnaire were relevant, correct, and appropriate by pretesting the questionnaire through pilot study.

3.12.2 Reliability

According to Drost, (2011), reliability is the degree to which the indicator or test is a consistent measure over time or simply ascertain that the respondent will give the same response if asked to give an answer at a different time. Heale and Twycross, (2015) state that reliability relates to the consistency of a measure. A participant completing an instrument meant to measure motivation should receive more or less the same responses each time the test is completed. To ensure this, the researcher pre-tested the questionnaire with five fourth-level students pursuing a Bachelor of Information Studies at the university of Limpopo.

3.12.3 Objectivity

Objectivity involves a focus on ensuring accurate, reliable, and unbiased information (Percival & Schroeder, 2011). The researcher was objective and maintained a high level of fairness, and equal treatment when collecting and analysing data. Objectivity was ensured by the assumption that the knower and known are independent (Anney, 2014), and it was realised by interpreting the findings within the context of this study and adopting positivism methods that emphasise objectivity. The researcher presented data as it was provided by the participants without tampering with it, adding to it, or deleting any information from it.

3.13   ETHICAL CONSIDERATIONS

Ethical considerations in research come into play during the recruitment of participants, measurement procedure to which participants are subjected and in the release of the results obtained (Welman, Kruger, & Mitchell, 2005). The key ethical issues in conducting research are discussed below:

3.13.1 Permission to conduct the study.

For research to be conducted at an institution such as a university, approval for conducting the research should be obtained before any data are collected (Alemu, 2010). The researcher sought and obtained permission from the University of Limpopo Turfloop Research Ethics Committee prior to conducting this research (refer to appendix D). Thereafter, the researcher also obtained permission from the office of the registrar of the University of Limpopo (Refer to Appendix E).

3.13.2 Informed consent

Informed consent refers to the requirement that the subject can convey an understanding of enough information about the study to make an informed decision about whether to participate or not (Macfarlane, Veach, & LeRoy, 2014). In this regard, respondents were adequately informed of the type of information the researcher wanted from them, why the information was being sought, what purpose it would be put to, and how they were expected to participate in the study. It was stated in the consent form that participation was entirely voluntary, and respondents were free to choose not to participate or withdraw from the study anytime.

3.13.3 Anonymity

Anonymity means that no identifying characteristics are recorded in the data and that it would be impossible for the researcher to figure out who contributed a given piece of data (Hoyle, Harris & Judd, 2002). Fouka and Mantzorou (2011) further state that anonymity is guaranteed when the subject's identity cannot be linked with personal responses. In this study, anonymity was maintained by asking the participants not to write their names on the questionnaire so that no one, including the researcher, would be able to identify any participant afterwards. Access to the collected data was restricted to the researcher and the supervisors. This helped to ensure anonymity as a requirement of ethical considerations.

3.13.4 Confidentiality

Confidentiality means that although the researcher can figure out whose data belong to whom, within certain legal limits, the researcher promises never to share that information (Hoyle et al., 2002). De Vos et al. (2011) define confidentiality as the management of private information by the researcher to protect the participant's identity. It involves the handling of information in a confidential manner. The researcher ensured that no unauthorized persons accessed the information collected from the participants by saving all collected data in one folder with an encrypted password only known to the researcher.

3.13.5 Plagiarism

Plagiarism is when one presents or uses someone else's published, unpublished, or intellectual products as if they were one's own new and original ideas without acknowledging the original owner (Bothma, 2008). According to University of Limpopo Research Development and Administration (2015), plagiarism, taken from the Latin *plagiarius* ('kidnapper'), stands for a kind of intellectual theft and entails using someone's ideas in your writing without acknowledging the source. To avoid plagiarism, all sources consulted are acknowledged by means of in-text referencing and a full bibliographical list of sources cited in the text. Furthermore, the anti-plagiarism software, Turnitin, was used to limit the similarity index to 15%, as stipulated by the UL's plagiarism policy.

3.14 CHAPTER SUMMARY

This chapter focused on research methodology. The researcher started by explaining the research paradigm, research design and research approach of the study. Research methodology was discussed as central to the research process, by specifying the types of research paradigms and research methods that may be employed to gain knowledge about a phenomenon. This chapter also paid attention to the population and sampling, study area and data collection. Moreover, this chapter covered data collection instrument, questionnaire design and layout, and data collection procedure. Furthermore, this chapter briefly explained pilot study and data analysis. The chapter also explained quality

criteria that covered the following: validity, reliability, and objectivity. Finally, the chapter covered ethical considerations which included permission to conduct the study, informed consent, anonymity and confidentiality, and plagiarism. The next chapter discusses data analysis and interpretation.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1   INTRODUCTION

The previous chapter discussed the research methodology used for the study of online teaching and learning of library and information studies during Covid-19 at the University of Limpopo, South Africa. This chapter presents the results and analysis of the study that was conducted using a descriptive research design that accommodated the collection of quantitative data.

Data analysis is a process of turning the data into "a clear, understandable, insightful, trustworthy and even original analysis" (Liamputtong, 2009:243). This chapter analyses and presents the results from the data obtained from the questionnaires distributed to fourth year LIS students at University of Limpopo. Forty-one students completed in the questionnaires. Thus, a response rate of 54% was recorded. Data were presented by the use of tables and figures and explanations are provided below. The gathered data were presented according to the aim and objectives of the study.

4.2   QUANTITATIVE DATA ANALYSIS FROM THE QUESTIONNAIRE

4.2.1 Gender

The first question on the questionnaire requested the respondents to indicate their gender. The aim was to determine the number of respondents that were male or female. Table 4.1 shows gender distribution of respondents.

Table 4.1: Gender of respondents (N=41)

Gender	Frequency	Percentage
Male	11	27%
Female	30	73%

Total	41	100%

The results in Table 4.1 reflect that males made up 11 (27%) of the respondents in the study and females made up 30 (73%). The majority (73%) of the respondents were females. This is representative of the gender ratio in the LIS profession worldwide. Female dominance in LIS is common (Jones & Goulding, 1999).

Hoskins (2013) found that in South Africa, the LIS sector is dominated by females. Most of the employees in the LIS sector are females (71.4%) while males (28.6%) make up the rest of the sector. The female domination is also reflected in the academia. Hoskins (2013) further state that more than half of the academic staff of the nine LIS programmes at the South African universities consists of females. This could mean that most males are not interested in the profession because of the perception that it is a female profession. This is not unique to South Africa, Wilson, Kennan, Willard and Boell (2010) found that of the 693 Australian LIS academics, 416 (63%) were females and 245 were (37%) males.

4.2.2 Age of respondents

The respondents were asked to indicate how old they were by choosing the appropriate age category. Figure 4.2 depicts the age distribution of respondents.
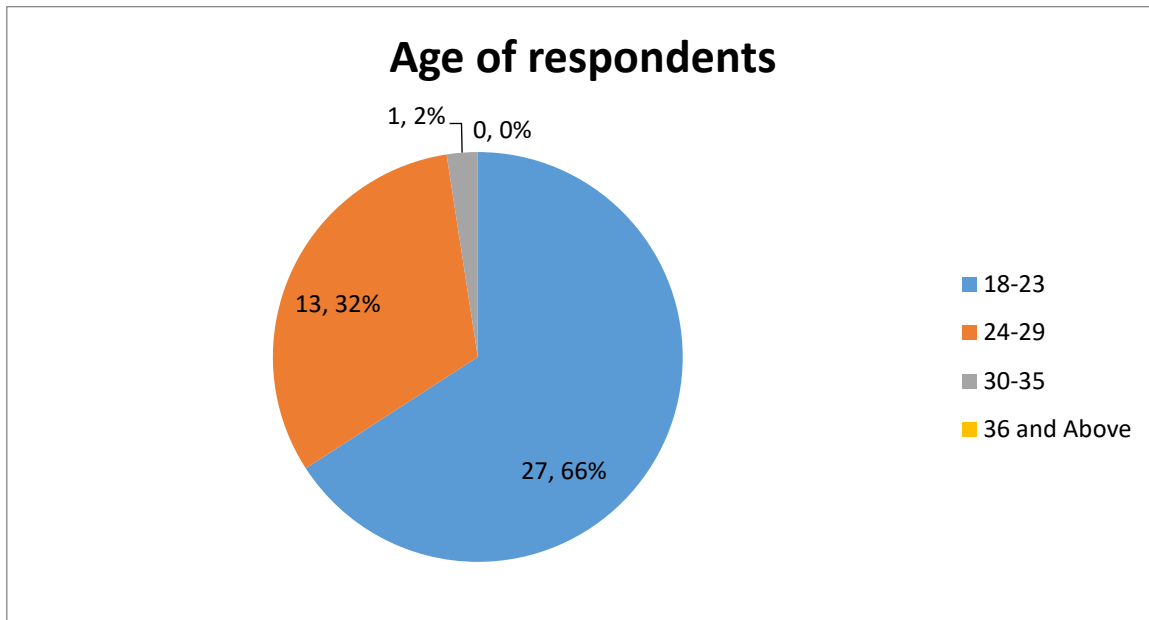
Figure 4.2: Age of respondents (N=41)

Figure 4.2 illustrates that 27 (66%) respondents were between the ages of 18 and 23, followed by 13 (32%) who were aged between 24 and 29. Only 1 (2%) respondent was aged between 30 and 35. This group might have represented the mature students who joined the Programme of Information Studies after several years of working (Chaura, 2014). There were no respondents aged between 36 years and above. The majority (66%) of the respondents were aged between 18 and 23 years. These might be respondents who enrolled at University of Limpopo a year after completing secondary school. The majority of students enrolled in public HIEs are aged 18 to 23 years old (Tema, 2021). This includes fourth-year students registered for a Bachelor of Information Studies at the University of Limpopo.

4.2.3 Perceptions of students towards online teaching and learning

As part of exploring online teaching and learning of library and information studies at the University of Limpopo, respondents were asked to use a five-point Likert scale with Disagree, strongly disagree, Neutral, Agree, and Strongly agree to indicate their level of agreement or disagreement about perceptions of online teaching and learning. The

results in table 4.3 revealed numerous encouraging findings in the perceptions of students towards online teaching and learning.

Table 4.3: Respondents' Perceptions towards online teaching and learning (N=41)

Statement	Disagree	Strongly disagree	Neutral	Agree	Strongly agree	Total
1. Lecturers are now facilitators because students learn on their own.	7	0	8	17	9	41
	(17%)	(0%)	(19,5%)	(41,5%)	(22%)	(100%)
2. My previous experience of not using ICT tools affect my ability to learn online.	9	1	13	14	4	41
	(22%)	(2,4%)	(31,7%)	(34,1%)	(9,8%)	(100%)
3. I like online teaching and learning more than face to face.	17	8	6	3	7	41
	(41,5%)	(19,5%)	(14,6%)	(7,3%)	(17,1%)	(100%)
4. I like teaching method used for online teaching and learning	14	6	11	8	2	41
	(34,1%)	(14,7%)	(26,8%)	(19,5%)	(4,9%)	(100%)
5. My academic performance has dropped since we moved to online learning	8	5	8	15	5	41
	(19,5%)	(12,2%)	(19,5%)	(36,6%)	(12,2%)	(100%)

Lecturers are now facilitators because students learn on their own.

Respondents were asked to indicate their level of agreement or disagreement about the statements on perceptions of students towards online teaching and learning. The results in table 4.3 show that 7 (17%) respondents disagreed with the statement that lectures are

now facilitators because students learn on their own. None of the respondents (0%) strongly disagreed, 8 (19,5%) were neutral, 17 (41,5%) agreed and 9 (22%) respondents strongly agreed with the statement that lecturers are now facilitators because students learn on their own. Al-salem (2004) is content that online learning encourages students to depend on themselves because lecturers are no longer the solitary source of knowledge. Instead, they become facilitators and guides.

My previous experience of not using ICT tools affects my ability to learn online.

The steep learning curve for those who were not familiar with, or experienced in, using ICT and online teaching and learning, could have a negative impact and they might feel demotivated and discouraged (Liyanagunawardena, Williams & Adams, 2013). In line with this assertion, respondents were asked about their level of agreement or disagreement that their previous experience of not using ICT tools affected their ability to learn online. Nine (22%) respondents disagreed with the statement that their previous experience of not using ICT tools affected their ability to learn online, only 1 (2,4%) respondent strongly disagreed with the statement, followed by 13 (31,7%) respondents who were neutral, and 14 (34,1%) respondents who agreed that their previous experience of not using ICT tools affected their ability to learn online. Four (9,8%) respondents strongly agreed that their previous experience of not using ICT tools affects their ability to learn online.

I like online teaching and learning more than face to face.

It was revealed that 17 (41,5%) students did not agree to like online teaching and learning more than face to face. Some students responded positively towards the implementation of online learning, while other students who preferred traditional on-campus learning responded negatively towards the implementation of online learning because they held the view that online learning can cause uncertainty (El Gamal & Aziz, 2011). The results of a study done by Kemp and Grieve (2014) showed that undergraduate psychology students at an Australian university preferred to complete activities face to face rather than online. Eight (19,5%) respondents strongly disagreed with the statement whereas 6

(14,6%) respondents were neutral. Three (7,3%) respondents agreed that they liked online teaching and learning more than face to face, and 7 (17,1%) respondents strongly agreed with the said statement. This suggests that there were different perceptions from students towards online teaching and learning. Some students responded positively to the implementation of online learning (Almarabeh, 2014), while other students who preferred traditional on-campus learning responded negatively to the implementation of online learning because they hold the view that online learning can cause uncertainty (El Gamal & Aziz, 2011).

I like the teaching method used for online teaching and learning.

Respondents were asked if they liked teaching methods used for online teaching and learning. The results showed that 14 (34,1%) respondents did not like teaching methods used for online teaching and learning. Six (14,7%) respondents strongly disagreed with the statement, whereas 11 (24,8%) respondents were neutral, 8 (19,5%) respondents agreed with the statement, and 2 (4,5%) respondents strongly agreed that they liked teaching methods used for online teaching and learning.

My academic performance has dropped since we moved to online learning.

The results indicated that eight (19,5%) respondents disagreed that their academic performance has dropped since they moved to online learning, 5 (12,2%) strongly disagreed with the statement, while 8 (19,5%) were neutral, and 15 (36,6%) respondents agreed with the statement that their academic performance has dropped since they moved to online learning. A study conducted by Mahdy (2020) indicated that the Covid-19 lockdown affected students' academic performance to various degrees. Students' academic performance can be influenced by a variety of factors such as interpretation of instructions and learning environment (EL Refae, Kaba & Eletter, 2021). Nortvig, Petersen and Balle (2018) identified other factors affecting students' academic performance in online learning. The dominant factors included the presence of the lecturer, interactions, content, and connections between online and offline as well as

practice-related activities. Five (12,2%) respondents strongly agreed that their academic performance has dropped since moving to online learning.

4.2.4 Describe online teaching and learning.

Respondents were requested to reply to given statements to describe online teaching and learning by ticking from the given options. Figure 4.4 shows the results.
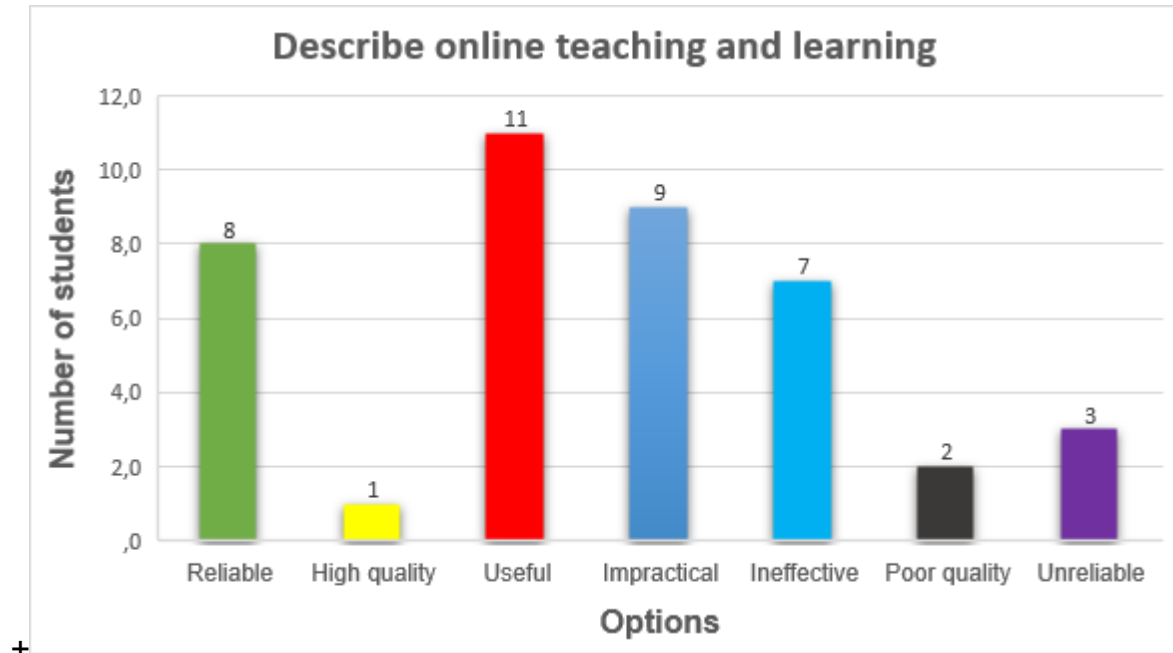
Figure 4.4: Describe online teaching and learning N=41

Figure 4.4 illustrated that 8 (19,5%) respondents believed that online teaching and learning is reliable, 1 (2,4%) respondent stated that online teaching and learning were of high quality, 11 (26,8%) respondents described online teaching and learning as being useful. Students had an opinion that online learning was useful and encourages student-centeredness during the lockdown. The students have become self-directed learners and they learnt asynchronously at any time in a day (Mukhtar, Javed, Arooj & Sethi, 2020). Students' perception was also characterized as impartial as students believed online learning was useful, yet ineffective (Rahman, 2020). This finding thus diverges from previous research (Ahamat & Masrom, 2018; Binti Mistar & Embi, 2016) in which essential

findings of studies suggested online learning as highly beneficial and useful. The findings revealed that 9 (22%) respondents felt that online teaching and learning were impractical, while 7 (17,1%) described online teaching and learning as being ineffective; however, 2 (4,9%) respondents considered online teaching and learning as being of poor quality, and 3 (7,3%) respondents described online teaching and learning as being unreliable.

