Students' perspective on a Blackboard Collaborate virtual learning experience in a higher education rural campus

by

DINKENG NICOLETTE MOTAUNG, 2010066401

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Supervisor: Prof T Jita

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Declaration

I, Dinkeng Nicolette Motaung, declare that the thesis, **Students' perspective on a Blackboard Collaborate Virtual learning experience in a rural campus**, submitted for the qualification of MEd in Education at the University of the Free State is my own independent work.

All the references that I have used have been indicated and acknowledged by means of complete references.

I further declare that this work has not previously been submitted by me at another university or faculty for the purpose of obtaining a qualification.

10 March 2024

SIGNED DATE

Abstract

Recently, technology has holistically been accepted as an element that plays a major role in the function of a normal daily life globally, in particular within the higher education sector. The outbreak of Corona virus required students to utilise technology to learn in their various programs. Remote learning was instigated on this rural higher education campus through the integration of Blackboard Collaborate as one of the tools embedded within Blackboard. This study aims to explore students' perspectives of a Blackboard Collaborate Virtual Learning Experiences in a higher education rural campus in the Eastern Free State province, South Africa. The incorporated theoretical framework to explore students' perspectives on the use of Blackboard Collaborate as a mode of content delivery is the Technology Acceptance Model (TAM). TAM has been identified as one of the most globally used models to describe the users' acceptance and use of technology with its factors named perceived usefulness (PU) and perceived ease of use (PEOU) of technology. These factors assist in analysing students' intention and motivation in using Blackboard Collaborate to learn.

A qualitative research approach was designed with non-probability purposive sample selection of 8 students, two from each of the four faculties at the campus understudy. Participants were interviewed regarding their perspectives of learning virtually through Blackboard Collaborate. Furthermore, students from a compulsory first year module were also observed to see how they engage with various functions on this platform. The thematic analysis approach on ATLAS.ti 22 was used to analyse data and develop themes to create a generalized data regarding the students' perspectives on the integration of Blackboard Collaborate Virtual learning in teaching and learning. The result from the interviews provides a logical qualitative database indicating that the majority of students on this rural campus mainly faced technical and financial issues during the virtual learning period. The results discovered during the observation concluded that the majority of students did not use the Blackboard Collaborate at the exposal for effective virtual learning. The challenges faced hindered them to learn to their fullest potential on this platform. This campus was also a cornerstone to its students as institutional support was highlighted during that disruptive time. Furthermore, it is also noted that students and facilitators need continuous training on

how to effectively utilise the functions of the system and also how to fully engage students online. In addition, it is highly recommended for the institution to ensure that any apps provided to students is tested beforehand and that students must be supported financial so that they spend more time on learning than dealing with basic socio-economic challenges.

Keywords: *Blackboard Collaborate, Higher Education, Rural Campus, Students' Perspectives, Technology Acceptance Model, Virtual Learning.*

Dedication

I would like to give credit for the accomplishment of this Masters thesis to my parents, Tlhoriso Paul Motaung and Dimakatso Jermina Motaung who were very supportive and always encouraged me to further my studies regardless of the challenges faced. Furthermore, I dedicate the completion of this dissertation to my lovely daughter, Boitshepo Motaung, who was very supportive and stayed besides me at night during long working hours. I also dedicate this dissertation to my niece and nephew who were also supportive during the hard work, Atlehang Motaung and Nic Motaung. Last but not least, I dedicate the accomplishment of this Masters dissertation to my son who was born during the hard work, Retshepile Motaung. I thank everyone for the love and support, much appreciated.

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List of Acronyms

BB	Blackboard
CTL	Centre for Teaching and Learning
DHET	Department of Higher Education and Training
EDU	Education
EMS	Economic and Management Sciences
ERT	Emergency Remote Teaching
ICT	Information and Communication Technologies
IT	Information Technology
ITP	Integrated Transformation Plan
HEIs	Higher Education Institutions
HUM	Humanities
LMS	Learning Management Systems
NAS	Natural and Agricultural Sciences
TAM TRA	Technology Acceptance Model Theory of Reasoned Action
TPB	Theory of Planned Behavior
UTAUT	Theory of Acceptance and use of Technology
UFS	University of the Free State

Chapter 1: Introduction and Background

1.1 Introduction

Technology has been holistically accepted as an element that plays a major role in the function of a normal daily life. Education is no exception as technology has been significantly integrated into teaching and learning within the higher education sector, both globally and locally. Therefore, students are required to utilise technology to effectively learn in their various programs. This has been achieved through the incorporation of learning management systems (LMS) (Watson and Watson, 2012; Goh, Hong & Gunawan, 2013; Eraslan & Kutlu, 2019; Tseng, 2020; & Bradley, 2021), in teaching and learning, such as Blackboard, Moodle, etc. Many higher education institutions (HEIs) globally have adapted the Blackboard platform to deliver content and communicate with students (Rafiq, Hussain, & Abbas, 2020). Blackboard is regarded as one of the leading online LMS and it is mostly used by several institutions (Watson & Watson, 2012; Jung & Huh, 2019). It has been designated as the most suitable platform for students due to its advanced incorporated technology that integrates other functions, such as Blackboard Collaborate, Wikis, and Journals (Watson & Watson, 2012; Dias & Dinis, 2014; Ghasim & Arshad, 2023).

According to Pusuluri, Mahasneh and Alsayer (2017: 107), Blackboard Collaborate is a web-conferencing programme projected to execute various tasks by different users. Moreover, Alelaiwi and Hossain (2015: 25) and Mathew, Sreehari and Al-Rubaat, (2019: 100) state that the Blackboard Collaborate software program has been identified as modern technology. They further allude that it is widely used by a vast number of HEIs worldwide as an e-learning tool and/or as a supplementary tool for traditional teaching and learning. Blackboard Collaborate is one example of the LMS with functions integrated into Blackboard that permit both lecturers and students to participate in real-time sessions in a virtual classroom (Aljabre, 2012). Moreover, it offers various ways to enhance online synchronous interaction (Moser & Smith, 2015). Blackboard Collaborate enables students to learn effectively as individuals and as a group because of its numerous technologically advanced functions (Watson & Watson, 2012; Dias & Dinis, 2014; Alzahrani & Aljraiwi, 2017). For instance,

Blackboard Collaborate provides functions such as breakout groups, polls, chat box, discussion boards, sharing of content, sharing of a whiteboard, and sharing of videos (Tawalbeh, 2018; Julian et al., 2019; & Motlhaka, 2020). In this regard, students can learn remotely, virtually, while still interacting with their lecturers and peers, as they would in a face-to-face platform.

A lecturer with positive attitude towards technological learning tools maintains a good quality of learning and keeps students motivated to learn (Al-Fraihat et al., 2020). However, research results from (Al-Fraihat et al., 2020) has proven that both lecturers and students are not well equipped with knowing how to maneuver the Blackboard Collaborate system and lack knowledge in using its advanced functions. Despite proven results that lecturers and students encounter complications in using the system due to limited technical skills and knowledge of the platform itself, Blackboard Collaborate has been verified to be an effective LMS in higher education (El Zawaidy, 2014). This platform has been verified to be effective because it is deemed as user-friendly (Lin, Persada & Nadlifatin, 2014; Sagnier, Loup-Escande, Lourdeaux, Thouvenin, & Valléry, 2020). This study argues that although a specific technology can be presented to students with sophisticated functions to make learning easy, it must first be accepted by the overall end users (Davis, 1989; Zanjani, Edwards, Nykvist, & Geva 2016; Sezer, 2019, Davis, Granić & Marangunić, 2024). Hence, the acceptance stage lessens its difficulty and complexity. Moreover, students are more likely to feel comfortable knowing that the learning environment is conducive, and the functions are easy to use. A shift from face-to-face interaction to the online platform where students must communicate by pressing various functions to raise hands, switch on a mic, type in the chat box and any other related functions on Blackboard Collaborate might be complex. The shift requires prior technological knowledge and training on the basic technical skills. This ultimately enables students to relate with the newly introduced technology to utilise it efficiently for accurate results.

Although studying through Blackboard Collaborate Virtual learning can bear fruitful results (Du Plessis, 2014; Ghasim, & Arshad, 2023), the current study argues that it is essential to investigate students' perspectives and experiences pertaining the use of this LMS as a learning platform. For the context of this study, students gave their perspectives of learning virtually on Blackboard Collaborate in a form of their individual

experiences with the platform. This is important because the experience with rural-based students is that the majority of them come from secondary schools where basic computer literacy subjects do not form part of the syllabus (Ndung'u & Signe, 2020). More-so, some of them may not have used a computer before in their lives. Although the results of the study conducted in Australia revealed that students were satisfied with learning on Blackboard Collaborate (Al-Rahmi, Othman, & Yusuf, 2015) due to being computer literate, they also questioned the expediency of this platform. They were mostly concerned with the system's inability to get some of its functions such as microphones to work effectively (Chen, Dobinson & Kent, 2020). Therefore, university students from deprived or disadvantaged rural and township background may find it very difficult to use Blackboard Collaborate as a learning platform.

1.2 Background of the study

In recent years, many HEIs use LMS specifically designed to facilitate online teaching and learning (Lazar, Panisoara & Panisoara, 2020). Numerous HEIs adapted to the use of Blackboard Collaborate to deliver lectures to students. The integration of this LMS in numerous HEIs has enabled it to be utilised as a learning tool in various disciplines (AlKhunzain & Khan, 2021: 5). Blackboard Collaborate is offered as an "all-in-one" software package that provides students the opportunity to communicate with peers via discussion forums, real-time chats, and assessments in a unified atmosphere (Lansari, Tubaishat & Al-Rawi, 2010). Numerous features found on this software enable the end-user to use this tool effectively on various devices such as laptops, smartphones, etc. Students can learn effectively and be involved with lecturers and peers outside of the conventional classroom. Through this study, the researcher intends to explore the perspectives of students from a rural HEI in a form of how they experienced studying through the Blackboard Collaborate Virtual learning tool.

The study is conducted in one of the HEIs in South Africa. South Africa is classified as a developing country. The report by the World Bank, (2018) states that 33% of the South African population is categorized as rural. The observation by the Parliamentary Monitoring Group (2015) also supports the argument from the World Bank, (2018) by asserting that rural education forms a vast share of South Africa's history. The rural

areas which form part of the Southern African country lack social and economic durability required for the sustainability of technological improvements (Cristobal-Fransi, Montegut-Salla, Ferrer-Rosell & Daries, 2020). Government of this country finds it more challenging to contribute to quality education services in rural areas. There are also a lot of factors that hamper the quality of teaching and learning in the rural areas of this country (Du Plessis & Mestry, 2019; Dube, 2020). These scholars also suggest that strategies must be incorporated to advance the infrastructure to enhance teaching and learning in rural HEIs. Although South Africa gained independence in 1994, many of its residents still reside in rural areas (Dube, 2020). Hence, it is essential to investigate students' perspectives when Blackboard Collaborate was the only mode of teaching and learning with the unique background of this developing country, with lack of infrastructure and resources in the education sector.

Before the Corona virus outbreak, many HEIs in developing countries used Blackboard mainly for online assignment submissions for students in courses in which they are enrolled in (Alelaiwi & Hossain, 2015: 25, Motlhaka, 2020) and to check plagiarism percentages in students' assignments. However, the pandemic obligated rural HEIs to hasten the use of LMS by implementing a sustainable computer-generated Blackboard platform for teaching and learning (Sousa & Rocha, 2019; Xie & Siau, 2020). Mahyoob, (2020) further states that the Corona virus eruption forced HEIs to fully implement the LMS as there was no other option to save the academic year due to the national lockdown which did not allow face-to-face interactions. Therefore, Blackboard Collaborate Virtual learning has been identified as the easiest mode which promotes interaction between lecturers and students (AlKhunzain & Khan, 2021: 5).

Blackboard Collaborate was selected as the most suitable platform amid the pandemic that broke out caused by the Corona virus. The use of this platform was studied at the campus which was the research site of this study. This university has three campuses. One of the campuses is in a rural community. The rural campus is the research site for this study. This institution plays a major role in bringing higher education to the underprivileged rural community. This campus enrolls approximately 7000+ students per year within four faculties, namely: the Humanities (HUM), Education (EDU),

Economic and Management Sciences (EMS), and Natural and Agricultural Sciences (NAS). It enrolls both undergraduate and postgraduate students in the three faculties besides EMS, where postgraduate studies are not offered. Among all three campuses, the rural campus is faced with unique challenges that impact students' learning experiences due to its different contexts (Dlamini, 2018; Loots, 2020: 46).