4.2.5 Level of satisfaction, or dissatisfaction with online teaching and learning at UL

Respondents were requested to indicate their level of satisfaction or dissatisfaction with online teaching and learning at the University of Limpopo. Figure 4.5 presents the results.

Level of satisfaction or dissatisfaction

- 5, 12% — Very satisfied
- 16, 39% — Somewhat satisfied
- 13, 32% — Neither satisfied noh dissatisfied
- 2, 5% — Somewhat dissatisfied
- 5, 12% — Very disatisfied
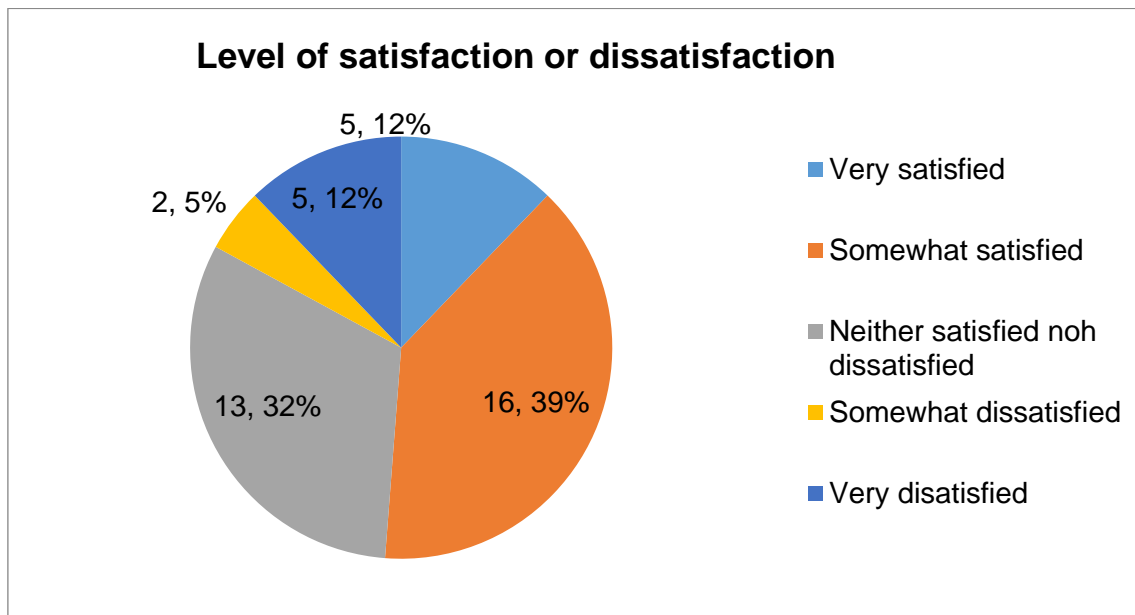
Figure 4.5: Level of satisfaction, or dissatisfaction with online teaching and learning at the UL (N=41)

Figure 4.5 indicates that 5 (12%) respondents were very satisfied with online teaching and learning at the UL, whereas 16 (39%) were somewhat satisfied. Thirteen (32%) respondents were neither satisfied nor dissatisfied, while 2 (5%) respondents were somewhat dissatisfied, and 5 (12%) respondents were very dissatisfied with online teaching and learning at the UL. Satisfaction with courses is an important aspect in online

learning (Bali & Liu, 2018). A study done by Tratnik (2017) indicated that there are significant differences in student satisfaction levels with online learning. According to Lo (2010), satisfaction deals with three parts, namely satisfaction with lecturer's directions and support, satisfaction with own commitment to learning, and satisfaction with course policies.

4.2.6 ICT tools used for online teaching and learning.

The researcher requested respondents to indicate the ICT tools they used for online teaching and learning. Multiple responses were allowed for this question. The results are presented in table 4.6.

Table 4.6: ICT tools used for online teaching and learning (N=41)

ICT Tools	Frequency	Percentage
Cell phone	21	51%
Tablet	1	2,2%
Laptop (PC)	34	82,9%
Desktop	0	0%

Table 4.6 indicates that more than half of the respondents (21: 51%) used cellphones as ICT tool for online teaching and learning. Today, cell phones are close to personal computers technologically and can perform most of the work of personal computers, with the development of mobile software products and mobile operating systems such as Microsoft Windows Mobile and Symbian OS. Their bigger screens were seen as an advantage to use them for online teaching and learning (Korucu & Alkan, 2011). One (2,2%) respondent used a tablet as ICT tool for online teaching and learning. The majority of the respondents (34: 82,9%) used a laptop as an ICT tool for online teaching and learning. Korucu and Alkan (2011), emphasize that laptops have much many features

than some desktop computers in terms of equipment. With their features of being portable and plug and play, and with the development of mobile communication technologies and the facility of internet connection almost everywhere, the use of laptops in online teaching and learning was unquestionable. None (0%) of the respondents used a desktop as an ICT tool for online teaching and learning. The use of mobile phones was quite high across African countries, especially South Africa and Kenya, while the use of tablet was quite low. Shava, Chinyamurindi and Somdyala (2016) emphasize the perceived usefulness and ease of use of smartphones as motivator to access internet everywhere. Most mobile phones owned by *Technical and Vocational Education and Training* students were in the category of smartphones and laptops bearing modern features that facilitate instant messaging, exchange of data and information, and speedy access to information via the internet. Another difference observed among the students was that most of the students in South African universities did not use desktops (Pete & Soko, 2020).

4.2.7 Respondents' level of satisfaction or dissatisfaction about UL's ICT infrastructure for online learning.

Respondents were requested to indicate their level of satisfaction or dissatisfaction with the University of Limpopo's ICT infrastructure for online learning. Figure 4.7 presents the results.
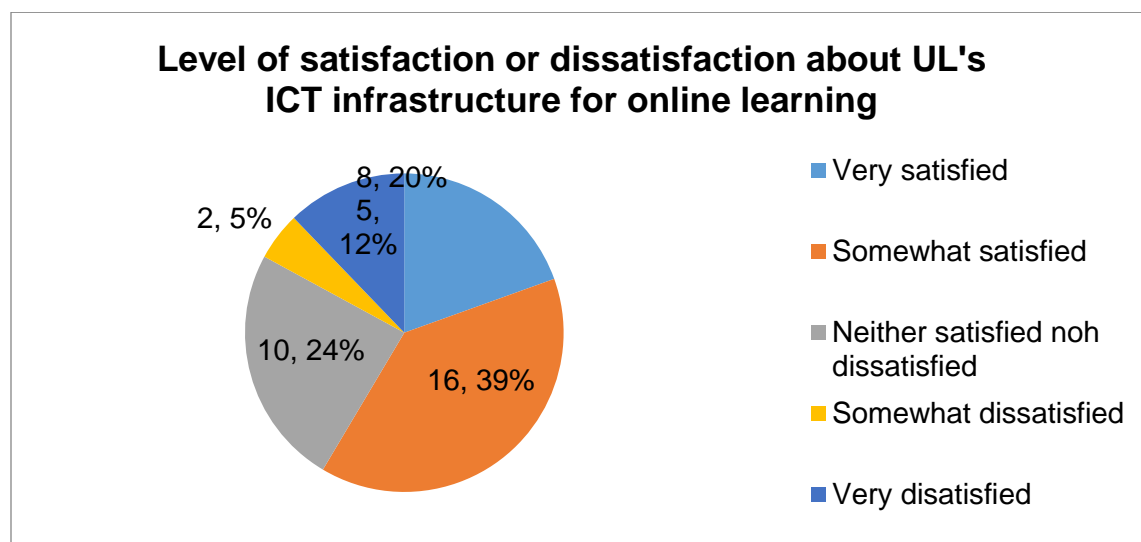
Figure 4.7: Level of satisfaction or dissatisfaction about the UL﹐s ICT infrastructure for online learning (N=41).

The results in figure 4.7 reflect that 8 (20%) respondents were very satisfied with UL's ICT infrastructure for online learning, followed by 16 (39%) respondents who were somewhat satisfied with it. ICT infrastructure plays a vital role in supporting the delivery of online learning (Masonta, Ramoroka & Lysko, 2015). Universities provided student offers or student concessions ranging from emergency funding to (loaner) laptops to free access to digital publications (Chaka, 2020). Ten (24%) respondents indicated that they were neither satisfied nor dissatisfied with UL's infrastructure for online learning, whereas respondents 2 (5%) respondents were somewhat dissatisfied, and 5 (12%) respondents were very dissatisfied with UL's ICT infrastructure for online learning. Looking closely at the South African context, as a developing country, South Africa still has its fair share of challenges as far as ICT is concerned (Masonta et al., 2015).

4.2.8 Respondents﹐ level of satisfaction or dissatisfaction about Blackboard as online learning platform.

Respondents were requested to indicate their level of satisfaction or dissatisfaction about Blackboard as an online learning platform. Figure 4.8 presents the results.
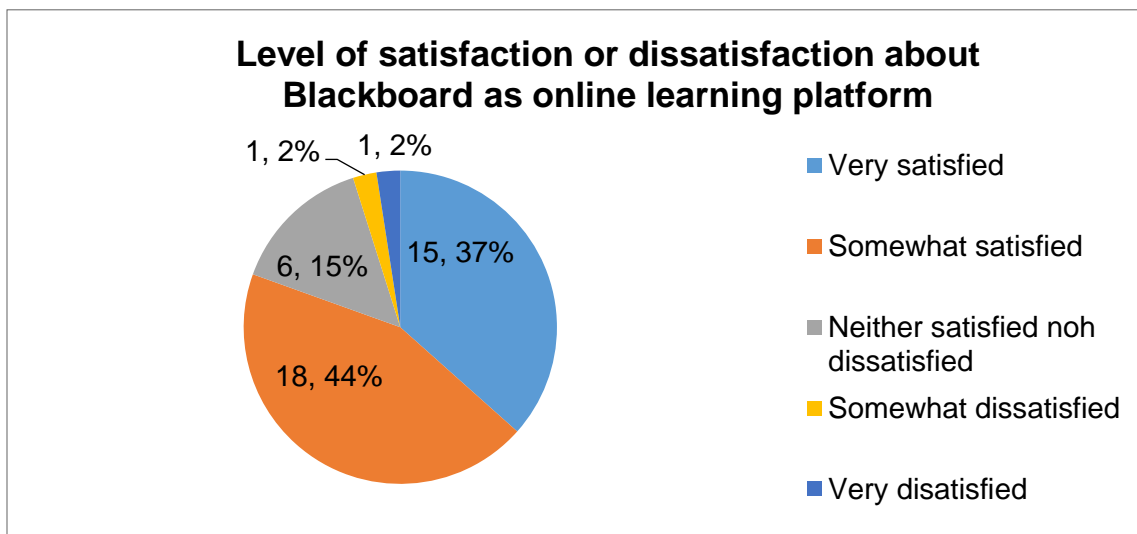
Figure 4.8: Level of satisfaction or dissatisfaction about Blackboard as online learning platform (N=41).

The results in figure 4.8 show that 15 (37%) respondents were very satisfied with Blackboard as an online learning platform, followed by 18 (44%) respondents who were somewhat satisfied with Blackboard as an online learning platform. The level of satisfaction may be attributed to the fact that Blackboard has several fantastic features that would be valuable for use and benefitted students during this Coronavirus pandemic. Using this system at this time might be more practical. For example, through online learning systems, students may be texting or engaged in some learning activity with lecturers on a laptop or a mobile device from their home (Almaiah et al., 2020). In addition, students can easily access learning content on their mobile devices because they can be connected to mobile networks or to local wireless networks (Almaiah et al., 2020). It was also revealed that 6 (15%) respondents were neither satisfied nor dissatisfied with Blackboard as online learning platform, whereas only 1 (2%) respondent was somewhat dissatisfied, and 1 (2%) respondent was very dissatisfied about Blackboard as online learning platform.

4.2.9 Respondents' rate of computer literacy skills.

Figure 4.9 shows the rating of respondents of their computer literacy skills. The aim was to determine whether the respondents were computer literate enough to participate in online teaching and learning. Figure 4.6 presents the results.
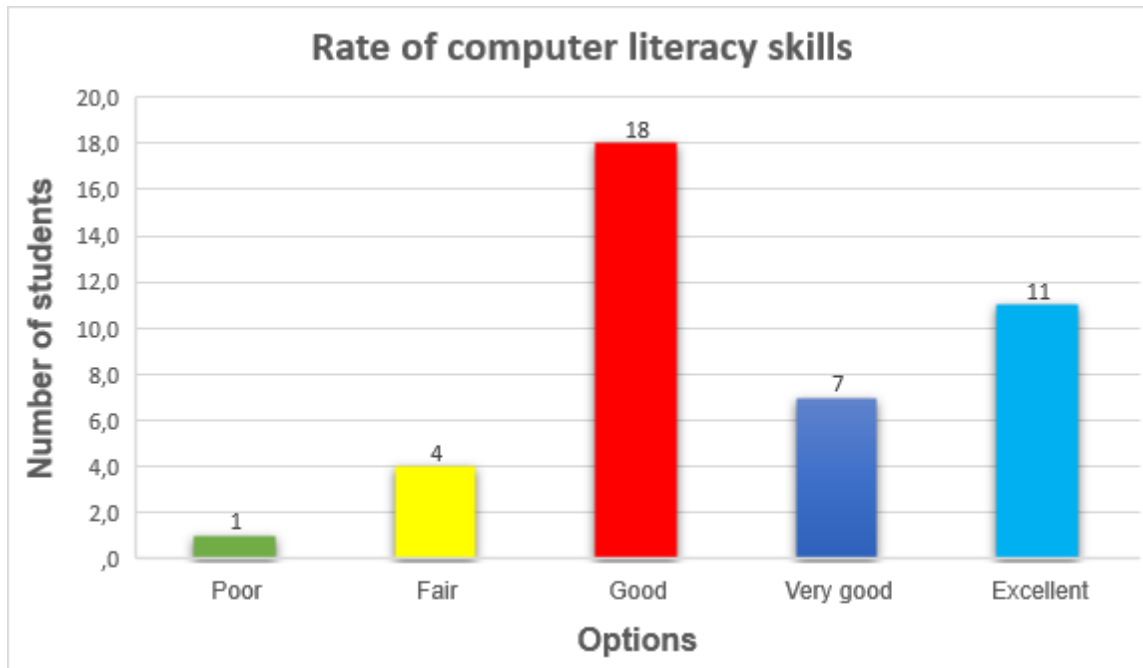
Figure 4.9: Rate of computer literacy skills (N=41).

The results presented in figure 4.9 illustrate that 1 (2,4%) respondent had poor computer literacy skills and 4 (9,8%) had fair computer literacy skills. It also emerged that the majority (18: 43,9%) of the respondents had good computer literacy skills. Students' proficiency (skills and competencies) in the use and handling of ICTs is vital to the success of online learning. A general analysis of the study indicated that many students had some good measure of the relevant skills and competencies needed for the smooth and effective use of online learning platforms (Olayemi, Adamu & Olayemi, 2021). This outcome contradicted the finding of Dube (2020) where their respondents complained of a lack of computer skills. Seven (17,1%) of the respondents had very good computer literacy skills and 11 (26,8%) respondents had excellent computer literacy skills. Haywood et al. (2004) points out that students should enter university with at least a basic level of ICT skills, and they should have access to and a willingness to use ICT for study as well as social and recreational activities. Some students realized that their ICT skills made good progress during online learning. The online learning platforms allowed them to access information on the personal computers while mobile (Zamfiroiu & Sbora, 2014).

4.2.10 Benefits gained by students during online teaching and learning.

Table 4.10 below displays the responses to the statements about the benefits of online teaching and learning. The results revealed numerous encouraging findings on the benefits of online teaching and learning. The statements were posed in a five-point Likert scale including Disagree, strongly disagree, neutral, agree, and strongly agree.

Table 4.10: Benefits gained by students from online teaching and learning (N=41)

Statement	Disagree	Strongly disagree	Neutral	Agree	Strongly agree	Total
1. Online learning gives me an opportunity to interact with other students	14	9	7	11	0	41
	(34.1%)	(22%)	(17,1%)	(26,8%)	(0%)	(100%)
2. I can work with the pace that suits my ability.	4	3	7	22	5	41
	(9,8%)	(7,3%)	(17,1%)	(53,6%)	(12,2%)	(100%)
3. Online learning saves me time and costs of going to class physically.	3	0	5	21	12	41
	(7,3%)	(0%)	(12,2%)	(51,2%)	(29,3%)	(100%)
4. Online teaching and learning is user friendly	5	2	11	17	6	41
	(12,2%)	(4,9%)	(26,8%)	(41,5%)	(14,6%)	(100%)
5. Online teaching and learning improves access to learning	6	1	18	13	3	41
	(14,6%)	(2,4%)	(43,9%)	(31,7%)	(7,4%)	(100%)

Online learning gives me an opportunity to interact with other students.

The results in table 4.10 above show that 14 (34.1%) respondents disagreed with the statement that online learning gives them an opportunity to interact with other students. Online learning amid the pandemic created frustration and isolation for students who lost the opportunity for peer interactions (Daniel, 2020; Gillett-Swan, 2017). Nine (22%) respondents strongly disagreed with the statement that online learning gives them an opportunity to interact with other students, 7 (17,1%) respondents were neutral, while 11 (26,8%) agreed that online learning gives them an opportunity to interact with other students, and none of the respondents (0%) strongly agreed with the statement that online learning gives them an opportunity to interact with other students.

I can work with the pace that suits my ability.

Four (9,8%) respondents disagreed with the statement they can work with the pace that suits their ability, 3 (7,3%) respondents strongly disagreed with the statement, whereas 7 (17,1) were neutral, and 22 (53,6%) respondents agreed with the statement that they can work at the pace that suits their ability. Online learning was recognized as an effective way to improve the quality of learning because of its variations in increasing student motivation, satisfaction, and interaction (Belaya, 2018). Tamm (2021) emphasizes that students who study online can plan their own time schedule, without having to make personal sacrifices to meet the class attendance requirements of lecturers and traditional universities. Five (12,2%) respondents strongly agreed with the statement that they can work at the pace that suits that ability.

Online learning saves me time and costs of going to class physically.

Furthermore, it was revealed that 3 (7,3%) respondents disagreed with the statement that online learning saved them time and costs of going to classes physically, none of the respondents (0%) strongly disagreed with the statement, followed by those who were neutral (5: 12,2%) towards the statement, while most of the respondents (21: 51,2%) agreed that online learning saved them time and costs of going to classes physically.

Hartini et al. (2020) and Thomas (2010) contend that online learning is a relatively cheaper method in terms of the lower cost of transportation, accommodation, and the overall cost of institution-based learning. Twelve (29,3%) respondents strongly agreed with the statement. These findings indicate a positive response about online teaching and learning of library and information studies at the UL.

Online teaching and learning are user-friendly.

Five (12%) respondents disagreed that online teaching and learning are user friendly, and 2 (4,9%) respondents strongly disagreed with the statement. Eleven (26,8%) respondents were neutral that online teaching and learning is user friendly. The majority of the respondents (17: 41,5%) agreed that online teaching and learning is user friendly, and 6 (14,6%) respondents strongly agreed with the statement. Ease of use is an important consideration in the successful implementation of online learning. Students attested to the fact that when implemented, online learning will be easy to use (Olayemi et al., 2021).

Online teaching and learning improve access to learning.

Six (14,6%) respondents disagreed with the statement that online teaching and learning improves access to learning, only 1 (2,4%) respondent strongly disagreed with the statement, followed by 18 (43,9%) respondents who were neutral. Online teaching and learning are about using digital tools and technologies to explore creative ideas and new ways of displaying ideas, research, or work. Students confessed that the use of online learning would go a long way in improving their access to learning and digital creativity skills such as new ways of creating, disseminating, and experiencing education (Olayemi et al., 2021). In addition, online learning provides more control and reduces the cost of completing learning activities that benefit students (Joosten & Cusatis, 2020). Thirteen (31,7%) respondents agreed that online teaching and learning improves access to learning and 3 (7,3%) respondents strongly agreed with the statement.

4.2.11 Quality of online teaching and learning.

Respondents were requested to rate the quality of online teaching and learning. The results are presented in table 4.11.

Table 4.11: Respondents' rate about the quality of online teaching and learning (N=41)

Statement	Frequency	Percentage
Very high quality	1	2%
High quality	9	22%
Neither high nor low quality	24	59%
Low quality	6	15%
Very low quality	1	2%
Total	41	100%

Table 4.11 depicts that 1 (2%) respondent rated the quality of online teaching and learning as very high, followed by 9 (22%) respondents who rated the quality of online teaching and learning as high. More than half of the respondents 24 (59%) rated the quality of online teaching and learning neither high nor low. The quality of online learning programmes requires time and unprecedented efforts to ensure successful implementation (Adarkwah, 2021). The quality of online learning is an essential determinant because it has a positive impact and student satisfaction (Sun, Tsai, Chen & Yeh, 2008). In addition, students need different attributes such as knowledge about technology use, time management and organization, and interactions using online technology (Aparicio, Bacao & Oliveira, 2017). Six (25%) of respondents rated the quality of online teaching and learning as low. Based on the results of previous studies, improving

the quality of online learning requires the ability to use technology by adjusting teaching methods, discussions, designing teaching materials, and providing feedback for students online (Gulbahar & Kalelioglu, 2015). One (2%) respondent rated the quality of online teaching and learning very low.

4.2.12 Challenges faced by students during online teaching and learning.

Respondents were required to indicate the challenges they encountered during online teaching and learning. To achieve this, multiple responses were allowed for this question. The results are provided in table 4.12.

Table 4.12: Challenges faced by respondents during online teaching and learning (N=41)

Challenges	F	Percentage
Issues of installation of software used for online teaching and learning	8	19,5%
Login problems to online platform (Blackboard)	21	51,2%
Problems with audio and video during online teaching and learning classes	17	41,5%
Disruptions of online classes due to loadshedding	38	92.7%
I experience cyberbullying from other online users	2	4.9%
I do not have sufficient data to connect to online sessions	17	41.5%
I do not have necessary ICT tools for online learning	4	9.8%
I do not have required skills and ability to learn online	1	2.4%
I can't navigate through online learning platforms (Blackboard)	2	4.9%

Table 4.12 indicates that 8 (19,5%) respondents had problems installing software used for online teaching and learning, followed by problems with audio and video during online teaching and learning classes with 21 (51,2%) respondents. A qualitative study by Nielsen et al. (2011) discovered that difficulties and problems associated with the use of Blackboard ranged from downloading errors, login problems, and problems with audio and video quality. Most of the lecturers, including the researchers in the college of education, received numerous queries from students struggling to complete the online classes due to various reasons, such as cell phones took longer to load questions, loadshedding, connectivity, and network challenges. Students struggled to download and upload information within their allocated time (Majola, & Mudau, 2022). Almost all respondents (38: 92,7%) had a challenge of disruptions of online classes due to loadshedding, which occurs when the demand for electricity exceeds the available supply and planned supply interruptions may have to be carried out (Goldberg, 2015). South Africa experiences loadshedding due to a shortage of electricity and connectivity challenges, which negatively affect online learning (Majola & Mudau, 2022). During loadshedding or interruptions in electricity supply, poor network coverage emerges and interrupts online classes. Two (4,9%) respondents experienced cyberbullying from other online users.

It was found that 17 (41,5%) respondents did not have sufficient data to connect to online sessions, followed by 4 (9,8%) respondents who did not have the necessary ICT tools for online learning. One (2,4%) respondent did not have the required skills and ability to learn online, and 2 (4,9%) respondents could not navigate the online learning platform (Blackboard). A lack of technology skills and inadequate background experience with online learning are constraints to online education (Olesova, Yang & Richardson, 2011). Students who do not have prior knowledge and experience in online learning sometimes also lack technical assistance and support systems (Srichanyachon, 2014)

4.2.13 Lecturers' responsive rate towards queries about online tasks and assessments.

Respondents were requested to rate the responses of lecturers about online tasks and assessments. Figure 4.13 presents the results.
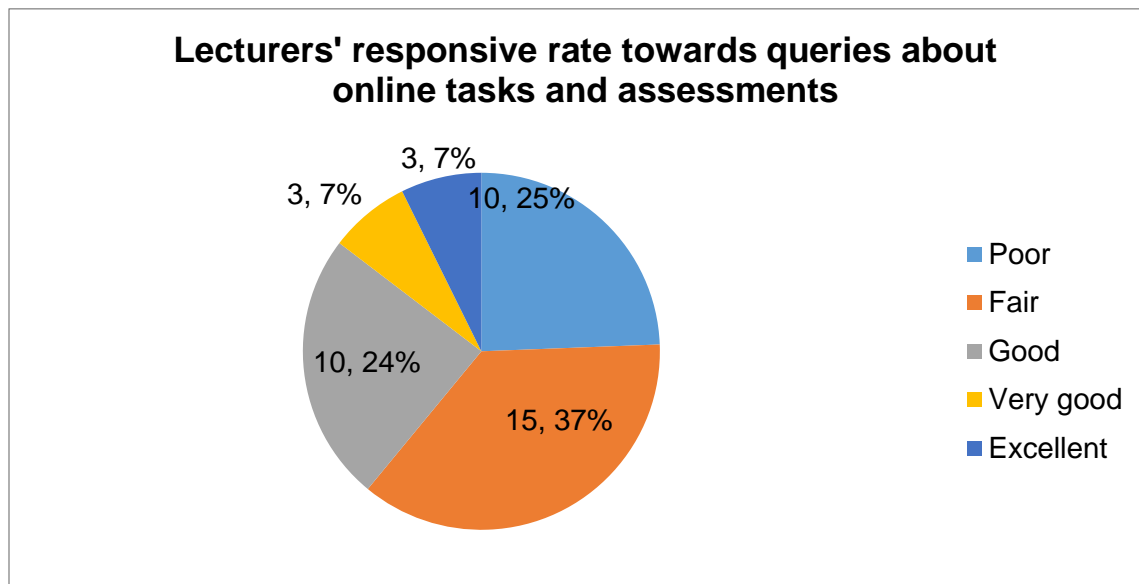
Figure 4.13: Lecturers' responsive rate towards queries about online tasks and assessments (N=41)

Figure 4.13 depicts those 10 (25%) respondents rated lecturers' responsiveness towards online tasks and assessments as poor. Lecturers faced aggressive multifaceted challenges to overcome their lack of preparedness to teach online (Song, Wu & Zhi, 2020). Bozkurt (2019) indicates that some lecturers felt challenged to reach some of their students, which prevented them from learning online due to limited access. The majority of the respondents (15: 37%) rated the lecturers' responsiveness towards online tasks and assessments as fair. Kim, Park and Cozart (2013) state that students did not play an active role in the online learning system without guidance, and this was brought on by lecturers who were active throughout online learning programmes. Ten (24%) respondents rated the lecturers' responsiveness towards online tasks and assessments as good, while 3 (7%) respondents rated the responsiveness of lecturers towards online

tasks and assessments as very good, and 3 (7%) respondents rated the lecturers' responsiveness of lecturers towards online tasks and assessments as excellent.

4.2.14 The role of university management in support of students during online teaching and learning.

Table 4.14 sought to ascertain the role of the university management in support of online teaching and learning. To achieve this, respondents were given statements of the most probable tasks the university management might have done to support online teaching and learning. They were required to rate their level of agreement or disagreement with the given statements. The results are provided in table 4.14.

Table 4.14: Level of agreement or disagreement about the role of university management of support of students during online teaching and learning (N=41)

Statement	Disagree	Strongly disagree	Neutral	Agree	Strongly agree	Total
1. Management allocates data on time	18	7	12	3	1	41
	(43,9%)	(17,1%)	(29,3%)	(7,3%)	(2,4%)	(100%)
2. Management distributes ICT tools like laptops to all students on time	10	12	12	6	1	41
	(24,4%)	(29,3%)	(29,3%)	(14,6%)	(2,4%)	(100%)
3. Management creates conducive learning environment for all students	6	3	22	10	0	41
	(14,6%)	(7,3%)	(53,7%)	(24,4%)	(0%)	(100%)
4. Management trained students to use online learning platforms (Blackboard)	12	10	10	9	0	41
	(29,3%)	(24,4%)	(24,4%)	(22%)	(0%)	(100%)

5. Management ensures the quality of online classes, tasks, assessments, and exams	7 (17,1%)	4 (9,8%)	19 (46,3%)	10 (24,4%)	1 (2,4%)	41 (100%)

Management allocates data on time.

The results in table 4.14 above show that of the respondents (18: 43.9%) disagreed with the statement that management allocates data on time. Students expressed their concern that even though the university was able to provide data, many students never received the data on time as they had changed their numbers for various reasons without updating their contact details (Majola & Mudau, 2022). Seven (17,1%) respondents strongly disagreed with the statement, 12 (29,3%) respondents were neutral, while 3 (7,3%) respondents agreed that the university management allocates data on time and 1 (2,4%) respondent strongly agreed that management allocates data on time.

Management distributes ICT tools like laptops to all students on time.

The role of ICT in education, specifically higher education, cannot be downplayed; it is beneficial for lecturers and students (Aljaraideh & Bataineh, 2019). Online teaching and learning depend on timeous allocation of ICT tools (Ngqondi, Maoneke & Mauwa, 2021). However, the current study disagreed with the literature, as it established that the UL management did not provide students with laptops on time. This was based on 10 (24,4%) respondents disagreeing with the statement that management timeously distributes ICT tools like laptops to all students, 12 (29,3%) respondents strongly disagreed with the statement, whereas 12 (29,3%) were neutral that the management distributes ICT tools like laptops on time. In South Africa and the United State of America, it was found that during the Covid-19 lockdown, 17 of the 21 South African universities and 63 of the 64 US universities migrated to online learning. They used Zoom and Blackboard as the topmost online platforms and provided students with devices like laptops and tables (Chaka, 2020). Six (14,6%) respondents agreed with the statement that management

distributes ICT tools like laptops to all students on time and 1 (2,4%) respondent strongly agreed with the statement.

Management creates a conducive learning environment for all students.

Furthermore, it was revealed that 6 (14,6) respondents disagreed with the statement that management creates a conducive learning environment for all students, 3 (7,3%) respondents strongly disagreed with the statement. Twenty-two (53,7%) respondents were neutral on the statement that management creates a conducive learning environment to all students. According to the World Bank group (2018), 33% of the South African population may be classified as rural. Governments find it more difficult to supply quality education services in rural areas, and various factors weaken the quality of learning and teaching in South Africa's rural areas (Du Plessis & Mestry, 2019). Ten (24,4%) respondents agreed that management creates a conducive learning environment to all students, and none of the respondents 0 (0%) strongly agreed with the statement.

Management trained students to use online learning platforms (Blackboard).

Twelve (29,3%) respondents disagreed with the statement that management trained students to use online learning platforms (Blackboard). The role of ICT training, specifically higher education, cannot be downplayed; it is beneficial for lecturers and students (Aljaraideh & Bataineh, 2019). ICT training in higher education can provide the 21st century skills needed to adapt and compete in this knowledge and information society (Haji, Moluayonge & Park, 2017). Ten (24,4%) respondents strongly disagreed with the statement. Ten (24,4%) respondents were neutral on the statement, whereas 9 (22%) respondents agreed that management trained students to use online learning platforms (Blackboard). It was recognized that training has a positive influence on the usage of online learning systems such as Blackboard (Solangi, Shahrani & Pandhiani, 2018). None of the respondents (0%) strongly agreed with the statement.

Management ensures the quality of online classes, tasks, assessments, and exams.

Seven (17,1%) respondents disagreed with the statement that management ensures the quality of online classes, tasks, assessments, and exams, 4 (9,8%) respondents strongly disagreed with the statement, followed by 19 (46,3%) respondents who were neutral to the statement. According to Amanortsu, Dzandu and Asabere (2013), most of the government initiatives to ensure quality and accessible ICT education for all in most of African countries has failed to achieve its goals. Ten (24,4%) respondents agreed that management ensures the quality of online classes, tasks, assessments, and exams, and 1 (2,4%) respondent strongly agreed with the statement.

4.2.15 Suggestions which respondents think management could do to improve online teaching and learning at UL.

In order to determine what would enhance the respondents' online learning, an open-ended question was asked for the respondents to give their suggestions. Ideas the respondents gave were grouped according to the following themes: increasing data and providing all students with devices like laptops free of charge, computer literacy programmes, and going back to contact classes.

- **Increase data and provision of free laptops**

Twenty-four (59%) respondents indicated that the data they receive from the university for online learning is not enough for the entire month, and the provision of digital devices like laptops must accommodate all students free of charge and on time. Some respondents were quoted as saying:

"Give students more data. 10 gig should be provided at night and 20 gig during the day because many activities like attending classes take place during the day."

"Increase the daily data bundles for learning since are lower than the night bundles, we are learning during the day not at night. Provide learning materials on time to all students."

In a related study, Yates, Starkey, Egerton, and Flueggen, (2020) emphasizes that online learning in its entirety is dependent on technological devices and the internet; students

with poor internet connections are liable to be denied access to online learning. The dependency of online learning on technological equipment and the provision of the equipment are a challenge for institutions, faculties, and students. Limited funding has a negative impact on institutions' and students' ability to have successful online learning (Bean, Aldredge, Chow, Fowler & Guaracha, 2019).

Inadequate access to technology, studying materials and computers can leave students marginalized and anxious, which affects the online learning process (Queiros & De Villiers, 2016). Limited internet access, which includes poor internet connection and low speed, demotivates students to participate in online education (Sinha & Bagarukayo, 2019). A lack of internet access and computers in homes in rural areas affects the progress of online learning (DePaul, 2020). A lack of constant supply of electricity and internet access in rural communities also makes it difficult to assimilate the online education process (Ivala, 2013). This is more applicable to the UL, as it mainly serves the previously disadvantaged communities.