In the year 2020 March, the spread of the Corona virus led this campus like all other universities locally and internationally to implement online teaching and learning through the integration of Blackboard Collaborate Virtual learning. Blackboard Collaborate as a mode of content delivery was introduced as an initial learning platform to students and lecturers during the emergency remote learning (Mathew, et al., 2019: 103; Motlhaka, 2020). Both parties had to utilise technological devices to enable connection on a shared platform during remote learning (Mathew et al., 2019: 103). This was overwhelming to everyone because it brought pressure and a lot of discrepancies (Freeman, Stein, Bantjes & Mashego, 2020). The use of Blackboard was not entirely new to both lecturers and students. However, Blackboard Collaborate integration had recently been implemented and therefore, it was essential to get higher education students' perspectives on their experience of learning on Blackboard Collaborate described as a new technology-based learning innovation tool (Mathew et al., 2019: 103).

Chaamwe and Shumba (2016); Mairing, Sidabutar, Lada, and Aritonang, (2021) state that the integration of technology in HEIs should be steadily incorporated because of the interest of several groups like students, lecturers, technicians, and policymakers among others involved. However, since HEIs in developing countries are lagging regarding gaining from the vast opportunities of Information and Communication Technologies (ICTs) (Ndung'u & Signe, 2020), this should be done with careful consideration. This can be secured by ensuring that the support services provided such as (Blackboard helpdesk and ICT services) and the methods of instruction do not leave any students behind. This can be done by giving them the platform to state their views on the integration of Blackboard Collaborate Virtual learning in their studies. Although various studies have been conducted on technology integration in teaching and learning (Eltahir 2019; Evans, Yip, Chan, Armatas, & Tse, 2020; Motlhaka, 2020) alluded that very few studies focused on the incorporation of the Blackboard

Collaborate as a platform to deliver content and its implementation at HEIs in rural-based contexts (Patel, Kadyamatimba & Madzvamuse, 2018: 321). Therefore, this study investigated the perceptions of students on learning through Blackboard Collaborate Virtual learning. The focus was on a rural campus because there was no time for a steady incorporation of Blackboard Collaborate due to the commencement of the pandemic. The pandemic happened so quickly that both staff and students were only given a few weeks to be ready to use this platform (Amiti, 2020, Di Pietro, Biagi, Costa, Karpiński & Mazza, 2020). Therefore, this could have caused a lot of strain on students with limited knowledge and experience in using a computer-based learning platform.

1.3 Problem statement

The problem statement of the study focuses on the challenges students faced when the Corona virus unexpectedly hit the world. Teaching and learning was solely shifted to the online platform. The campus understudy shifted the mode of teaching and learning to Blackboard Collaborate Virtual learning (Tseng, 2020; & Bradley, 2021). The problem statement that led the study was the potential challenges students could have faced when shifting from the face-to-face to the virtual learning. To mitigate any challenges students could have faced with the virtual learning the study was conducted to get an indication of students' perspectives on studying solely through Blackboard Collaborate Virtual Learning. This also factored the possibility of rural campus students lacking technological skills, not being familiar with the Blackboard Collaborate functions and not being well equipped with knowing how to maneuver the system (Freeman et al., 2020).

Teaching and learning with the integration of Blackboard Collaborate Virtual learning has been identified as a fast-growing segment in education globally (Barbour, 2014; Cruz et al., 2015; Pratama & Scarlatos, 2020). Blackboard Collaborate has various functions incorporated such as the raise hand function, the electronic mic, sharing of the content, electronic whiteboard and also being able to monitor how many students participates in class (Watson & Watson, 2012; Dias & Dinis, 2014; Ghasim & Arshad, 2023). These various functions play a major role as they create an opportunity for students to partake in the virtual class and to also engage effectively with one another

in groups. Furthermore, these functions give students a similar experience of learning on the face-to-face platform. It enables students to raise an electronic hand when they want to contribute and also provides them the opportunity to work with one another in breakout classes (Motlhaka, 2020). A study by Amiti, (2020); Mairing, Sidabutar, Lada, and Aritonang, (2021) also revealed that students also receive instant feedback during the live synchronous classes.

Although this platform has various functions embedded to make virtual teaching and learning easier, the measure of mapping the interaction of students and lecturers on this platform, as well as the quality produced, remain understudied. The onset of Corona virus revealed the discrepancies that came about with online learning on Blackboard Collaborate Virtual learning (Freeman, et al.,2020). The main issue was the transferring of teaching and learning solely to Blackboard Collaborate. Furthermore, learning on this platform came with a lot of challenges for students as they did not know how to utilise its functions effectively. Therefore, there was a need to explore students' perspectives in a form of experiences of learning virtually on Blackboard Collaborate at a rural-based campus with inadequate resources and underdeveloped infrastructure (Dube, 2020). The intent is to also gain insight into broader issues concerning the acceptance of technology by students, as well as their acceptance of the technological teaching and learning platforms.

HEIs shifted to Blackboard Collaborate to guarantee that teaching and learning continued when emergency remote teaching was implemented due to the Corona virus outburst (Di Pietro et al., 2020). HEIs need information on students' perspectives pertaining their learning experiences on Blackboard Collaborate Virtual learning. The feedback received would assist in the decision-making regarding the effectiveness of the technology integrated to deliver teaching and learning. The onset of the Corona virus gave an indication that HEIs must always have a contingency plan on how to deliver teaching and learning should the world face another unexpected pandemic or any other disaster. This study is relevant as guidance to other rural HEIs on how to incorporate Blackboard Collaborate Virtual learning within the curriculum design and for effective online learning. It is important to conduct this type of study to ensure that the student voice is taken into consideration to create a conducive virtual learning environment for them. It would assist with the student support unit (Blackboard office)

at this institution to be informed of the type of training needed by students for effective virtual learning. This study therefore provides insights on students' perspectives pertaining the usefulness and challenges encountered in integrating Blackboard Collaborate Virtual learning to deliver teaching and learning during the emergency remote learning period.

1.4 Research Questions

Primary research question:

- What are rural higher education campus students' perspectives of Blackboard Collaborate as a learning tool?