- **Computer literacy programmes**

According to Muhammad, Albejaidi and Akhtar (2017), computer literacy programmes are instrumental in ensuring the successful transition and integration of online learning platforms. Students can learn how to create and maintain presentation files as part of a course requirement, participate in a threaded discussion, or create and maintain web pages. Informally, however, students can use the technology to share what interests them. This represents a much broader, diverse set of skills encompassing everything from synchronous chat with acquaintances around the globe to "sharing" all types of media files (Shpigelman, Reiter, & Weiss, 2009). In line with this, the respondents suggested that students should be offered computer literacy programmes more often as evidenced by the following statements:

"Provide computer literacy programs more often so that students can gain more skills to use devices for online learning."

"Teach students on how to use the ICT tools before they engage in online learning".

Computer literacy is the basic knowledge of how to apply different technologies for personal or professional purposes and encompasses fluency in, and comfort with, using computers and keyboarding, which should also encompass the knowledge and skills to evaluate and adapt new educational technologies as they emerge (World Wide Web, 2022). Al Zumor et al. (2013) found that the two major problems with learning via Blackboard were internet access and a lack of technical skills. Therefore, students require more training and orientation in learning via Blackboard. Al-Maqtri (2014) further emphasizes that removing all barriers that hamper online learning via blackboard guarantees success.

Training was recognized as having a positive influence on the usage of online learning systems (Solangi et al., 2018). It is a critical success factor for online learning and should be provided for both students and lecturers (Alhabeeb & Rowley, 2018). One way to ensure digital literacy for students is to embed digital literacy skills in the curriculum (Johnston, 2020). Training and orientation programmes about online learning, including lessons in online teaching and learning tools and strategies, need to be offered on a regular basis so that students, lecturers, and staff could have the opportunity to advance their knowledge and could obtain an understanding of the different aspects and nuances of online and blended learning.

- **Going back to contact classes**

Different students perceive online learning differently. Some students responded positively to the implementation of online learning (Almarabeh, 2014), while other students who prefer traditional on-campus learning respond negatively to the implementation of online learning because they hold the view that online learning can cause uncertainty (El Gamal & Aziz, 2011). The study conducted by Makumane and Khoza (2020) found that several students agreed that traditional physical classes are the main learning mode at the university. This suggests that traditional physical classes may be most useful to those students who have no or limited access to the internet. As such,

each module/course seeks the need to have physical classes in place even if the module/course is offered online. The use of traditional physical classes for learning displays a fruitful result for students' knowledge acquisition (Simmonds & Le Grange, 2019). Some respondents opined that university should:

"Stop online learning return to class."

"Go back to face to face."

Fedynich, et al., (2015) investigated students' perceptions of online learning at the South Texas University and found that interactions between students and lecturers had a major impact on their satisfaction with online learning. Sometimes, students find online teaching and learning to be boring and unengaging. Personal attention is also a huge issue facing online learning. Students want a two-way interaction, which sometimes becomes difficult to implement during online sessions (Mishra et al., 2020).

Online or distance learning amid the pandemic created more stress, frustration, and isolation for students who lost the opportunity for peer interactions (Daniel, 2020; Gillett-Swan, 2017). Students may feel isolated and unsupported while learning and instructions are not always available to help them (Daniel, 2020; Yan, 2020). This suggests that in constructive learning, it is not enough for a student to depend only on the prescribed readings, taught content, and consultation with one lecturer and students in a particular subject/module. However, constructive learning wants students to enjoy exploring the world in order to connect with other people outside the normal context through the use of search engines, social media, and other means, because learning is not only about knowledge consumption, but also about construction (Anderson, 2016).

4.3   CHAPTER SUMMARY

This chapter presented the results and analysis of the study that was conducted using a descriptive research design. The questionnaire had six main sections, and data in this chapter were presented according to those sections. First, this chapter presented the

biographical details of the study participants, followed the first objective, which assessed perceptions of students towards online teaching and learning. The chapter then proceeded to present the results of the second objective which was aimed at analyzing students' skills on ICT infrastructures for online teaching and learning. Furthermore, the chapter covered the analysis of benefits gained by students from online teaching and learning. This was followed by a presentation of the results of challenges faced by students during online teaching and learning and the results of the role of the university management in support of LIS students during online teaching and learning. Lastly, the chapter concluded by analyzing suggestions from the respondents on how to improve online teaching and learning of library and information studies at the UL. The next chapter discusses the summary, conclusions, and recommendations.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1   INTRODUCTION

The previous chapter provided a presentation and analysis of research findings. This chapter outlines the summary of the findings, conclusions, and recommendations of the study. The findings, conclusions, and recommendations of the study were discussed in line with the problem statement and research objectives outlined in Chapter 1. It also suggests areas of further study and highlights the limitations of the study. It finally ends with the summary of the chapter.

The aim of this study was to examine online teaching and learning of library and information studies during the Covid-19 lockdown at the University of Limpopo, South Africa. The objectives of the study were as follows:

- To analyse perceptions of LIS students towards online teaching and learning.

- To assess whether LIS students have the necessary skills on ICT infrastructure for online teaching and learning.

- To establish the benefits gained by LIS students from online teaching and learning.

- To identify the challenges facing LIS students during online teaching and learning.

- To determine the role of the university management in support of LIS students during online teaching and learning.

5.2   SUMMARY OF THE FINDINGS

The findings of the study were discussed in line with the problem statement and research objectives outlined in Chapter 1. A summary of findings is as follows:

5.2.1 Findings on perceptions of students towards online teaching and learning.

The study found that students had negative perceptions towards online teaching and learning. The findings revealed that students did not like online learning more than face-to-face learning. Panyajamorn, Suanmali, Chongphaisal and Supnithi (2018) discovered that students continue to prefer traditional learning environments. Students do not like teaching methods used for online teaching and learning, and academic performance of many students registered for the fourth-year Bachelor of Information Studies degree at the University of Limpopo dropped since they moved to online learning. Students differ in their background and experience, along with their education techniques that clearly influence their online courses results (Kauffman, 2015).

5.2.2 Findings on ICT tools used for online teaching and learning.

The study revealed that most of students used laptops for online teaching and learning. Students mostly preferred laptops because of their features, bigger screens, better systems, and portability (Korucu & Alkan, 2011). It is easier for students to carry laptops from one place to another, and it enables them to attend online sessions anywhere and anytime with an internet connection. These multimedia and interactive modes of use make ICT the most important means of communication in online teaching and learning (Teo, et al., 2020).

5.2.3 Findings on students' level of satisfaction or dissatisfaction about Blackboard as online learning platform.

The study discovered that fourth-year students studying a Bachelor of Information Studies degree at the University of Limpopo are satisfied with Blackboard as online learning platform. Several variables can influence the satisfaction of students with Blackboard as online learning platform. Blackboard is one of the most popular marketable LMSs adopted in higher education institutions (Narwani & Arif, 2008). Using Blackboard, students can change their old and traditional methods of learning (Mohsen & Shafeeq, 2014). It offers

a collaborative learning platform that can be tailored to suit students' needs (Alharbi, 2015).

5.2.4 Findings on challenges faced by students during online teaching and learning.

The study found that the major challenges faced by students were login challenges and disruptions of online classes due to loadshedding. This is not surprising because South Africa is faced by serious problems of recurrent loadshedding from Eskom (i.e., what is normally referred to as blackouts) (Kekana & Mogoboya, 2022). Nielsen et al. (2011) discovered that technical errors, bugs, and slowness are critical issues that affect the use of Blackboard as an online learning platform. The researcher observed that difficulties and problems associated with the use of Blackboard range from downloading errors, login problems, and problems with audio and video quality.

5.2.5 Findings on the role of university management in support of students during online teaching and learning.

Schreiber et al. (2020) indicate that the university management has the responsibility to enhance the learning and success of students from diverse backgrounds. However, the current study established that the university management does not provide adequate support for online learning teaching. This was evidenced by most (42.9%) of students who indicated that the university management did not allocate data on time and did not provide adequate training to students to use online learning platforms.

5.3   CONCLUSIONS

The conclusions of this study are based on the findings provided in the research findings chapter. Conclusions reached in this study were entirely supported by the data presented (Leedy & Ormrod, 2010). Conclusions are presented according to the order of the research objectives of this study.

5.3.1 Conclusion on perceptions of students towards online teaching and learning.

Given the fact that the study found that students had negative perceptions towards online teaching and learning, the researcher concluded that the throughput of the university might be affected. This, in turn, could affect the subsidy the university receives from the government. This is because South African universities receive government subsidies based on the number of outputs (Van Schalkwyk, 2021). This suggests that online teaching may have unintended negative consequences for both students and the university itself.

5.3.2 Conclusions on ICT tools used for online teaching and learning.

Students at the UL are on par with the ICT developments as far as the use of ICT is concerned. This is based on the findings that most of the students used laptops for online teaching and learning. The use of laptops may be attributed to the fact that each student received a laptop from the university. It was stated that many people are attracted to using laptops because of their features such as their bigger screens, systems, and their portability (Korucu & Alkan, 2011). Shava et al. (2016) emphasise the perceived usefulness and perceived ease of use of laptops as motivator to access the internet everywhere. Laptops are assisting tools for increasing productivity and efficient solutions for various pedagogical tasks and online learning problems (Samoylenko, Zharko & Glotova, 2022).

5.3.3 Conclusions on students' level of satisfaction or dissatisfaction about Blackboard as online learning platform.

Despite the students having negative attitudes towards online teaching and learning, they were highly satisfied with Blackboard as online learning platform. The satisfaction with Blackboard as online learning platform can be attributed to various reasons, including that is user-friendly. Alamer (2020) stated that Blackboard is known for its easiness, ubiquity, and accessibility. Numerous students perceive the Blackboard application as a

supplementary learning tool (Robinson et al., 2017). According to Elsamanoudy, Al Fayz and Hassanien (2020), Blackboard is a very useful tool for online interactive teaching and learning. Hence, the platform was a very successful substitute for physical attendance of traditional lectures during the Covid-19 pandemic restriction measures.

5.3.4 Conclusion on challenges faced by students during online teaching and learning.

Loadshedding poses a serious threat to the quality of online teaching and learning at the UL. South Africa is currently experiencing an electricity crisis. A structural shortage of electricity supply remains one of the country's most critical challenges (Goldberg, 2015). The study established that the majority of students complained about disruptions of online classes as a result of loadshedding. This was particularly true for students who did not have a backup or alternative source of power/electricity. In the absence of electricity, the batteries of many laptops cannot function for long. In addition, Kekana and Mogoboya (2022) state that in the absence of electricity, connecting to the internet becomes a problem. As such, students are automatically disconnected from the online class because the internet is a prerequisite for online classes.

5.3.5 Conclusion on the role of university management in support of students during online teaching and learning.

The current study established that the university management did not provide adequate support for students to cope with online learning. In the absence of management support, the quality and the future of online teaching and learning may not be sustainable. This is because the university management has a responsibility to increase their students' awareness by using the technology effectively for online learning (New York University Shanghai, 2020).

5.4   RECOMMENDATIONS

Looking at the problem of the study, online teaching and learning had to be improved to reach the educational goals. After a careful view at the findings, discussions, and conclusions contained in the study, the researcher made the following recommendations:

5.4.1   Recommendations on perceptions of students towards online teaching and learning.

The researcher made the following recommendations:

- **Encourage active learning.**

Numerous studies have demonstrated that a student's active involvement in the learning process enhances learning, a process often referred to as active learning. Simply stated, active learning entails instructional activities involving students in doing things and thinking about what they are doing (Abdelraheem, 2012). Interactive instruction or "learning by doing" has been found to result in positive learning outcomes (Picciano, 2002; Watkins, 2005). Because many new technologies and web-based activities are interactive, online coursework has the potential to create environments where students actively engage with material and learn by doing, refining their understanding as they build new knowledge (Johnston, Killion & Omomen, 2005; Palloff, & Pratt, 2013).

- **Motivating students.**

The researcher recommends students' motivation, which is one of the key factors affecting student performance and learning, particularly online learning success (Dubey, Pradhan, & Sahu, 2023). If students perceive some benefit to their online learning (through either a personal interest in or an application of content), they will likely be more motivated to perform well. As McKeachie and Svinicki (2002:19) observes, "Students who are motivated to learn will choose tasks that enhance their learning, will work hard at those tasks, and will persist in the face of difficulty in order to attain their goals."

5.4.2 Recommendations on ICT tools used for online teaching and learning.

Students at the UL are in par with the ICT developments as far as the use of ICT is concerned. This is based on the finding that most of the students used laptops for online teaching and learning. The use of laptops may be attributed to the fact that each student received a laptop from the university. It was stated that many people are attracted to using laptops because of their features such as their bigger screens, better systems, and portability (Korucu & Alkan, 2011). The study recommends that the university should provide students with laptops before online sessions commence at the beginning of the year. This will assist students to familiarize themselves with online learning systems (Blackboard), as it has many features.

5.4.3 Recommendations on students' level of satisfaction or dissatisfaction about Blackboard as online learning platform.

Despite the students having negative attitudes towards online learning, this study found and concluded that students were satisfied with Blackboard as online learning platform. The satisfaction with Blackboard as online learning platform has been attributed to various reasons, including that is user-friendly. However, Almekhlafy (2020) indicates that some students did not have positive perceptions of online learning through Blackboard as a learning tool during Covid-19. The study discovered that a lack of technical skills was one of the major challenges of online learning via Blackboard during the pandemic. In line with the above, this study recommends training to students about features of Blackboard to give the required technical skills to use Blackboard effectively.

5.4.4 Recommendations on challenges faced by students during online teaching and learning.

The study established that a major challenge which poses a serious threat to the quality of online teaching and learning at the UL is loadshedding. Students complained about disruptions of online classes as a result of loadshedding. This was particularly true for students who did not have a backup or alternative source of power/electricity. In the

absence of electricity, the batteries of many laptops cannot function for long. As such, students are automatically disconnected from online class because their laptop batteries are depleted, and the internet is a prerequisite for online classes. It is therefore advisable to ensure that online sessions are always recorded in case some students missed the sessions due to loadshedding. This will ensure that students catch up on classes they have missed, and they are not left behind.

5.4.5 Recommendations on the role of university management in support of students during online teaching and learning.

The current study established that the university management did not provide adequate support to students to cope with online learning teaching. In line with this, New York University Shanghai, (2020) asserts that the university management has a responsibility to increase their students' awareness by using the technology effectively for online learning. In line with this assertion, the UL management should play a pivotal role in the provision of ICT resources and training of students in how to use ICT tools effectively. Syauqi, Munadi and Triyono (2020) emphasize that educational institutions need training for students and lecturers in how to improve online learning, make good material, and make learning media more interactive.

5.5   RECOMMENDATIONS FOR FUTURE STUDIES.

Although the study endeavoured to achieve a high level of depth, there are certain areas that need to be explored further. Based on the conclusions of this study, the researcher recommends the following for further investigation:

- The research should be extended to all the LIS schools in South Africa to confirm the conclusions drawn from this study. This is in accordance with Marutha (2011) who argues that a large number of the sample gives confidence to the results. Thus, future research over a wider demographic area, including a greater sample, may enhance insight and enable greater generalisation.

5.6   LIMITATIONS OF THE STUDY.

It is common for studies to have limitations. The current study was limited to the University of Limpopo's Programme of Information Studies students. Therefore, the results of the research may not be generalisable, but could be used to corroborate findings from similar studies elsewhere.

The study was slightly affected by the Covid-19 pandemic regulations, which was the second limitation. The researcher could not meet the respondents in person to convince them to complete the questionnaire and return them on time; thus, some students (35) did not participate in the questionnaire. The questionnaires secured a 54% response rate, which was sufficient to draw valid conclusions for this study.

5.7   CHAPTER SUMMARY

This is a final chapter and conclusion of the study. The chapter focused on the findings of the study, conclusions, recommendations, recommendations for future study, and limitations of the study. Furthermore, the chapter covered findings on perceptions of students towards online teaching and learning; ICT tools used for online learning, students' level of satisfaction or dissatisfaction with Blackboard as online learning platform, challenges faced by students during online teaching and learning, and findings on the role of the university management in support of students during online teaching and learning. This chapter also provided recommendations about the perceptions of students towards online teaching and learning, recommendations about ICT tools used for online learning, recommendations about Blackboard as online learning platform, recommendations about challenges faced by students during online teaching and learning, and recommendations about the role of management in support of students during online learning teaching and learning. Finally, this chapter covered recommendations for future studies and limitations of the study.

REFERENCES

Abdelraheem, A.Y., 2012. Interactions quality in Moodle as perceived by learners and its relationship with some variables. *Turkish online journal of distance education*, *13*(3), pp.375-389.

Abdous, M.H., 2011. A process-oriented framework for acquiring online teaching competencies. *Journal of Computing in Higher Education*, 23, pp.60-77.

Adarkwah, M.A., 2021. I'm not against online teaching, but what about us?: ICT in Ghana post Covid-19. *Education and Information Technologies*, *26*(2), pp.1665-1685.

Adedoyin, O.B. & Soykan, E., 2020. Covid-19 pandemic and online learning: the challenges and opportunities. *Interactive learning environments*, 31(2), pp.1-13.

Affouneh, S., Salha, S. & Khlaif, Z.N., 2020. Designing quality e-learning environments for emergency remote teaching in coronavirus crisis. *Interdisciplinary Journal of Virtual Learning in Medical Sciences*, 11(2), pp.135-137.

Aguilera-Hermida, A.P., 2020. College students' use and acceptance of emergency online learning due to COVID-19. *International Journal of Educational Research Open*, 1, pp.100011.

Ahamat, M.I. & Masrom, U.K., 2018. Students' perception on the use of wikispaces in ESL classroom. *Global Business and Management Research*, 10(3), pp.524.

Aithal, P.S. & Aithal, S., 2016. Impact of on-line education on higher education system. *International Journal of Engineering Research and Modern Education (IJERME)*, 1(1), pp. 225-235.

Alamer, H.A.H., 2020. Impact of using Blackboard on vocabulary acquisition: KKU students' perspective. *Theory and Practice in Language Studies*, *10*(5), pp.598-603.

Al-araibi, A.A.M., Mahrin, M.N.R.B. & Yusoff, R.C.M., 2019. Technological aspect factors of E-learning readiness in higher education institutions: Delphi technique. *Education and Information Technologies*, *24*, pp.567-590.

Albrahim, F.A., 2020. Online teaching skills and competencies. *Turkish Online Journal of Educational Technology-TOJET*, *19*(1), pp.9-20.

Alhabeeb, A. & Rowley, J., 2018. E-learning critical success factors: Comparing perspectives from academic staff and students. *Computers & Education*, *127*, pp.1-12.

Alemu, B.M., 2010. *Active learning approaches in mathematics education at universities in Oromia, Ethiopia.* Doctoral Thesis in Psychology of Education. Pretoria: University of South Africa.

Algahtani, A., 2011. *Evaluating the effectiveness of the e-learning experience in some universities in Saudi Arabia from male students' perceptions.* Doctoral dissertation, Durham University. [Online] Available at: https://www.semanticscholar.org/paper/Evaluating-the-Effectiveness-of-the-E-learning-in-Algahtani/da5b398ac122aec5dd0ab1a14ae25b64bfc343e9 [Accessed: 12 September2023]

Alharbi, M., 2015. Effects of Blackboard's discussion boards, blogs and wikis on effective integration and development of literacy skills in EFL students. *English Language Teaching*, 8(6), pp.111-132.

Ali, W., 2020. Online and remote learning in higher education institutes: A necessity considering COVID-19 pandemic. *Higher education studies*, *10*(3), pp.16-25.

Aljaraideh, Y. & Bataineh, K.A., 2019. Jordanian students' barriers of utilizing online learning: a survey study. *International Education Studies,* 12(5), pp. 99-108.

Almaiah, M.A., Al-Khasawneh, A. & Althunibat, A., 2020. Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, 25(6), pp.5261-5280.

Alman, S.W., Tomer, C. & Lincoln, M.L. eds., 2012. *Designing Online Learning: A Primer for Librarians: A Primer for Librarians*. ABC-CLIO. [Online] Available at: https://books.google.com/books/about/Designing_Online_Learning_A_Primer_for_ L.html?id=sV1CF9Sop2cC [Accessed: 12 September 2023].

Al-Maqtri, M.A.T., 2014. How effective is e-learning in teaching English? A case studies. *Journal of Education and Human Development*, 3(2), pp.647-669.

Almarabeh, T., 2014. Students' perceptions of e-learning at the University of Jordan. *International Journal of Emerging Technologies in Learning*, 9(3), pp.31-35.

Almekhlafy, S.S.A., 2020. Online learning of English language courses via blackboard at Saudi universities in the era of COVID-19: perception and use. *PSU Research Review*, *5*(1), pp.16-32.

Al-Salem, A., 2004. How exemplary professors differentiate instruction in higher education (Unpublished doctoral dissertation). University of Kansas, Kansas.

Arkorful, V. & Abaidoo, N., 2015. The role of e-learning, advantages, and disadvantages of its adoption in higher education. *International journal of instructional technology and distance learning*, *12*(1), pp.29-42.

Elsamanoudy, A.Z., Al Fayz, F. & Hassanien, M., 2020. Adapting blackboard-collaborate ultra as an interactive online learning tool during the COVID-19 pandemic. *Journal of Microscopy and Ultrastructure*, 8(4), pp.213.

Alshwiah, A.A., 2010. Effects of a blended learning strategy in teaching vocabulary on premedical students' achievement. *International Journal of Instructional Technology and Distance Learning*, 7(2), pp.37-52.

Al Zumor, A.W.Q., Al Refaai, I.K., Eddin, E.A.B & AI-Rahman, F.H.A., 2013. EFL students' perceptions of a blended learning environment: advantages, limitations, and suggestions for improvement. *English Language Teaching,* 6(10), pp. 95-110.

Amanortsu, G., Dzandu, M.D. & Asabere, N.Y., 2013. Towards the access to and usage of information and communication technology (ICT) in polytechnic education. *International Journal of Computer Applications,* 66(1), pp.23-33.

Amory, A., 2010. Education technology and hidden ideological contradictions. *Journal of Educational Technology & Society*, 13(1), pp. 69-79.

Andarwulan, T., Fajri, T.A.A. & Damayanti, G., 2021. Elementary teachers' readiness toward the online learning policy in the new normal era during COVID-19. *International Journal of Instruction*, 14(3), pp.771-786.

Anderson T., 2016. Theories for learning with emerging technologies. *Emerging Technologies in Distance Education,* 7(1), pp.7-23.

Anney, V.N., 2014. Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of emerging trends in educational research and policy studies*, *5*(2), pp.272-281.

Aparicio, M., Bacao, F. & Oliveira, T., 2017. Grit in the path to e-learning success. *Computers in Human Behavior*, 66, pp.388–399.

Applefield, J.M., Huber, R. & Moallem, M., 2000. Constructivism in theory and practice: Toward a better understanding. *The High School Journal*, *84*(2), pp.35-53.

Arbaugh, J.B., 2004. Learning to learn online: A study of perceptual changes between multiple online course experiences. *The internet and higher education*, *7*(3), pp.169-182.

Arkorful, V. & Abaidoo, N., 2015. The role of e-learning, advantages, and disadvantages of its adoption in higher education. *International journal of instructional technology and distance learning*, *12*(1), pp.29-42.

Armstrong, D A., 2011. Students' Perceptions of Online Learning and Instructional Tools: A Qualitative Study of Undergraduate Students' Use of Online Tools. *The Turkish Online Journal of Educational Technology*, *10*(3), pp.222–226.

Arthur-Nyarko, E., Gyan, S.B. & Asante, A., 2021. What determines students' behavioural intention to use mobile learning management systems? Empirical answers from a blended environment in Sub-Saharan Africa. *International Journal of Learning Technology*, *16*(4), pp.303-323.

Babbie, E., 2010. *The practice of social research*. 12th ed. Belmont: Wadsworth Cengage Learning.

Bailie, J.L., 2011. Effective online instructional competencies as perceived by online university faculty and students: a sequel study. *Journal of Online Learning and Teaching*, 7(1), pp.82- 89.

Baker, J.D., 2016. The purpose, process, and methods of writing a literature review. *AORN Journal,* 103(3), pp.265-269.

Balarabe-Kura, S.Y., 2012. Qualitative and quantitative approaches to the study of poverty: taming the tensions and appreciating the complementarities. *Qualitative Report*, 17, pp.34.

Bali, S., & Liu, M. C., 2018. Students' perceptions toward online learning and face-to-face learning courses. Journal of Physics: Conference Series, 1108 (2018), pp.12094. [Online] Available at https://doi.org/10.1088/1742-6596/1108/1/012094 [Accessed: 23 July 2019].

Basilaia, G., Dgebuadze, M., Kantaria, M. & Chokhonelidze, G., 2020. Replacing the classic learning form at universities as an immediate response to the Covid-19 virus infection in Georgia. *International Journal for Research in Applied Science & Engineering Technology (IJRASET),* 8(3), pp.101-108.

Basilaia, G. & Kvavadze, D., 2020. Transition to online education in schools during a SARS-CoV-2 coronavirus (COVID-19) pandemic in Georgia. *Pedagogical Research*, 5(4), pp.2468-4929.

Bates, M.J. & Maack, M.N. (eds.)., 2010. Encyclopedia of Library and Information Sciences. Vol. 1–7. CRC Press, Boca Raton, USA. [Online] available at: https://openlibrary.org/books/OL24462423M/Encyclopedia_of_library_and_information_sciences [Accessed: 15 September 2023].

Bean, M.V., Aldredge, T., Chow, K., Fowler, L., Guaracha, A., McGinnis, T., et al., 2019. *Effective practices for online tutoring.* Sacramento: Academic Senate for California Community Colleges.

Belaya, V., 2018. The use of e-learning in vocational education and training (VET): systematization of existing theoretical approaches. *Journal of Education and Learning*, 7(5), pp.92-101.

Bell, B.S. & Federman, J.E., 2013. E-learning in postsecondary education. *The future of children*, pp.165-185.

Bhattacherjee, A., 2012. *Social science research: principles, methods, and practices.* [Online] Available at: http://scholarcommons.usf.edu/oa_textbooks/3. [Accessed: 17 August 2023].

Binti Mistar, I. & Embi, M.A., 2016. Students 'perception on the use of WhatsApp as a learning tool in ESL classroom. *Journal of Education and Social Sciences*, 4, pp.96-104.

Blaxter, L., Hughes, C. & Tight, M., 2010. *How to research.* 4th ed. New York: Open University Press.

Bless, C., Higson-Smith C. & Sithole, S.L., 2013. *Fundamentals of social research methods: an African perspective*. 5th ed. Cape Town: Juta.

Bothma, T.J.D., 2008. *Navigating information literacy: your information society survival toolkit.* Pearson South Africa. [Online] Available online at: https://dl.acm.org/doi/book/10.5555/1817090 [Accessed: 14 September 2023].

Boudourides, M.A., 2003. Constructivism, education, science, and technology. *Canadian Journal of Learning and Technology*, 29(3). [Online] Available at: http://www.cjlt.ca/content/vol29.3/cjlt29-3_art1.html. [Accessed 12 September 2023].

Bozkurt, A., 2019. From distance education to open and distance learning: A holistic evaluation of history, definitions, and theories. In Handbook of Research on Learning in the Age of Transhumanism, pp. 252-273. IGI Global. [Online] Available at: https://doi.org/10.4018/978-1-5225-8431-5.ch016 [Accessed: 20 June 2021].

Bryan, C.J., Bryan, A.O. & Baker, J.C., 2020. Associations among state-level physical distancing measures and suicidal thoughts and behaviors among US adults during the early COVID-19 pandemic. *Suicide and Life-Threatening Behavior*, *50*(6), pp.1223-1229.

Bryman, A., 2012. *Social research methods.* 4th ed. New York: Oxford University Press Inc. [Online] Available at: https://books.google.com/books/about/Social_Research_Methods.html?id=vCq5m2hPkOMC [Accessed: 26 May 2021].

Brynard, D.J., Hanekom, S.X. & Brynard, P.A., 2014. Introduction to Research. 3rd ed. Pretoria: Van Schaik.

Buheji, M. & Buheji, A., 2020. Planning competency in the new normal – employability competency in post-COVID-19 pandemic. *International Journal of Human Resource Studies,* 10(2), pp. 237-251.

Cargan, L., 2007. *Doing social research*. Rowman & Littlefield Publishers. [Online] Available at: https://books.google.com/books/about/Doing_social_research.html?id=VkolAQAAIAAJ [Accessed: 04 February 2019].

Carroll, N. & Conboy, K., 2020. Normalising the "new normal": Changing tech-driven work practices under pandemic time pressure. *International Journal of Information Management*, 55, pp.102186.

Chae, S.W., Lee, K.C. & Seo, Y.W., 2016. Exploring the effect of avatar trust on learners' perceived participation intentions in an e-learning environment. *International Journal of Human–Computer Interaction*, *32*(5), pp.373-393.

Chaka, C., 2020. *Higher education institutions and the use of online instruction and online tools and resources during the COVID-19 outbreak – an online review of selected US and SA's universities.*

Chaura, M.G., 2014. *Information behaviour of fourth year students of Mzuzu University in Malawi.* Master's Dissertation in Library and Information Science. Western Cape: University of the Western Cape.

Chernova, O., Litvinov, A., Telezhko, I. & Ermolova, T., 2022, November. Teaching science language grammar to would be translators in vocationally oriented language learning via m-learning. In *Frontiers in Education* ,7, pp.905800.

Chinedu, O., 2021. Teaching the English language through E-learning in Nigerian Tertiary Institutions: Challenges and prospects. *International Journal of English and Communication studies*, 6, pp. 2695-2157.

Connelly, L.M., 2013. Limitation section. *Medsurg Nursing*, 22(5), pp.325.

Costa, G.J.M. & Silva, N.S.A., 2010. Knowledge versus content in e-learning: a philosophical discussion. *Information Systems Frontiers*, 12(4), pp.399-413.

Craddock, J. & Gunzelman, R., 2013. Creating WOW: characteristics of successful online instruction and facilitation. *The Journal of the Virtual Classroom*, 26(1), pp.9-46.

Creswell, J.W., 2009. Mapping the field of mixed methods research. *Journal of mixed methods research*, *3*(2), pp.95-108.

Creswell, J.W. & Plano Clark, V.L., 2011. *Designing and conducting mixed methods research.* 2nd ed. Los Angeles: Sage.

Daniel, J., 2020. Education and the COVID-19 pandemic. *Prospects*, 49(1), pp.91-96.

Davies, A., 2014. Integrating e-learning to improve learning outcomes. *Planning for Higher Education*, 42(4), pp.23.

Davis, F.D., 1985. *A technology acceptance model for empirically testing new end-user information systems: theory and results*. Doctoral dissertation, Massachusetts Institute of Technology.

DePaul, K., 2020. Can online learning mitigate rural schools' biggest challenges. *Getting Smart*.

De Vos, A.S., 1998. *Research at grass roots*: a primer for caring professions. Pretoria: Van Schaik.

De Vos, A.S., Strydom, H., Fouche, C.B. & Delport, C.S.L., 2005. Ethical aspects of research in the social sciences and human service professions. *Pretoria: Van Schaik*.

De Vos, A.S., Strydom, H., Fouche, C.B. & Delport, C.S.L., 2011. Ethical aspects of research in the social sciences and human service professions. *Pretoria: Van Schaik*.

Dhawan, S., 2020. Online learning: a panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), pp.5-22.

Dikko, M., 2016. Establishing construct validity and reliability: Pilot testing of a qualitative interview for research in Takaful (Islamic insurance). *The qualitative report*, *21*(3), pp.521-528.

Doomun, R. & Van Greunen, D., 2022. A qualitative investigation of student experience in a gamified course at the Open University of Mauritius. *South African Computer Journal*, *34*(2), pp.94-106.

Drost, E.A., 2011. Validity and reliability in social science research. *Education Research and perspectives*, *38*(1), pp.105-123.

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), pp.135-157.

Dubey, P., Pradhan, R.L. & Sahu, K.K., 2023. Underlying factors of student engagement to E-learning. *Journal of Research in Innovative Teaching & Learning, 16*(1), pp.17-36.

Du Plessis, P. & Mestry, R., 2019. Teachers for rural schools – a challenge for South Africa. *South African Journal of Education*, 39(1), pp1-9.

Edmundson, A. ed., 2006. *Globalized e-learning cultural challenges*. IGI Global.

El Gamal, S. & Abd EL Aziz, R., 2011. The perception of students regarding e-Learning implementation in Egyptian universities. The case of Arab academy for science and technology. Proceeding of eL&mL 2011: The third international conference on Mobile, Hybrid, and Online learning, pp.1-5.

Elida, T., Nugroho, W. & Suyudi, I., 2012. Cost effectiveness of web-based learning. *Procedia-Social and Behavioral Sciences, 65*, pp.1071-1076.

El Refae, G.G.A., Kaba, A. & Eletter, S., 2021. The impact of demographic characteristics on academic performance: face-to-face learning versus distance learning implemented to prevent the spread of COVID-19. *The International Review of Research in Open and Distributed Learning*, 22(1), pp.91-110.

Etikan, I., Musa, S.A. & Alkassim, R.S., 2016. Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), pp.1-4.

Fageeh, A., 2011. *EFL students' readiness for e-learning: factors influencing e-learners' acceptance of the blackboard in a Saudi university. The JALT CALL Journal*, 7(1), pp.19-42.

Favale, T., Soro, F., Trevisan, M., Drago, I. & Mellia, M., 2020. Campus traffic and e-Learning during COVID-19 pandemic. *Computer Networks*, 176, pp.107290.

Fedynich, L., Bradley, K. S., & Bradley, J., 2015. Graduate students' perceptions of online learning. Research in Higher Education Journal, 27(1), pp. 1–13.

Figueroa, F., Figueroa, D., Calvo-Mena, R., Narvaez, F., Medina, N. & Prieto, J., 2020. Orthopedic surgery residents' perception of online education in their programs during the COVID-19 pandemic: should it be maintained after the crisis? *Acta Orthopaedica*, 91(5), pp.543-546.

Fouka, G. & Mantzorou, M., 2011. What are major ethical issues in conducting research? Is there a conflict between the research ethics and the nature of nursing? *Health Science Journal,* 5(1), pp.3.

Fry, K., 2011. ELearning markets and providers: some issues and prospects. *Training and Education*, 43(4), pp.233-239.

Fuller, P. & Yu, G., 2014. Lessons learned: online teaching adventures and misadventures. *Journal of Social Sciences*, 10(1), pp.33-38.

Gillett-Swan, J., 2017. The challenges of online learning: supporting and engaging the isolated learner. *Journal of Learning Design*, 10(1), pp.20-30.

Given, L.M., 2016. Book review: 100 questions (and answers) about qualitative research. *Pasaa [Internet]*, *52*, pp.255-60. [Online] Available at: https://www.researchgate.net/publication/337607683_Book_Review_100_Questions_and_Answers_About_Qualitative_Research_by_Lisa_M_Given_2016 [Accessed: 04 September 2023].