Secondary research questions:

- How do students in a rural higher education campus experience virtual learning through Blackboard Collaborate?
- How can students' learning experiences on Blackboard Collaborate in a higher education rural campus be understood and explained?

1.5 Research Aim and Objectives

This study aims at investigating rural higher education campus students' perspectives of learning through Blackboard Collaborate Virtual learning. Students' reflections, experiences, and responses outline their attitudes and satisfaction level toward the adoption of virtual classes and its functions through Blackboard Collaborate.

Objectives of the study:

- To explore rural higher education campus students' perceptions of Blackboard Collaborate as a learning tool.
- To examine students' experience in learning through Blackboard Collaborate in a rural higher education campus.
- To determine students' understanding and explain their learning experiences with Blackboard Collaborate in a higher education rural campus.

1.6 Theoretical Framework

This study adopts the technology acceptance model (TAM) as the theoretical framework developed by Davis (1989).

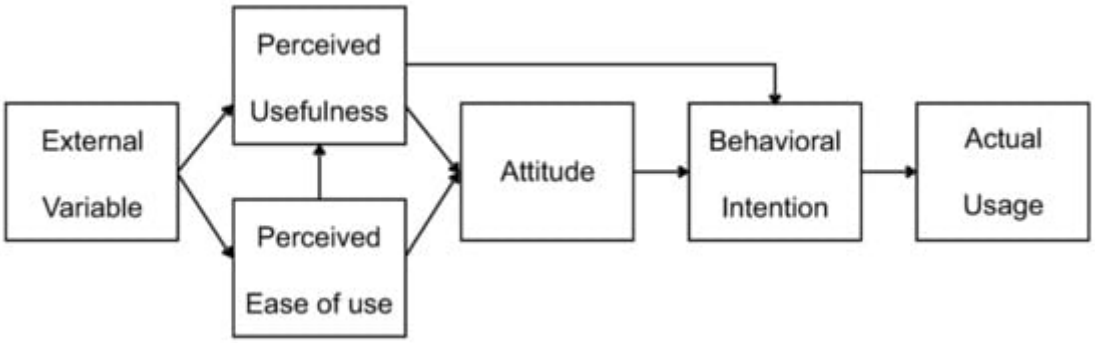

Figure 1.1: Technology Acceptance Model (adapted from Davis, 1989: 985)

1.6.1 Technology Acceptance Model

This study adopted the TAM as the theoretical framework adapted from the original acceptance model (Davis, 1989; Alfadda & Mahdi, 2021; Davis, Granić & Marangunić, 2024). TAM originated from explaining the perceived usefulness (PU) and perceived ease of use (PEOU) that determines the attitude towards the actual use of technology and behavioral intention thereof (Fishbein & Ajzen, 1975; Davis, 1989; Davis, Granić & Marangunić, 2024). This model predicts the prospect of an individual or organization accepting new technology (Alfadda & Mahdi, 2021: 886), where two specific variables are theorized to be fundamental determinants of this model (PU and PEOU). The study utilised TAM to gain insights from students' reactions and behavior on Blackboard Collaborate as the technology adopted to deliver teaching and learning.

This theoretical framework was used to explore various perspectives of students on learning through Blackboard Collaborate within the context of a rural campus. Moreover, this model clarified how an individual's performance is determined by their intended behavior to perform a particular task (Alfadda & Mahdi, 2021: 886).

The current study explored students' perspectives on the PU and PEOU of this platform. It focused on how students experienced this mode of delivery for approximately two years. This theoretical approach is mostly applicable for this study as the overall literature on virtual education. It concedes that effective online learning requires students to be equipped with unique technical skills. Most importantly, they

must accept the technology introduced to them. A qualitative approach is adopted to explore the findings that answer the research questions of the study.

1.7 Summary of the Methodology

The research paradigm of this study is interpretivism. This is based on variables that relate to a specific context that studies individuals as completely different from physical phenomena, (Kelly, Dowling & Millar, 2018). This is due to an in-depth meaning they create during times that lead to the development of different social realities and differences in culture, as circumstances are considered by this approach (Fouché, 2021). This paradigm is applicable in determining different ways students experienced teaching and learning through Blackboard Collaborate Virtual learning to make informed conclusion on students' perspectives of this tool. This paradigm enabled the researcher to gain insights into students' technical skills. This is revealed through the realities that are discovered regarding the PU and PEOU of the integrated technology in learning. Furthermore, the purpose of incorporating this paradigm was to reveal students' perspectives (Alharahsheh & Pius, 2020), considering the unique context of a rural campus.

This study employed the qualitative research approach. Qualitative research is an approach that does not depend on numbers and statistics (Leedy & Ormrod, 2021). Berg and Howard, (2012); Johnson and Christensen, (2020) characterise qualitative research as meanings, perceptions, descriptions, metaphors, and symbols that define things. Qualitative data instruments like observation, open-ended questions, detailed interviews, and notes were utilised for data collection from participants in their normal settings. This research approach presents rich data pertaining real-life people and situations (Eyisi, 2016; Johnson & Christensen, 2020). Through this study, the qualitative research aimed to address the above-stated research questions. This process was accomplished by developing an understanding of how students experienced Blackboard Collaborate as a mode of content delivery from their perspective, as well as the PU and PEOU of this platform. A qualitative approach was more applicable for this study because data was collected in a manner of

understanding students' perspectives, thoughts, and behavior of how they experienced learning through the online platform.

A case study research design was selected as the most appropriate mode of inquiry to study students' perceptions (Leedy & Ormrod, 2021). This research design captured and summarises a range of students' perspectives and measured their attitudes and opinions towards the use of Blackboard Collaborate in teaching and learning. Different theoretical tributaries that have mostly been derived from social sciences (Fouché, 2021), emphasise that the observer studying the case contributes to the case study approach.

Sampling is usually employed in research by selecting a small number of representative items or individuals from the participants (Leedy & Ormrod, 2021). Representatives were selected as the source of data to assist in finding an accurate conclusion to the subject being researched (Sharma, 2017: 749; Fouché, 2021). Non-probability sampling was used by employing purposive sampling for this study. Purposive/judgmental sampling is where the sample is chosen for a particular purpose (Creswell, 2012). This would be participants with an experience or background knowledge of a particular aspect being researched (Creswell, 2014; Leedy & Ormrod, 2021). The non-probability purposive sampling was accurate for this study because the selected individuals which were students who have completed a compulsory module on this campus represented the larger population.