Goertzen, M.J., 2017. Applying quantitative methods to e-book collections. *Library Technology Reports,* May/June, 54(4), pp.12-18.

Goldberg, A., 2015. *The economic impact of load shedding: the case of South African retailers.* Doctoral dissertation, University of Pretoria.

Gulbahar, Y. & Kalelioglu, F., 2015. Competencies for e-instructors: how to qualify and guarantee sustainability. *Contemporary Educational Technology*, 6(2), pp.140-154.

Hair, J.F., Anderson, R.E., Tatham, R.L. & Black, W.C., 1995. *Multivariate data analysis*. 4th ed. Prentice-Hall, Inc., New Jersey.

Haji, S.A., Moluayonge, G.E., & Park, I., 2017. Teachers' use of information and communications technology in education: Cameroon secondary schools' perspectives. *The Turkish Online Journal of Educational Technology,* 16(3), pp.147-153.

Hammond, M. & Wellington, J., 2013. *Research methods: the key concepts.* London: Routledge.

Hampel, R. & Stickler, U., 2005. New skills for new classrooms: training tutors to teach languages online. *Computer Assisted Language Learning*, 18(4), pp.311-326.

Harrison, K. C. ed., 2015. Public Library Policy: Proceedings of the IFLA/Unesco PreSession Seminar, Lund, Sweden, August 20–24, 1979. London: Walter de Gruyter GmbH & Co KG, 19, pp.0–24.

Hartini, T.I., Liliasari, S., Setiawan, A. & Ramalis, T.R., 2020. Critical Thinking Skills (CTS) and Rigid Object Rotation (ROR) concept mastery through Multiple-Based Representation (MR) in mechanics learning using GeoGebra software. In *Journal of Physics: Conference Series,* 1491(1), pp.012019. [Online] Available at: https://doi.org/10.1088/1742-6596/1491/1/012019 [Accessed: 14 September 2023].

Hartling, L., Chisholm, A., Thomson, D. & Dryden, D.M., 2012. A descriptive analysis of overviews of reviews published between 2000 and 2011. *PloS One*, 7(11), pp.49667.

Hassan, Z.A., Schattner, P. & Mazza, D., 2006. Doing a pilot study: why is it essential? Malaysian family physician. T*he official journal of the Academy of Family Physicians of Malaysia*, 1(2-3), pp.70.

Haughton, N., Sandt, D. & Slantcheva-Durst, S., 2014. Effective online teaching and learning environments captured through course syllabi: an exploratory quantitative content analysis. In *EdMedia+ Innovate Learning*, pp. 1951-1961. Association for the Advancement of Computing in Education (AACE).

Haywood, J., Macleod, H., Haywood, D., Mogey, N. & Alexander, W., 2004. The student view of ICT in education at the University of Edinburgh: skills, attitudes & expectations. In *Proceedings of the Association for Learning Technologies Conference*, 1(1), pp.13-16.

Heale, R. & Twycross, A., 2015. Validity and reliability in quantitative studies. *Evidence-Based Nursing*, 18(3), pp.66-67.

Heng, K. & Sol, K., 2021. Online learning during COVID-19: key challenges and suggestions to enhance effectiveness. *Cambodian Journal of Educational Research*, 1(1), pp.3-16.

Hernon, P. & Schwartz, C., 2009. Procedure: research design. *Library and Information Science Research*, 31(1), pp.1-2.

Hillman, D.C., Willis, D.J. & Gunawardena, C.N., 1994. Learner-interface interaction in distance education: an extension of contemporary models and strategies for practitioners. *American Journal of Distance Education*, 8(2), pp.30-42.

Hjørland, B., 2018. Library and information science (LIS), part 1. *Ko Knowledge Organization*, *45*(3), pp.232-254.

Hoq, M.Z., 2020. E-Learning during the period of pandemic (COVID-19) in the Kingdom of Saudi Arabia: an empirical study. *American Journal of Educational Research*, 8*(7)*, pp.457-464.

Hoskins, R., 2013. The gender profile of library and information science (LIS) academics in South African universities. *Alternation,* 20(2), pp.257-275.

Hoyle, R.H., Harris, M.J. & Judd, C.M., 2002. *Research methods in social relations.* 7th ed. Fort Worth, TX: Wadsworth.

Hrastinski, S., 2008. Asynchronous and synchronous e-learning. *Educause Quarterly*, 31(4), pp. 51-55. [Online] Available at: https://www.scribbr.com/dissertation/literature-review/ [Accessed: 09 July 2020].

Idiegbeyan-Ose, J. & Esse, U.C., 2016. Librarian without Building in an E-Learning Environment: Needed Skills, Challenges, and Solutions. In *Web Design and Development: Concepts, Methodologies, Tools, and Applications,* 1(1), pp.1634-1653.

Inoue, Y., 2007. Online education for lifelong learning: a silent revolution. In *Online education for lifelong learning* (pp. 1-27). IGI Global. [Online] available at: https://www.semanticscholar.org/paper/Online-Education-for-Lifelong-Learning%3A-A-Silent-Inoue/55785ebfa154f93c944686804c8abef19b5a91c5 [Accessed: 19 September 2023].

IOWA State University., 2001. *Advantages and disadvantages of e-learning.* [Online] Available at: http://www.dso.iastate.edu/asc/academic/elearner/advantage.html [Accessed: 12 September 2023].

Ivala, E., 2013. *ICEL2013-proceedings of the 8th international conference on e-learning: ICEL 2013.* Academic Conferences Limited.

Jalli, N., 2020. Lack of internet access in Southeast Asia poses challenges for students to study online amid COVID-19 pandemic. *The Conversation*, pp.17. [Online] Available at: https://theconversation.com/lack-of-inter-net-access-in-southeast-asia-poses-challenges-for-students-to-study-online-amid-co [Accessed: 16 September 2023].

Johnson, R.B. & Christensen, L., 2019. *Educational research: quantitative, qualitative, and mixed approaches.* SAGE Publications Inc. [Online] Available at: https://us.sagepub.com/en-us/nam/educational-research/book259335 [Accessed: 13 September 2023].

Johnson, R.B. & Onwuegbuzie, A.J., 2004. Mixed methods research: a research paradigm whose time has come. *Educational Researcher*, 33(7), pp.14-26.

Johnston, J., Killion, J. & Oomen, J., 2005. Student satisfaction in the virtual classroom. *Internet Journal of Allied Health Sciences and Practice*, 3(2), pp.6.

Johnston, N., 2020. The shift towards digital literacy in Australian university libraries: Developing a digital literacy framework. *Journal of the Australian Library and Information Association*, 69(1), pp.93-101.

Jones, C. & Goulding, A., 1999. Is the female of the species less ambitious than the male? The career attitudes of students in the Department of Information and Library Studies. *Journal of Librarianship and Information Science*, 31(1), pp.7-19.

Joosten, T. & Cusatis, R., 2020. Online learning readiness. *American Journal of Distance Education*, *34*(3), pp.180-193.

Kamsin, A. & Is, E., 2005. Is e-learning the solution and substitute for conventional learning. *International journal of the computer, the internet and management*, *13*(3), pp.79-89.

Kaplan Medical., 2017. *USMLE step 1 lecture notes 2018: behavioral science and social sciences.* Rehovot: Simon and Schuster.

Kashghari, B. & Asseel, D., 2014. Collaboration and interactivity in EFL learning via Blackboard Collaborate: a pilot study. In *Conference proceedings. ICT for language learning*, pp. 149.

Kauffman, H., 2015. A review of predictive factors of student success in and satisfaction with online learning. *Research in Learning Technology*, pp.23.

Kaushik, V., & Walsh, C.A., 2019. Pragmatism as a research paradigm and its implications for social work research. *Social sciences*, *8*(9), pp.255.

Keengwe, J., Schnellert, G.L. & Kungu, K. (Eds.)., 2014. *Cross-cultural online learning in higher education and corporate training.* University of North Dakota, USA: IGI Global.

Kekana, T. & Mogoboya, M.J., 2022. Factors that impact on e-learning in a selected South African university: a pedagogical perspective. *Specialusis Ugdymas*, 2(43), pp.682-700.

Keller, C. & Cernerud, L., 2002. Students' perceptions of e-learning in university education. *Journal of Educational Media*, 27(1-2), pp.55-67.

Kemp, N. & Grieve, R., 2014. Face-to-face or face-to-screen? Undergraduates' opinions and test performance in classroom vs online learning. *Frontiers in psychology*, 5, pp.1278.

Khan, B.H. ed., 2005. *Managing e-learning: design, delivery, implementation, and evaluation* United states of America: IGI Global.

Khoza, S.B. & Biyela, A.T., 2019. Decolonising technological pedagogical content knowledge of first year mathematics students. *Education and Information Technologies*, 1(1), pp.1-15.

Kim, C.M., Park, S.W. & Cozart, J., 2013. Affective and motivational factors of learning in online mathematics courses. *British Journal of Educational Technology*, 45(1), pp.171-18.

Kirtman, L., 2009. Online versus in-class courses: An examination of differences in learning outcomes. *Issues in Teacher Education*, 18(2), pp.103-116.

Klette, K., 2011. The role of theory in educational research. *Norwegian Educational Research*,1(1), pp.*32*.

Korucu, A.T. & Alkan, A., 2011. Differences between m-learning (mobile learning) and e-learning, basic terminology, and usage of m-learning in education. *Procedia-Social and Behavioral Sciences*, 15, pp.1925-1930.

Kulal, A. & Nayak, A., 2020. A study on perception of teachers and students toward online classes in Dakshina Kannada and Udupi District. *Asian Association of Open Universities Journal*, 15(3), pp.285-296.

Kuhn, T. S., 1970. *The structure of scientific revolutions.* 2nd ed. Chicago: University of Chicago Press.

Kumar, R., 2011. *Research methodology: a step-by-step guide for beginners.* 3rd ed. London: Sage.

Krishnan, S.D., Norman, H. and Md Yunus, M., 2021. Online gamified learning to enhance teachers' competencies using classcraft. *Sustainability*, *13*(19), pp.10817.

Leach, J., 2005. *Deep impact: an investigation of the use of information and communication technologies for teacher education in the global south, researching the issues*, London: DFID.

Leedy PD., 1997. Practical research: planning and design. 6th ed. Upper Saddle River, NJ: Prentice -Hall.

Leedy, P. L. & Ormrod, J. E., 2010. *Practical research: planning and design.* 9th ed. New Jersey: Pearson Education, Inc.

Lehmann, K.J., 2004. Successful online communication. *How to be a Great Online Teacher, USA: Scarecrow Education*, pp.9-16.

Leng, T.Y. & Yang, S., 2020. Exploring# e-learning and# e-tests during COVID-19 on Weibo. In *2020 IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT),* pp.730-734.

Levin, D. & Arafeh, S., 2002. *The digital disconnects: the widening gap between Internet-savvy students and their schools. USDLA Journal*, pp.10-16.

Liamputtong, P., 2009. *Qualitative research methods.* 3rd ed. Oxford: Oxford University Press.

Littlefield J., 2018. *The difference between synchronous and asynchronous distance learning.* [Online] Available at: https://www.thoughtco.com/synchronous-distance-learning-asynchronous-distance-learning-1097959 [Accessed: 23 June 2020].

Liyanagunawardena, T.R., Williams, S., & Adams, A.A., 2013. The impact and reach of MOOCs: A developing countries perspective'. eLearning Papers, 33, pp.1887–1542.

MacFarlane, I.M., Veach, P.M. & LeRoy, B., 2014. *Genetic counseling research: a practical guide*. Genetic Counseling in Practice. [Online] Available at https://psycnet.apa.org/record/2016-05440-000 [Accessed: 13 September 2023].

Mahama, A., 2016. Challenges facing internet connectivity: perspectives of private cyber cafes. *International Journal of Scientific Engineering and Applied Science*, 2(2), pp.466-474.

Mahdizadeh, H., Biemans, H. & Mulder, M., 2008. Determining factors of the use of e-learning environments by university teachers. *Computers & education*, *51*(1), pp.142-154.

Mahdy, M.A., 2020. The impact of COVID-19 pandemic on the academic performance of veterinary medical students. *Frontiers in Veterinary Science*, 7, pp.594261.

Majola, M.X. & Mudau, P.K., 2022. Lecturers' experiences of administering online examinations at a South African open distance e-learning university during the COVID-19 pandemic. *International Journal of Educational Methodology*, 8(2), pp.275-283.

Makumane, M.A. & Khoza, S.B., 2020. Educators' reasonings and their effects on successful attainment of curriculum goals. *South African Journal of Higher Education*, 34(2), pp.95-11.

Mansbach, J., 2015. Using technology to develop students' critical thinking skills. *Retrieved September 10*, pp.2016.

Mapuva, J., 2011. Dealing with challenges to learning in Higher Education Institutions through e-learning. *Intsructional technology*, pp.37.

Marc, J. R., 2002. Book review: e-learning strategies for delivering knowledge in the digital age. Internet and Higher Education, 5, pp.185-188.

Maree, K., 2007. *First steps in research*. Van Schaik Publishers. [Online] Available at: https://books.google.com/books/about/First_steps_in_research.html?id=GNIIAQA AIAAJ [Accessed: 12 September 2023].

Marshall, C. & Rossman, G.B., 2014. *Designing qualitative research*. SAGE Publications Inc. [Online] Available at:

https://us.sagepub.com/en-us/nam/designing-qualitative-research/book274291 [Accessed: 12 September 2023].

Marutha, N.S., 2011. Records management in support of service delivery in the public health sector of the Limpopo province in South Africa, MINF Thesis. University of South Africa, Pretoria.

Masonta, M.T., Ramoroka, T.M. & Lysko, A.A., 2015. Using TV white spaces and e-learning in South African rural schools. In *2015 IST-Africa Conference,* pp.1-12. [Online] Available at: https://doi.org/10.1109/ISTAFRICA.2015.7190564 [Accessed: 20 September 2023].

Matuga, J.M., 2009. Self-regulation, goal orientation, and academic achievement of secondary students in online university courses. *Journal of Educational Technology & Society*, 12(3), pp.4-11.

Matusiak, K.K.; Stansbury, M.; Barczyk, E., 2014. Educating a new generation of library and information science professionals: A United States perspective. professionals": *Przegląd Biblioteczny / Library Review*. 82 (2), pp.189–206.

Mayer, C.H., 2017. *The life and creative works of Paulo Coelho. A psychobiography from a positive psychology perspective.* Cham, Switzerland: Springer.

McCombes, S., 2019. How to write a literature review *Retrieved*, *24*, p.2020. [Online] Available at: https://www.scribd.com/document/431959027/How-to-Write-a-Literature-Review. [Accessed; 19 September 2023].

McKeachie, W.J. & Svinicki, M., 2002. McKeachie's Teaching Tips: Strategies. *Research and Theory for College and University Teachers.* [Online] Available at: https://books.google.com/books/about/McKeachie_s_Teaching_Tips_Strategies_Res.html?id=v_0zqB13lW8C. [Accessed: 19 September 2023].

McLoughlin, C.E. & Luca, J., 2001. *Quality in online delivery: what does it mean for assessment in e-learning environments?* [Online] Available at: https://www.researchgate.net/profile/Catherine-Mcloughlin-2/publication/49280427_Quality_in_online_delivery_what_does_it_mean_for_assessment_in_e-learning_environments/links/02bfe510b1aed5e025000000/Quality-in-online-delivery-what-does-it-mean-for-assessment-in-e-learning-environments.pdf [Accessed; 12 September 2023].

McMillan, J.H. & Schumacher, S., 2000. *Research in education: a conceptual introduction.* London: Longman.

Menter, I., Elliot, D., Hulme, M. & Lewin, J., 2011. *A guide to practitioner research in education.* London: Sage.

Milheim, K.L., 2014. Facilitation across cultures in the online classroom. *International Journal of Learning, Teaching and Educational Research*, 5(1), pp. 1-11.

Mishra, L., Gupta, T. & Shree, A., 2020. Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, 1, pp.100012.

Moawad, R.A., 2020. Online learning during the COVID-19 pandemic and academic stress in university students. *Revista Românească pentru Educaţie Multidimensională*, 12, pp.100-107.

Mohsen, M.A. & Shafeeq, C.P., 2014. EFL teachers' perceptions on blackboard applications. *English Language Teaching*, 7(11), pp.108-118.

Molawa, S., 2009. The first and third world in Africa: knowledge access, challenges, and current technological innovations in Africa. First International Conference on African Digital Libraries and Archives. Addis Ababa, Ethiopia.

Mouton, J., 2001. *How to succeed in your master's and doctoral studies: a South African guide and resource book.* Pretoria: Van Schaik.

Muhammad, G., Albejaidi, F. M. & Akhtar, R., 2017. Challenges in development of eLearning systems in higher education of the developing countries. *London Journal of Research in Humanities and Social Sciences, 17*(2), pp.13-32.

Mukhtar, K., Javed, K., Arooj, M. & Sethi, A., 2020. Advantages, limitations, and recommendations for online learning during COVID-19 pandemic era. *Pakistan Journal of Medical Sciences*, 36, pp.27.

Mulhanga, M.M. & Lima, S.R., 2017. Podcast as e-learning enabler for developing countries: Current initiatives, challenges, and trends. In *Proceedings of the 2017 9th International Conference on Education Technology and Computers*, pp.126-130.

Murray, J., 2011. Cloud network architecture and ICT - Modern Network Architecture. TechTarget =IT Knowledge Exchange. Archived from the original on 2017-09-20. Retrieved 2013-08-18. [Online] Available: https://www.ijcaonline.org/archives/volume151/number6/26238-2016911915. [Accessed: 19 September 2023].