The primary data for this study came from semi-structured interviews and direct observations. A semi-structured interview features both open and closed questions (Galletta, 2013). During the semi-structured interview, eight respondents reflected on their experiences of virtual learning through Blackboard Collaborate, to find if this platform was useful and easy to use. The interview questions cover issues such as Blackboard Collaborate as a learning tool, its overall efficiency and effectiveness to enable collaboration between students and the content, their peers, and between students and the lecturer (Uziak, Oladiran, Lorencowicz & Becker, 2018: 5). Students were asked ten content questions. Only open-ended questions were constructed to avoid questions that only required "yes" or "no" answers.

Furthermore, data was collected through direct observation. Two Blackboard Collaborate Virtual learning sessions were observed for 50 minutes. The purpose of direct observation was to determine the extent to which a particular behavior(s) was present during the virtual session (Ary, Jacobs & Sorensen, 2010: 216). The researcher joined the Blackboard Collaborate Virtual learning classes to observe the facilitator and students' experiences and how they interacted with this tool. The purpose of the observation was to observe how students used and applied the Blackboard Collaborate functions. The results gave a clear indication of how they experienced learning on this tool, and whether it was easy to use (user-friendly) and what can be improved for the platform to be more conducive.

The thematic analysis approach was used to analyse data after the transcription of interviews, and to define thematic analysis as a method utilised to identify, analyse, and report patterns (themes) within data (Creswell, 2012). As data was collected through interviews and observations, the thematic analysis was most appropriate to make sense of the reflection on the perspectives and reality students brought forth regarding studying online through Blackboard Collaborate Virtual learning.

1.8 Value of the study

The results of this study were intended to offer insights into the approaches to be explored for the effective use of Blackboard Collaborate as a mode of content delivery. Additional information was discovered through the integration of the Technology Acceptance Model (TAM) to discover students' prior knowledge of this system, as well as their acceptance level of using the technology at their disposal. The results of the study are likely to benefit the researcher to have a clear indication of how learning through this platform can be made easier for prospective students. The researcher can also contribute knowledge within the research sphere. The results of this study can benefit other rural HEIs on how they can effectively incorporate Blackboard Collaborate in teaching and learning. Furthermore, the results of this study can assist the administrators and the support staff to focus on a specific area of development needed for future students' training (Mathew et al., 2019: 101). A lot of HEIs have established support departments such as Centre for Teaching and Learning (CTL)

which forms part of the university being studied. Therefore, this study could be beneficial for HEIs, administrators, and students support units. Students' perspectives assist in identifying what additional support should be provided to them as the university has adopted a blended approach. It was important to know where students lack and what they view as a solution to assist prospective university students.

1.9 Delimitations

The study was conducted at one of the HEIs in a rural area in South Africa. Furthermore, the issue of the integration of Blackboard Collaborate might have affected students in all three campuses. However, the research was based on only one of the campuses instead of all three. The campus under study also consists of four faculties, but data is only collected in two faculties**.** This limits the study from getting an insight into this issue from a larger population. Tied with the estimated small sample size extracts, the research findings sample might be biased. Therefore, imminent research should reproduce this study by employing data from diverse rural HEIs in South Africa to validate the relations of the variables to be examined. Thus, this study could be developed further by replicating it according to the findings to be discovered (Blackhurst, Dunn, & Craighead, 2011). Another limitation of the study was that the findings were constructed from the data discovered from students only and do not cover the lecturers' perceptions on the issue at hand. Additional valuable information could have been gained from them as well, as some of them were novices on the utilization of Blackboard Collaborate Virtual learning and its various functions to deliver content to students. Lastly, the study only focused on students who were first years in 2019 and 2020, who are currently doing their final year of study or who are in their postgraduate studies. Other students who were also part of learning during the virtual education period in 2022 are excluded from the study.

1.10 Definition of terms

E-learning - E-learning is defined as learning facilitated making use of digital tools and content that contains interactivity, that includes virtual interaction between students,

the lecturer and or peers (Ministry of Communication and Technology of New Zealand, 2008).

Blackboard Collaborate – This is a web-conferencing virtual room projected for performing various interactions on this platform (Pusuluri et al., 2017: 107). Furthermore, Aljabre, (2012) defines 'Blackboard Collaborate' as a distance learning management system serving as a medium through which students can attend live classes and participate in those classes by various Blackboard functions such as sharing of a whiteboard, outbreak rooms, recording, polls, and application that enable content sharing. Alelaiwi and Hossain, (2015) consider Blackboard Collaborate as an e-learning delivery tool utilised as a supplementary tool for traditional teaching and learning.

Learning Management System - LMS is defined as the cyber set-up that carries out instructional content that identifies and evaluates the overall organizational learning or training goals by tracking its progress, gathering and presenting accurate data from the results discovered (Watson & Watson, 2012). LMS are forming a progressively imperative fragment of academic structures in higher education globally.

Rural - Rural areas are a structure of human settlements. The main economic movement is agriculture production in these areas. These areas are usually isolated from urban areas geographically (Dlamini, 2018). These places are remote and originate in the countryside, in forests, and or in mountains (Dube, 2020). People staying in rural areas usually suffer from insufficient access to socio-economic facilities, such as basic needs which are stated as quality education, access to technology, and electricity among others, which are applicable for this study (Avila & Gasperini, 2005: 22). Rural-based economies are defined as those areas which lack information technology resources and infrastructure, (Cristobal-Fransi et al., 2020). The population has basic skills in using information technology (IT) solutions as compared to urban regions (Patel et al., 2018: 321). Rural HEIs are usually referred to as educational institutions in the outskirts of the country (Du Plessis, 2014: 1110).

1.11 Chapter outline

This document is structured as follows:

Chapter 1: Introduction

Introduction, the background of the study, the problem statement stating what was being investigated, and research questions to answer questions that came up regarding the integration of Blackboard Collaborate Virtual learning in teaching and learning are unpacked. It further presented aim and objectives to outline what was aimed to be studied and answered, the value of the study to see how this study could be beneficial in the future or to other HEIs. Lastly, it highlighted delimitations to note who or what was included and excluded in the study, and the definition of terms to understand what was meant by which terminology in this context.