Naffi, N., Davidson, A., Patino, A., Beatty, B., Gbetoglo, E. & Duponsel, N., 2020. Online learning during COVID-19: 8 ways universities can improve equity and access. *The Conversation*. [Online] Available at: https://theconversation.com/online-learning-during-covid-19-8-ways-universities-can-improve-equity-and-access-145286. [Accessed: 19 September 2023].

Narwani, A. & Arif, M., 2008. Blackboard adoption and adaptation approaches. In M. Iskander (ed.) Innovative techniques in instruction technology, e-learning, e-assessment, and education. Springer Publishing Company, pp. 59-63.

Ncube, S. & Rodrigues, A., 2017. Improving the management of estate agent's records in Bulawayo, Zimbabwe. *Mousaion,* 35(1), pp.68-89.

Ndou, N., 2012. Challenges facing school governing bodies in the implementation of finance policies in the Vhembe district. MEd dissertation, University of South Africa, Pretoria.

Nedeva, V., Dimova, E. & Dineva, S., 2010. Overcome disadvantages of e-learning for training English as foreign language. *University of Bucharest and University of Medicine and Pharmacy Târgu-Mures*, pp.275-281.

Neuman, D., 2014. Qualitative research in educational communications and technology: a brief introduction to principles and procedures. *Journal of Computing in Higher Education*, 26, pp.69-86.

New York University Shanghai., 2020. Remote teaching and learning to begin February 17. [Online] Available at:

https://shanghai.nyu.edu/news/remote-teaching-and-learning-begin-february-17
[Accessed; 12 September 2023].

Ngqondi, T., Maoneke, P.B. & Mauwa, H., 2021. A secure online exams conceptual framework for South African universities. *Social Sciences & Humanities Open*, 3(1), pp.100132.

Ngobeni, S. C., 2015. Intervention strategies for improving vocational rehabilitation programme for young adult offenders: a case study. (Doctoral dissertation) University of Zululand. [Online] Available at: http://ulspace.ul.ac.za/handle/10386/1347 [Accessed: 19 September 2023].

Ngulube, P., 2003. Preservation and access to public records and archives. Durban: University of Natal.

Ngulube, P., 2009. *Research methods in Information Science: only guide for HINKMEL*. Pretoria: UNISA Press.

Nielsen, D., White, A. S., & Zhou, L., 2011. The VLE as the converging platform. In Electrical Engineering and Informatics (ICEEI), 2011 International Conference on, 1-6. [Online] Available at: http://dx.doi.org/10.1109/iceei.2011.6021642 [Accessed: 20 September 2023].

Nortvig, A.M., Petersen, A.K. & Balle, S.H., 2018. A literature review of the factors influencing e-learning and blended learning in relation to learning outcome, student satisfaction and engagement. *Electronic Journal of E-learning*, 16(1), pp. pp46-55.

Ogbonnaya, U.I., Awoniyi, F.C. & Matabane, M.E., 2020. Move to online learning during COVID-19 lockdown: Pre-service teachers' experiences in Ghana. *International Journal of Learning, Teaching and Educational Research*, *19*(10), pp.286-303.

O'Hagan, C., 2020. *Startling digital divides in distance learning emerge*. UNESCO.

Oladokun, O. & Aina, L., 2011. ODL and the impact of digital divide on information access in Botswana. *International Review of Research in Open and Distributed Learning*, 12(6), pp.157-177.

Olayemi, O.M., Adamu, H. & Olayemi, K.J., 2021. Perception and readiness of students towards online learning in Nigeria during Covid-19 pandemic. *Perception*, 3(1), pp.4-21.

Olesova, L., Yang, D. & Richardson, J.C., 2011. Cross-cultural differences in undergraduate students' perceptions of online barriers. *Journal of Asynchronous Learning Networks,* 15(3), pp. 68-80.

Oswal, S. K. & Meloncon, L., 2014. Paying attention to accessibility when designing online courses in technical and professional communication. *Journal of Business and Technical Communication*, 28(3), pp.271-300.

Ozdamli, Fezile; Ozdal, Hasan., 2015. Life-long Learning Competence Perceptions of the Teachers and Abilities in Using Information-Communication. Technologies. *Procedia - Social and Behavioral Sciences.*, 182, pp.718–725.

Ozkan, S. & Koseler, R., 2009. Multi-dimensional students' evaluation of e-learning systems in the higher education context: an empirical investigation. *Computers & Education*, 53(4), pp.1285-1296.

Paechter, M., Maier, B. & Macher, D., 2010. Students' expectations of, and experiences in e-learning: their relation to learning achievements and course satisfaction. *Computers & Education*, 54(1), pp.222-229.

Palloff, R.M. & Pratt, K., 2013. Lessons from the Virtual Classroom: The Realities of Online Teaching, John Wiley and Sons, Butler, PA.

Pangondian, R.A., Santosa, P.I. & Nugroho, E., 2019. Faktor-faktor yang mempengaruhi kesuksesan pembelajaran daring dalam revolusi industri 4.0. In *Seminar Nasional Teknologi Komputer & Sains (SAINTEKS),* 1(1), pp.56-60.

Panyajamorn, T., Suanmali, S., Kohda, Y., Chongphaisal, P. & Supnithi, T., 2018. Effectiveness of e-learning design in Thai public schools. *Malaysian Journal of Learning and Instruction*, *15*(1), pp.1-34.

Percival, R.V. & Schroeder, C.H., 2011. Environmental law: statutory and case supplement. New York: Wolters Kluwer Law & Business.

Pete, J. & Soko, J., 2020. Preparedness for online learning in the context of Covid-19 in selected sub-Saharan African countries. *Asian Journal of Distance Education*, 15(2), pp.37-47.

Phellas, C.N., Bloch, A. & Seale, C., 2011. Structured methods: interviews, questionnaires, and observation. *Researching Society and Culture*, 3(1), pp.23-32.

Phutela, N. & Dwivedi, S., 2020. A qualitative study of students' perspective on e-learning adoption in India. *Journal of applied research in higher education*, *12*(4), pp.545-559.

Picciano, A.G., 2002. Beyond student perceptions: Issues interaction, presence, and performance in an online course. *Journal of Asynchronous Learning Networks,* 6, pp.20-41.

Pickard, A. J., 2013. *Research methods in information*. London: Facet. Publishing.

Pintrich, P.R., 2004. A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review*, 16(4), pp.385-407.

Platt, C.A., Amber, N.W. & Yu, N., 2014. Virtually the same? Student perceptions of the equivalence of online classes to face-to-face classes. *Journal of Online Learning and Teaching*, *10*(3), pp.489.

Powell, R.R. & Connaway, L.S., 2004. *Basic research methods for librarians*. United States of America (USA): Greenwood publishing group.

Punch, K.F., 2013. *Introduction to social research: quantitative and qualitative approaches*. London: Sage.

Purdy, E. R. & Popan, E. M., 2020. 'Descriptive research', Salem Press Encyclopedia. [Online] Available at: https://search-ebscohost.com.ufs.idm.oclc.org/login.aspx?direct=trueanddb=ersandAN=113931140andsite=eds-liveandscope=site [Accessed: 19 September 2023].

Puri, G., 2012. Critical success Factors in e-Learning–An empirical study. *International Journal of Multidisciplinary Research*, *2*(1), pp.149-161.

Queiros, D.R. & de Villiers, M.R., 2016. Online learning in a South African higher education institution: Determining the right connections for the student. *International Review of Research in Open and Distributed Learning*, *17*(5), pp.165-185.

Qu, Y., & Cheung, S.O., 2014. Pedagogical principle-based experiential e-learning exploration in construction mediation training, Journal of Professional Issues in Engineering Education & Practice, 140 (2), pp.04013015.

Rahman, K., 2020. Learning amid crisis: EFL students' perception on online learning during covid-19 outbreak. *English, Teaching, Learning, and Research Journal)*, 6(2), pp.179-194.

Ralston, J.L., 2007. G. Salmon, E-moderating: The Key to Teaching and Learning Online, Routledge Falmer, London, 2003, pp. 242.

Ramadass, P. & Aruni, A.W., 2009. *Research and writing across disciplines*. Chennai: MJP Publishers.

Ranta, S. & Uusiautti, S., 2021. Functional teamworks as the foundation of positive outcomes in early childhood education. *Positive Education and Work: Less Struggling, More Flourishing*, pp.195-221.

Raspopovic, M., Cvetanovic, S., Medan, I. & Ljubojevic, D., 2017. The effects of integrating social learning environment with online learning. *The International Review of Research in Open and Distributed Learning*, 18(1), pp. 141-160.

Rayward, W.B. ed., 2004. *Aware and responsible: Papers of the Nordic-International Colloquium on Social and Cultural Awareness and Responsibility in Library, Information, and Documentation Studies (SCARLID)*. Scarecrow Press.

Ritchie, H., Mathieu, E., Rodés-Guirao, L., Appel, C., Giattino, C., Ortiz-Ospina, E., Hasell, J., Macdonald, B., Beltekian, D. & Roser, M., 2020. Coronavirus pandemic (COVID-19). *Our world in data*. [Online] Available at: https://ourworldindata.org/coronavirus. [Accessed: 19 September 2023].

Roberts-Holmes, G., 2014. *Doing your early years research project: a step-by-step guide.* 3rd ed. London: Sage.

Robinson, G., Basco, L.M., Mathews, Y., Dancel, R., Princena, M.A. & McKeever, M.J., 2017. ESL student perception of VLE effectiveness at a university of South Korea. *Journal of Language Teaching & Research,* 8(5), pp. 847-857.

Robson, C., 2011*. Real world research*. 3rd ed. Wiley: Chichester, West Sussex.

Sahu, P., 2020. Closure of universities due to coronavirus disease 2019 (COVID-19): Impact on education and mental health of students and academic staff. *Cureus*, 12(4), pp.7541.

Saidy, C. & Sura, T., 2020. When everything changes over night: what we learned from teaching the writing practicum in the era of Covid-19. *Teaching/Writing: The Journal of Writing Teacher Education*, 9(1), pp.21.

Salter, G. & Hansen, S., 1999. Modelling new skills for online teaching. In *Ascilite Proceedings*. Brisbane. [Online] Available at; https://www.researchgate.net/publication/2463755_Modelling_New_Skills_For_Online_Teaching [Accessed; 12 September 2023].

Samoylenko, N., Zharko, L. & Glotova, A., 2022. Designing online learning environment: ICT tools and teaching strategies. *Athens Journal of Education*, 9(1), pp.49-62.

Schindler, M., Le Texier, M. & Caruso, G., 2022. How far do people travel to use urban green space? A comparison of three European cities. *Applied Geography*, 141, pp.102673.

Schreiber, B., Moscaritolo, L.B., Perozzi, B. & Luescher, T.M., 2020. The impossibility of separating learning and development. *University World News*. [Online] Available at: https://www.universityworldnews.com/post.php?story=2020090210200929 [Accessed: 19 September 2023].

Shava, H., Chinyamurindi, W. & Somdyala, A., 2016. An investigation into the usage of mobile phones among technical and vocational educational and training students in South Africa. *SA Journal of Information Management*. 18(10), pp.4102.

Shenoy, V., Mahendra, S. & Vijay, N., 2020. COVID 19 lockdown technology adaptation, teaching, learning, students' engagement, and faculty experience. *Mukt Shabd Journal*, *9*(4), pp.698-702.

Shpigelman, C.N., Reiter, S. & Weiss, P.L., 2009. A conceptual framework for electronic socio-emotional support for people with special needs. *International Journal of Rehabilitation Research*, *32*(4), pp.301-308.

Simmonds, S. & Le Grange, L., 2019. Research in curriculum studies: reflections on nomadic thought for advancing the field. *Transformation in Higher Education*, 4(1), pp.1-9.

Singh, V. & Thurman, A., 2019. How many ways can we define online learning? A systematic literature review of definitions of online learning (1988-2018). *American Journal of Distance Education*, 33(4), pp. 289-306.

Sinha, E. & Bagarukayo, K., 2019. Online education in emerging knowledge economies: exploring factors of motivation, de-motivation, and potential facilitators; and studying the effects of demographic variables. *International Journal of Education and Development using Information and Communication Technology,* 15(2), pp.5-30.

Sive, H. & Sarma, S., 2013. Online on-ramps. *Nature*, 499(7458), pp.277-278.

Solangi, Z.A., Al Shahrani, F. & Pandhiani, S.M., 2018. Factors affecting successful implementation of eLearning: study of colleges and institutes sector RCJ Saudi Arabia. *International Journal of Emerging Technologies in Learning (Online)*, 13(6), pp.223.

Song, L., Singleton, E.S., Hill, J.R. & Koh, M.H., 2004. Improving online learning: Student perceptions of useful and challenging characteristics. *The internet and higher education*, *7*(1), pp.59-70.

Song, H., Wu, J. & Zhi, T., 2020. Online teaching for elementary and secondary schools during COVID-19. *ECNU Review of Education*, *3*(4), pp.745-754.

Srichanyachon, N., 2014. The barriers and needs of online learners. *Turkish Online Journal of Distance Education,* 15(3), pp.50-59.

Starr, M.A., 2014. Qualitative and mixed-methods research in economics: surprising growth, promising future. *Journal of Economic Surveys*, *28*(2), pp.238-264.

Stinson, J., 2004. A continuing learning community for graduates of an MBA program: The experiment at Ohio University. *Learner-centered theory and practice in distance education: Cases from higher education*, pp.167-182.

Sultan, W.H., Woods, P.C. & Koo, A.C., 2011. A constructivist approach for digital learning: Malaysian schools case study. *Journal of Educational Technology & Society*, *14*(4), pp.149-163.

Sun, L., Tang, Y. & Zuo, W., 2020. Coronavirus pushes education online. *Nature materials*, *19*(6), pp.687-687.

Sun, P., Tsai, R.J., F.G., Chen, Y.Y. & Yeh, D., 2008. What drives successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers and Education*, 50(4), pp.1183-1202.

Syauqi, K., Munadi, S. & Triyono, M.B., 2020. Students' perceptions toward vocational education on online learning during the COVID-19 pandemic. *International Journal of Evaluation and Research in Education*, 9(4), pp.881-886.

Tamm, S., 2021. *All 10 types of e-learning explained*, E-Student. Org. [Online] Available at: https://e-student.org/types-of-e-learning [Accessed; 12 September 2023].

Tavallaei, M. & Abutalib, M., 2010. A general perspective on role of theory in qualitative research. *The Journal of International Social Research,* 3(11), pp.570-577.

Taylor, S.J. & Bogdan, R., 1998. *Introduction to qualitative research methods: a guidebook and resource*. New York: John Wiley and Sons.

Tema, N., 2021. *Fact sheet on age for students in PSET Institutions*. Pretoria: Department of Higher Education and training (DHET).

Teo, T.S., Kim, S.L. & Jiang, L., 2020. E-learning implementation in South Korea: integrating effectiveness and legitimacy perspectives. *Information Systems Frontiers*, 22(2), pp.511-528.

Terre Blanche, M., Durrheim, K. & Painter, D., 2006. *Research in practice: applied methods for the social sciences*. Cape Town: University of Cape Town Press.

Teymori, A.N. & Fardin, M.A., 2020. COVID-19 and educational challenges: a review of the benefits of online education. *Annals of Military and Health Sciences Research*, 18(3), pp.105778.

Thanh, N.C. & Thanh, T.T., 2015. The interconnection between interpretivist paradigm and qualitative methods in education. *American Journal of educational Science,* 1(2), pp.24-27.

Thomson, D.L., 2010. Beyond the classroom walls: teachers' and students' perspectives on how online learning can meet the needs of gifted students. *Journal of Advanced Academics*, 21(4), pp.662-712.

Thomas, P.Y., 2010. Towards developing a web-based blended learning environment at the University of Botswana. [Online] Available at: https://uir.unisa.ac.za/bitstream/handle/10500/4245/00Title%20page.pdf?sequence=1 [Accessed: 12 September 2023].

Thorpe, M. & Gordon, J., 2012. Online learning in the workplace: A hybrid model of participation in networked, professional learning. *Australasian Journal of Educational Technology*, 28(8). [Online] Available at: https://doi.org/10.14742/ajet.763. [Accessed: 12 September 2023].

Tratnik A., 2017. Student satisfaction with an online and a face-to-face Business English course in a higher education context. *Journal Innovations in Education and Teaching International,* 15(1) pp.1-10.

Tsai, M.T., Chin, C.W. & Chen, C.C., 2010. The effect of trust belief and salesperson's expertise on consumer's intention to purchase nutraceuticals: Applying the theory of reasoned action. *Social Behavior and Personality: an international journal*, 38(2), pp.273-287.

Uden, L., Wang, L.S., Hong, T.P., Yang, H.C. & Ting, I.H. eds., 2013. *The 3rd International Workshop on Intelligent Data Analysis and Management*. Dordrecht: Springer Science & Business Media.

van Schalkwyk, F., 2021. Reflections on the public university sector and the covid-19 pandemic in South Africa. *Studies in Higher Education*, 46(1), pp.44-58.

Watkins, R., 2005. Developing interactive e-learning activities. *Performance Improvement,* 44, pp.5-7.

Weeden, K. & Cornwell, B., 2020. The small-world network of college classes: Implications for epidemic spread on a university campus. *Sociological Science*, 7, pp. 222-241.

Welman, A.M., 2013. *The learning experience of third-year Baccalaureate Nursing students on High Fidelity Simulation*. Master's Dissertation in Nursing. Bloemfontein: University of Free State.

Welman, C., Kruger, F. & Mitchell, B., 2005. *Research methodology*. 3rd ed. Cape Town: Oxford.

Wheeldon, J., 2015. Ontology, epistemology, and irony: Richard Rorty and re-imagining pragmatic criminology. *Theoretical Criminology*, *19*(3), pp.396-415.

WHO., 2020. WHO director-general's opening remarks at the media briefing on COVID-19-11 March 2020. World Health. [Online] Available at: https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020. [Accessed: 14 September 2023].

Wilson, C.S., Kennan, M.A., Willard, P. & Boell, S.K., 2010. Fifty years of LIS education in Australia: academization of LIS educators in higher education institutions. *Library & Information Science Research,* 32(4), pp.246-257.

World Bank Group, 2018. *Overcoming poverty and inequality in South Africa: An assessment of drivers, constraints, and opportunities*. World Bank. [Online] Available at: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/530481521735906534/overcoming-poverty-and-inequality-in-south-africa-an-assessment-of-drivers-constraints-and-opportunities. [Accessed: 14 September 2023].

Xiang, Y., Li, W., Zhang, Q., Jin, Y., Rao, W., Zeng, L., Lok, G., Chow, I., Cheung, T. & Hall, B., 2020. Timely research papers about COVID-19 in China. *The Lancet*, 395(10225), pp.684-685.

Yan, Z., 2020. Unprecedented pandemic, unprecedented shift, and unprecedented opportunity. *Human Behavior and Emerging Technologies,* 2(2), pp.10.

Yates, A., Starkey, L., Egerton, B. & Flueggen, F., 2020. High school students' experience of online learning during Covid-19: the influence of technology and pedagogy. *Technology, Pedagogy and Education*, *30*(1), pp.59-73.

Yeom, Y., Miller, M.A. & Delp, R., 2018. Constructing a teaching philosophy: Aligning beliefs, theories, and practice. *Teaching and Learning in Nursing*, *13*(3), pp.131-134.

Yin, R.K. 2010. *Qualitative research from start to finish.* New York: The Guilford Press.

You, J.W. & Kang, M., 2014. The role of academic emotions in the relationship between perceived academic control and self-regulated learning in online learning. *Computers & Education*, 77, pp.125-133.

Zakariah, Z., Alias, N., Abd Aziz, M.N. & Ismail, N.Z., 2012. E-Learning awareness in a higher learning institution in Malaysia. *Procedia-Social and Behavioral Sciences*, *67*, pp.621-625.

Zamfiroiu, A. & Sbora, C., 2014. Statistical analysis of the behavior for mobile e-learning. *Procedia Economics and Finance*, 10, pp.237-243.

Zhu, Y., Zhang, J.H., Au, W. & Yates, G., 2020. University students' online learning attitudes and continuous intention to undertake online courses: A self-regulated learning perspective. *Educational Technology Research and Development*, 68(3), pp.1485-1519.

UNIVERSITY OF LIMPOPO
ETHICS COMMITTEE

PROJECT TITLE: TEACHING AND LEARNING FOR LIBRARY AND INFORMATION STUDIES DURING THE COVID-19 LOCKDOWN AT THE UNIVERSITY OF LIMPOPO, SOUTH AFRICA.

PROJECT LEADER: DR MA DIKOTLA

APPENDIX A: CONSENT FORM

I, hereby voluntarily consent to participate in the following project: (*it is compulsory for the researcher to complete this field before submission to the ethics committee*)

I realise that:

1.   The study deals with (e.g. effect of certain medication on the human body) (*it is compulsory for the researcher to complete this field before submission to the ethics committee*)

2.   The procedure or treatment envisaged may hold some risk for me that cannot be foreseen at this stage.

3.   The Ethics Committee has approved that individual may be approached to participate in the study.

4.   The experimental protocol, i.e., the extent, aims and methods of the research, has been explained to me.5. The protocol sets out the risks that can be reasonably expected as well as possible discomfort for persons participating in the research, an explanation of the anticipated advantages for myself or others that are reasonably expected from the research and alternative procedures that may be to

my advantage.

6. I will be informed of any new information that may become available during the research that may influence my willingness to continue my participation.

7. Access to the records that pertain to my participation in the study will be restricted to persons directly involved in the research.

8. Any questions that I may have regarding the research, or related matters, will be answered by the researchers.

9. If I have any questions about, or problems regarding the study, or experience any undesirable effects, I may contact a member of the research team.

10. Participation in this research is voluntary and I can withdraw my participation at any stage.

11. If any medical problem is identified at any stage during the research, or when I am vetted for participation, such condition will be discussed with me in confidence by a qualified person and/or I will be referred to my doctor.

12. I indemnify the University of Limpopo and all persons involved with the above project from any liability that may arise from my participation in the above project or that may be related to it, for whatever reasons, including negligence on the part of the mentioned persons.

SIGNATURE OF RESEARCHED PERSON   SIGNATURE OF WITNESS

…………………………………………..   …………………………………………

Signed at…………………………. this……. day of …………………2022

The purpose of this questionnaire is to collect data about Teaching and learning for Library and Information Studies during covid-19 era on forth level students in Information studies at the University of Limpopo. Please take about 10 minute to complete the questionnaire. We would like to evaluate and assess the impact of LIS online teaching and learning offered by University of Limpopo on LIS students. Therefore, by completing this questionnaire, you will assist us in improving our programme. Please be sincere and honest in your responses and please answer all questions.

TITLE: TEACHING AND LEARNING FOR LIBRARY AND INFORMATION STUDIES DURING COVID-19 LOCKDOWN AT THE UNIVERSITY OF LIMPOPO, SOUTH AFRICA.

QUESTIONNAIRE COMPLETION GUIDELINES kindly answer all questions.

The questionnaire will take approximately 10 minutes to complete.

Please indicate your choice with a cross **X** next to the relevant answer.

Part A: Demographic information of the student.

1. Gender

  ☐Male ☐Female

2. Age

  ☐18-23   ☐24-29   ☐30-35   ☐36 and above

Part B: Perception of students towards online teaching and learning

3. Use the scale below to rate the level of agreement or disagreement on the following statements about Perceptions of students towards online teaching and learning. **(Please select an applicable answer)**

KEY: 1. Disagree 2. Strongly Disagree 3. Neutral 4. Agree 5. Strongly agree.

Statement	1	2	3	4	5
1. My lecturer is more of a facilitator because students learn on their own					
2. My previous experience of not using ICT tools affect my ability to learn online					
3. I like online teaching and learning more than to face to face					
4. I like teaching method used for online teaching and learning					
5. My academic performance has dropped since we moved to online learning					

4. Which of the following words would you use to describe online teaching and learning **(Please select an applicable answer below)**

☐ Reliable   ☐High quality   ☐Useful ☐Impractical   ☐Ineffective   ☐Poor quality ☐Unreliable

5. Rate your level of satisfaction, or dissatisfaction with online teaching and learning at UL. **(Please select an applicable answer below)**

☐Very satisfied ☐Somewhat satisfied ☐Neither satisfied nor dissatisfied ☐Somewhat dissatisfied ☐Very dissatisfied

Part C: Students' skills on ICT infrastructure during Online Teaching and Learning.

6. Which ICT tools do you use for online learning? **(Please select applicable answer(s) below as they apply)**

☐Cell Phone ☐Personal Computer ☐Tablet ☐Desktop

7. Rate your level of satisfaction or dissatisfaction about UL's ICT infrastructure for Online Learning **(Please select an applicable answer below).**

☐Very satisfied ☐Somewhat satisfied ☐Neither satisfied nor dissatisfied ☐Somewhat dissatisfied ☐Very dissatisfied

8. Rate your level of satisfaction or dissatisfaction about Blackboard as an online learning platform **(Please select an applicable answer below).**

☐Very satisfied ☐Somewhat satisfied ☐Neither satisfied nor dissatisfied ☐Somewhat dissatisfied ☐Very dissatisfied

9. Rate your computer literacy skills **(Please select an applicable answer below).**

☐Poor ☐Fair ☐Good ☐Very Good ☐Excellent

Part D: Benefits gained by students during online teaching and learning.

4. Use the scale below to rate the level of agreement or disagreement on the following statements about benefits of online teaching and learning. **(Please select an applicable answer).**

KEY: 1. Disagree 2. Strongly Disagree 3. Neutral 4. Agree 5. Strongly agree.

Statement	1	2	3	4	5
1. Online learning gives me an opportunity to interact with other students					
2. I can work with the pace that suit my ability					
3. Online learning saves me time and costs of going to class physically					
4. Online teaching and learning is user friendly					
5. Online teaching and learning improves access to learning					

5. How would you rate the quality of online teaching and learning? **(Please select an applicable answer below)**

☐Very high quality ☐High quality ☐Neither high nor low quality

☐Low quality ☐Very low quality

Part E: Challenges faced by students during online teaching and learning.

6. Which challenge (s) do you encounter most during online teaching and learning? **(Please select as many answers as may apply)**

Challenges	Answer
1. Issues of installation of software used for online teaching and learning	
2. Login problems to online platform (Blackboard)	

3. Problems with audio and video during online teaching and learning classes	
4. Disruptions of online classes due to load shedding	
5. I experience cyberbullying from other online users	
6. I do not have sufficient data to connect to online sessions	
7. I do not have necessary ICT tools for online learning	
8. I do not have required skills and ability to learn online	
9. I cannot navigate through online learning platforms (Blackboard)	

7. How would you rate your lecturers' responsiveness towards your queries about online tasks and assessments? **(Please select an applicable answer below)**

☐Poor ☐Fair ☐Good ☐Very Good ☐Excellent

Part G: The role of management in support of online teaching and learning.

8. Use the scale below to rate the level of agreement or disagreement on the following statements about the role of university management in support of online teaching and learning. **(Please select an applicable answer).**

KEY: 1. Poor 2. Fair 3. Good 4. Very Good 5. Excellent

Statement	1	2	3	4	5
1. Management allocation data on time					

2. Management distribute ICT tools like laptops to all students on time				
3. Management create conducive learning environment for all students				
4. Management trained students to use online learning platform (Blackboard)				
5. Management ensures the quality of online classes, tasks, assessments, and exams				

15. What do you think management can do to improve online teaching and learning at UL?

……………………………………………………………………………………………………
……………………………………………………………………………………………………
……………………………………………………………………………………

Thank you for your participation.

UNIVERSITY OF LIMPOPO

Faculty of Humanities
School of Languages and Communication Studies
Private Bag X1112, Sovenga, 0727, South Africa
Tel: (015) 268 4194, Fax: (015) 268 2868, Email: Maoka.Dikotla@ul.ac.za

----

APPENDIX C: REQUEST LETTER FROM THE STUDENT'S SUPERVISOR

Head of Department
University of Limpopo Department of Media, Communication, and Information studies
Private Bag X1112
Sovenga
0727
Dear Sir,

REQUEST FOR SEEMA TUMELO JACOB, STUDENT NO: 201414692 TO CONDUCT RESEARCH AT THE UNIVERSITY OF LIMPOPO DEPARTMENT OF MEDIA, COMMUNICATION, AND INFORMATION STUDIES.

This letter serves to formally introduce and confirm that SEEMA TUMELO JACOB, STUDENT NO: 201414692 is a master's student in the Programme of Information Studies at the University of Limpopo. The student has proposed to conduct research on "Teaching and Learning for Library and Information Studies during Covid-19 lockdown at UL, South Africa".

The student would like to collect data for the research project by way of distributing questionnaires to 4th level students in Information studies at the University of Limpopo.

You are therefore requested to permit the said student to distribute questionnaires to students who will be sampled.

For more clarity on this request, please call me on 015 268 4198. My email address is Maoka.Dikotla@ul.ac.za

Thank you for your kind assistance.

Yours sincerely,

…………………………………   …………………………..

Prof. MA Dikotla- Supervisor   DATE

UNIVERSITY OF LIMPOPO

Faculty of Humanities
School of Languages and Communication Studies
Private Bag X1112, Sovenga, 0727, South Africa
APPENDIX D: STUDENT RESEARCHER'S LETTER OF PERMISSION TO

UNIVERSITY OF LIMPOPO RESEARCH ETHICS COMMITTEE

To: Research Ethics Committee

University of Limpopo

Turfloop Campus

0727

My name is SEEMA TUMELO JACOB, student number 201414692, I am registered at the University of Limpopo for Master of information studies Programme in the Department of Media, Communication, and Information studies. My research topic is to investigate **"Teaching and Learning for Library and Information Studies during Covid-19 lockdown at the University of Limpopo, South Africa".** I, therefore, request and seek your consent and permission to have 4th level students in the Faculty of Humanities, under programme of Information studies as my participants.

This research project will be conducted under the supervision of Dr MA Dikotla who is the senior lecturer in the Programme of Information Studies in Faculty of Humanities, Department of Media, Communications, and Information Studies, University of Limpopo, South Africa.

I am looking forward to a positive response so that I can commence the distribution of questionnaires of my research work.

Yours sincerely,

…………………………………… ………………………………...

SEEMA TJ DATE

Student Number: 201414692

APPENDIX E: CONSENT LETTER

Project Title: TEACHING AND LEARNING FOR LIBRARY AND INFORMATION STUDIES DURING COVID-19 LOCKDOWN AT THE UNIVERSITY OF LIMPOPO, SOUTH AFRICA.

Identification of the Researcher and Purpose of the Study

You are being asked to participate in a research study conducted by SEEMA TJ of student number 201414692. The purpose of this study is to investigate challenges and prospects posed by Online teaching and learning in LIS Schools at the University of Limpopo. This study will contribute to the researcher's completion of his master's dissertation.

Research Procedures

This study consists of a survey that will be distributed to individual participants at the University of Limpopo. You will be asked to choose answers to a series of questions related to the proposed study.

Time Required

Participation in the study will require 5 to 10 minutes of your time.

Absence of Risk

The researcher does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

Confidentiality

The results of this research will be presented at the School of Languages and Communications Studies under the Faculty of Humanities. While individual responses are obtained anonymously and are kept strictly confidential, aggregate data will be presented representing averages or generalisations about the responses. No identifiable information will be collected from the participants, and no identifiable responses will be presented in

the final form of this study. All data will be stored in a secure location accessible only by the researcher. At the end of the study, all records will be destroyed.

Participation and Withdrawal

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind. However, once your responses have been submitted and anonymously recorded, you will not be able to withdraw from the study.

Questions about the Study

If you have questions or concerns during the time of your participation in this study, or after its completion, or if you would like to receive a copy of the final aggregate results of this study, please contact:

Researcher's Name: SEEMA TJ

Department: Department of Media, Communication, and Information studies

Email Address: 201414692@Keyaka.ul.ac.za

Cell phone: 072 116 9263/ 067 017 6042

University of Limpopo

Supervisor: PROF MA DIKOTLA

Department: Department of Media, Communication, and Information studies

Email Address: Maoka.Dikotla@ul.ac.za

Cell phone: (015) 268 4194

University of Limpopo
Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 3935, Fax: (015) 268 2306, Email: anastasia.ngobe@ul.ac.za

---

TURFLOOP RESEARCH ETHICS COMMITTEE
ETHICS CLEARANCE CERTIFICATE

MEETING: **26 July 2022**

PROJECT NUMBER: **TREC/296/2022: PG**

PROJECT:

Title:	Online teaching and learning of Library and Information Studies during COVID-19 lockdown at the University of Limpopo, South Africa.
Researcher:	TJ Seema
Supervisor:	Prof MA Dikotla
Co-Supervisor/s:	N/A
School:	Languages and Communication Studies
Degree:	Master of Information Studies

PROF D MAPOSA
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: **REC-0310111-031**

Note:
i) **This Ethics Clearance Certificate will be valid for one (1) year, as from the abovementioned date. Application for annual renewal (or annual review) need to be received by TREC one month before lapse of this period.**
ii) **Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee, together with the Application for Amendment form.**
iii) **PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.**

Finding solutions for Africa

University of Limpopo
Office of the Registrar
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 2407, Fax: (015) 268 3048, Email: Kwena.Masha@ul.ac.za/Retha.Balie@ul.ac.za

04 August 2022

Mr. TJ Seema

Email: 201414692@keyaka.ul.ac.za

Dear Mr. Seema,

GATEKEEPER PERMISSION TO CONDUCT RESEARCH

TITLE: **ONLINE TEACHING AND LEARNING OF LIBRARY AND INFORMATION STUDIES DURING COVID-19 LOCKDOWN AT THE UNIVERSITY OF LIMPOPO, SOUTH AFRICA**

RESEARCHER:	**TJ Seema**
SUPERVISOR:	**Prof. MA Dikotla**
CO-SUPERVISOR/S:	**N/A**
SCHOOL:	**Language and Communication Studies**
DEGREE:	**Master of Information Studies**

Kindly be informed that Gatekeeper permission is granted to you to conduct research at the University of Limpopo entitled: **"Online Teaching and Learning of Library and Information Studies during COVID-19 lockdown at the University of Limpopo".**

Kind regards,

PROF. JK MASHA
UNIVERSITY REGISTRAR

Cc.   Prof. RJ Singh: Deputy Vice-Chancellor; Research, Innovation and Partnerships
         Prof. RN Madadzhe: Deputy Vice-Chancellor: Teaching and Learning
         Dr. T Mabila, Director: Research Development and Administration
         Prof. D Maposa – Chairperson: Research and Ethics Committee
         Ms M Hutamo – Assistant: Ethics Secretarist
         Ms A Ngobe – TREC Secretariat

Finding solutions for Africa