Chapter 2: Literature Review

Literature review and the theoretical framework on what other scholars outlined about the integration of Blackboard Collaborate Virtual learning in teaching and learning, as well as literature on different opinions on the topic at hand in academia were presented.

Chapter 3: Research Methodology

Research methodology this research study uses, and the presentation of the data analysis were covered.

Chapter 4: Findings and the results of the study

This chapter presented the findings as well as the discussions of the collected data juxtaposed with relevant literature which answered the research questions of the study.

Chapter 5: Conclusions, recommendations, and areas for further research

This chapter provided a summary of the study and also presented conclusions and recommendations for future research studies.

1.12 Summary of the Chapter

Chapter one is the umbrella of this study as it gives a clear indication of what the overall study is based on and how it is outlined. This chapter presented the purpose of this study by stating the introduction and the background of this study for a better understanding of the need to conduct this type of study in this context. Through the problem statement, this chapter described the purpose of investigating students' perspectives on the learning experiences with Blackboard Collaborate Virtual learning on a rural campus, which is answered by the research questions of this study. The theoretical framework, research methodology, value of study, and delimitations were briefly discussed as they are discussed in-depth throughout the next chapters of the study. The next chapter of this study is based on a comprehensive analysis of the literature underpinning the study and the theoretical framework of this study.

Chapter 2: Literature Review

2.1 Introduction

This chapter is parted into two segments namely: the literature review as well as the theoretical framework of the study. Section one mainly focused on the literature review to examine students' perspectives pertaining Blackboard Collaborate Virtual learning experience. Section two dealt with the theoretical framework incorporated in this study. In this chapter, the nature of Blackboard and Blackboard Collaborate, opportunities and challenges of using Blackboard Collaborate and the nature of virtual learning are discussed. The theoretical framework of the study which is the Technology Acceptance Model (TAM) is also outlined to explain the importance of the acceptance of technology by end users.

The universal onslaught of the Corona virus led to the shift from the traditional classes to the sole computer-generated teaching and learning (Xie & Siau, 2020; Besser, Flett & Zeigler-Hill, 2022) which the academics, students nor the overall HEIs were prepared for. The majority of HEIs members (both lecturers and students) had very limited experience on how to utilise technology for both teaching and learning. Due to the unexpected onslaught of the pandemic, HEIs were obligated to adapt virtual platforms for teaching and learning (Alammary, Alshaikh, & Alhogail, 2021; Solhi, 2020). The call was made irrespective of students' and lecturers' level of technological proficiency, as this was referred to as a crisis learning (Pace, Pettit & Barker, 2020). Academics were expected to show leadership and support students with the sudden and unexpected transition nonetheless (World Health Organization, 2020). The integration of Blackboard Collaborate to deliver teaching and learning was fully implemented in various HEIs across the globe to save the academic year (Di Pietro et al., 2020).

Learning through Blackboard Collaborate gained popularity during the outbreak of the Corona disease that led to national lockdown in HEIs worldwide (Sousa & Rocha, 2019). Exploring the readiness of students regarding the integrated technology in teaching and learning therefore became critical. The focus was especially more on students from a rural higher education campus. This study, therefore, provides a

discussion on students' perspectives towards the integration of Blackboard Collaborate Virtual learning in a rural-based campus in a form of experiences. In the context of this study, this essential information was collected through students' perspectives on how they experienced learning through this platform during this period under review.

2.2 Teaching and Learning during the Covid-19 pandemic onset

In the year 2020, the world was faced with a health crisis when Corona virus spread globally. To try to control the spread of this deadly disease, countries across the globe established measures of restricting physical contact between people (Sousa & Rocha, 2019; WHO, 2020). Figure 2.1 below provides an indication of why the Corona virus was declared a global health crisis and why drastic measures had to be established to try to control its spread.

Year	Natural disaster
2009	A violent earthquake in 9 the city of L'Aquila
2010	Floods in Pakistan
2011	Tropical storm Washi in the Philippines
2011	A series of earthquakes in New Zealand
2013	Tropical storm Haiyan in the Philippines
2015	Gorkha floods in Nepal
2017	Harvey and Irma Hurricanes in the United States
2017	Floods in Nepal, Bangladesh, and India
2018	An earthquake in Papua New Guinea
2018	Earthquakes and tsunamis in Indonesia
2019	The typhoon Lekima in China
2019	The typhoon Hagibis in Japan
2019	The tropical cyclone Idai in Southeastern Africa
2019	The heat wave in Bihar

Source. Save the Children (2014, 2017), US News and World Report, & Briggs, 2018.

Figure 2.1 Natural Disaster That Affected Teaching-Learning Badly: Adapted from US News and World Report, & Briggs, (2018).

The Natural Disaster figure above features various disasters that had hit the segments parts of the world before. Analysing this figure one can see that the Corona virus was the disease of its unique feature. It did not only hit certain parts of the world, but it was

declared a global health crisis due to its nature (Sousa & Rocha, 2019; WHO, 2020). To save the 2020 academic year, a new teaching and learning plan had to be implemented immediately in HEIs globally (Di Pietro et al., 2020). This was out in place to comply with the Corona virus regulations and measures, and work hand in hand with the board of Department of Higher Education and Training (DHET) framework. To comply with these measures, HEIs introduced the remote learning to ensure that their stakeholders (students, staff, and faculties) are safe and healthy (Cao, Fang, Hou, Han, Xu, Dong, & Zheng, 2020; WHO 2020). Ali, (2020) and Grubic, Nicholas, Badovinac, Shaylea, Johri, and Amer, (2020) added that HEIs shifted to remote learning to ensure healthy learning environments, as classes took place solely online. The trend in HEIs across the world was to integrate web conferencing tools such as Blackboard Collaborate into courses for students to continue learning during a remote learning emergency.

Academics were required to act instantly to create online material to deliver teaching and learning on this platform. These materials were to be made available on LMS such as Blackboard. Higher education institutions across the globe grew larger in employing Blackboard Collaborate Virtual learning in teaching and learning throughout the pandemic. This tool has been identified as a resource available to assist HEIs to accomplish their goals in integrating Blackboard Collaborate in teaching and learning (Aljabre, 2012; Ghasim & Arshad, 2023). Although Blackboard Collaborate Virtual learning has been integrated in teaching and learning, HEIs should be mindful of the end users' response to this new tool for the service to be efficient for students (Davis, 1989, Kimathi & Zhang, 2019).

Online classes naturally take place either on the synchronous or asynchronous mode on the Blackboard learning channel. Other HEIs were delivering teaching and learning only on asynchronous classes, where lecturers prepared assessments and recorded lectures to enable students to do assessments at their preferred time and pace (Coogle & Floyd, 2015:174; Perveen, 2016; Crawford, Butler-Henderson, Rudolph, Malkawi, Glowatz, Burton, & Magni, 2020). Some universities preferred synchronous classes to catch up a lot of students online. Successful implementation of the virtual learning in HEIs mainly depended on students embracing technology to learn. It was also essential to keep in mind that online learning was rather forced than planned

during the Corona virus outbreak and national lockdown (Bao, 2020; Songca, Ndebele, & Mbodila, 2021). Many students only had a few weeks of their first university experience when the new system was announced. Hence, it was crucial to investigate the aspects that influenced these students to embrace this unexpected change to virtual learning.

2.3 The nature of virtual learning

Virtual learning was first introduced during the middle of the 1990s and has been employed as a mutual technique of online education in HEIs globally (Compeau, 1992; Taylor, & Todd, 1995; Moore, 2007; Teo, 2013). Although the practice of computer-generated learning has been employed for over a long period of time, virtual teaching and learning has been practiced for over a century, with HEIs employing virtual learning programs during the 1800s, while schools started to partake in these programs through radio during the 1930s (Clark, 2003; Edelson & Pitman, 2001). Virtual learning has actively transformed how teaching and learning take place. Students who take virtual courses experience an independent method of content delivery through computer mediated practices (Pratama & Scarlatos, 2020). Virtual learning has been primarily identified as a North American phenomenon (Cavanaugh, Ferdig, Johnson, Lowes, Smith, & Blomeyer, 2006). According to the previous research made regarding the virtual learning concept (Maina & Nzuki, 2015; Englund, & Price, 2017) it was concluded that virtual learning would rapidly become deployed in various countries, including developing countries as well. This was then made possible across the globe by the onset of the pandemic.

The nature of virtual classes is online, Internet-based, or technology-based distance education programs accessible to students through remote learning because the teaching and content are primarily carried-out through the internet, (Mathew et al., 2019). Virtual learning is a setting where students attend their classes in an online environment. Virtual learning has been defined as an instructional program or curriculum where learning takes place through web-based means via the internet (Mathew et al., 2019). Some researchers have claimed that this platform Eldridge, (2014); Huang and Lee, (2019) encourages active, as well as collaborative learning.

These researchers further characterised this platform as an organised learning environment under the direct instruction of the lecturer that could be delivered through the web-based synchronous or asynchronous setting.

One of the benefits of Blackboard Collaborate Virtual learning is that students can take courses from anywhere, (Motlhaka, 2020). However, having access and availability of a stable Internet connection, as well as a reliable device is essential to the virtual learning environment. You and Kang, (2014); Kilis and Yildirim, (2019) argue that virtual learning does not limit students as they can still carry out higher order cognitive activities in modules such as mathematics by problem solving and language learning. Chasanah, (2019) added that students also respond by writing down their understanding and ideas, and the outcome is similar to the face-to-face traditional classroom. Virtual learning uses a robust LMS, such as Blackboard with functions such as Blackboard Collaborate as the focus concept of this research that allows in-depth collaboration between the lecturers and students, and between students themselves. This platform enables the class to take place either on a synchronous or asynchronous mode, depending on how the lecture material is prepared for a specific session and content.

2.3.1 Synchronous and Asynchronous Virtual learning

The dynamic use of the LMS has changed the methods of how teaching and learning was known and drawn previously. It has incorporated new approaches that require both lecturers and students to develop technological skills. This would assist them to adapt to the new or advanced methods of learning online using tools such as Blackboard Collaborate as the focus of this study.

The Blackboard Collaborate tool embedded within the Blackboard software can also be described as a synchronous virtual learning (Moser & Smith, 2015; Khan, Onwuka, Abullais, Alqahtani, Kota, Atta, Shah, Ibrahim, Asif, & Elagib, 2022). It enables for live interactions and teamwork between lecturers and students and among students, while also engaging in learning activities (Tabatabaei & Sharifi, 2011; Amiti, 2020, Al-Neklawy & Ismail, 2022). The synchronous virtual learning permits students to interact and collaborate with one another and with the lecturer in a corresponding virtual

learning environment. Learning takes place at a particular structured timeframe, which is similar to being physically present on campus in a traditional class (Francescucci & Rohani, 2019, Ghasim & Arshad, 2023). Just like the traditional learning space, the virtual class is scheduled at a specific day and time (Skylar, 2009; Ghasim & Arshad, 2023). Every enrolled student is therefore required to avail themselves and attend class by logging in using a link at that specific set and allocated time.

Asynchronous platforms have been identified as learning environments that provide students with an opportunity to comprehend information (Dahlstrom-hakki, et al., 2020). It allows them time to process their thinking for a better understanding of the content at hand (Raymond, Atsumbe, Okwori, & Jebba, 2016; Dahlstrom-hakki, et al., 2020). Flexibility is the main element of asynchronous learning environment (Coogle & Floyd, 2015:174; Perveen, 2016:22; Varkey, Varkey, Ding, Varkey, Zeitler, Nguyen, Merhavy, Z.I. & Thomas, 2022). Students can schedule or plan an accurate time for the completion of their online courses. Asynchronous learning environment allows users a flexible functional learning without the constraints of strict scheduled time and place (Perveen, 2016; Varkey at al., 2022). Although asynchronous communication allows individuals to reflect and think critically before engaging in continuous online discussions and learning, it is crucial to note that it does not instill a sense of belonging to students. According to the research done by Al-Rahmi et al., (2015) students preferred to participate in groups in an asynchronous learning environment for better results than participating in an in-class discussions (Varkey at al., 2022). Asynchronous learning environment allows students an opportunity to also revisit challenging concepts to gain confidence in their understanding. Although there is evidence that supports the effectiveness of synchronous interactions in some virtual courses (Mick & Middlebrook, 2020) other students prefer a blend of synchronous and asynchronous approaches to complete different types of tasks and interactions.

Other studies on research regarding students' experience in a synchronous virtual learning platform were done previously. The results indicated that various functions embedded in the technological tools on Blackboard Collaborate formed a connection to students, in order for them to feel like they belong and created a learning community (Eldridge, 2014; Gedera, Williams, & Wright, 2015; Dahlstrom-hakki, Alstad, & Banerjee, 2020, Ghasim & Arshad, 2023). Some students acknowledged the fact that

the synchronous virtual learning resembled human interactions. Although it takes place in the virtual classroom, they got the opportunity to participate in groups and built close relations with others (Rossouw, 2018; Al-Neklawy & Ismail, 2022). They added that this learning environment was extremely convenient as it encouraged them to partake in discussions, share views, ask questions, debate on the topic at hand and listen to others (Huang & Lee, 2019).

Martin et al., (2018) specified that the level of communication between lecturers and students and among students enhances the success of any distance learning course (Khafaga, 2021; Banafi, Ibrahim, Kaliyaperumal & Alnuzaili, 2022). Potentially synchronous virtual learning can provide students with a more individualized experience. Hence it is important to investigate students' perspectives on how they experienced learning on the Blackboard Collaborate channel personally as individuals and in groups. This then enables them to customize the course material accordingly. Research by Moser and Smith, (2015) states that synchronous virtual learning allows a student-centered approach, as it also offers flexibility for students' participation (Khan, et al., 2022). Both students and lecturers interact equally as active participants. Collaborative work, and communication are encouraged between the two parties. This platform generates a chance for independent, as well as peer learning. It also guides students to develop and practice the required technological skills. The learning flexibility provided by this platform increases students' motivation level to learn and engage with the learning material. Synchronous virtual learning enables the blending of different types of learning activities within one virtual session. This creates opportunities for a wider range of students' needs to be met. Students are able to learn and participate at the comfort of their homes through this environment. Moreover, it allows shy students to also engage with the content in the chat box. It has positive effects, such as leading students and lecturers to be more objective, be less fearful of criticism on the comments made, and feel less prone to cultural barriers (Mick & Middlebrook, 2020). Synchronous online learning also provides a lot of opportunities for social interaction and creates a sense of belonging to students (McBrien, Cheng, & Jones, 2009; Tabatabaei & Sharifi, 2011, Al-Neklawy & Ismail, 2022).

Synchronous and asynchronous learning environments enable students to learn independently and with others (Singh & Thurman, 2019; Basilaia & Kvavadze, 2020).

These modes of content and communication have been conceptualized as important distinct modes of virtual learning. They are referred to as distinct modes of delivery because on the online synchronous platform, users communicate in real time, while on the asynchronous the discussion is a thread-based and independent of a shared timeframe (Harasim, 2012; Varkey, Varkey, Ding, Varkey, Zeitler, Nguyen, Merhavy, Z.I. & Thomas, 2022). Synchronous online learning is a platform that comprises of a real-time interaction between lecturers and students and students with their peers (Skylar, 2009; Tabatabaei & Sharifi, 2011; Moser & Smith, 2015; Amiti, 2020). Asynchronous online learning is whereby learning takes place between the same group of people without a strict schedule to still deliver the content and discussions at the pace of students involved (Singh & Thurman, 2019; Al-Neklawy & Ismail, 2022).

Synchronous and asynchronous interactions enable the class to be orchestrated in a manner that enhances interaction between the lecturer, students, and peers (Gilbert, 2015; Khan, et al., 2022). The study by Khalil, Mansour, Fadda, Almisnid, Aldamegh, Al-Nafeesah, Alkhalifah and Al-Wutayd, (2020) indicated that in terms of time management, students perceive synchronous online as a positive online learning platform. Students receive instant feedback on the synchronous learning environment (Khan, et al., 2022). On the asynchronous learning environments feedback is easily accessible at various learning systems and forums when participants have responded according to their availability (Littlefield, 2018; Varkey at al., 2022). However, it does not allow students an opportunity for a deep and meaningful reflection on the content at hand provided on the asynchronous virtual learning (Oztok & Brett, 2011; Oztok, Zingaro, Brett & Hewitt, 2013; Kilis & Yildirim, 2019; Alshurideh, Salloum, Al Kurdi, Monem, & Shaalan, 2019). If students feel a sense of a psychological safety in this environment, it leads to improved learning outcomes (Kilis & Yildirim, 2019). Creativity, confidence, and willingness to participate and engage become inevitably enhanced among students. It is also important to understand the general drawbacks that come with virtual learning as an indication of the challenges faced by students on this platform.

2.3.2 Students' experience with virtual learning

Students' perceptions and satisfaction on any learning platform is referred to as an important aspect on their learning experience. Although virtual learning may be apparent as the platform HEIs are headed towards, it comes with several obstacles and potential drawbacks. Students may encounter these obstacles while participating on this platform, especially if they lack technical skills. A study conducted by Mailizar et al., (2020) revealed that the subject matter regarding the satisfaction of students with online learning cannot be overlooked. Some studies indicate that students' reflection and feedback have a significant impact on the improvement on the type of education they need for better results (National Centre for Vocational Education Research, 2002; Bao, 2020).

Given how education has evolved, it is of utmost importance to gain an in-depth comprehension of students' virtual learning experience amid Corona virus pandemic to get an indication on the direct impact this period had on them and the challenges they experienced. A study by Mailizar et al., (2020), also added that students' voices are important to examine their experiences, opinions, as well as recommendations on virtual learning and to assist prospective students to overcome similar challenges. It was discovered that students were not well prepared for balancing their studies and family responsibilities, as they firstly had to adapt to the new learning environment (Parkes et al., 2014; Williamson, Eynon, & Potter, 2020). Copeland, McGinnis, Bai, Adams, Nardone, Devadanam, Rettew, and Hudziak, (2021) reported that factors such as separation, economic status and threatened well-being and uncertainties in the midst of Corona virus pandemic period unpleasantly affected students' normal behavior and led to emotional dysfunction.

Although some researchers recommended that virtual learning may provide an opportunity for more interaction as opposed to large classes where there are still rapid concerns from students regarding the perceived lack of interaction in these classes due to various challenges they experience in this platform (Freeman, et al., 2020) such as not being able to participate effectively in breakout classes as intended. Studies that focused on traits, students' needs, and concerns argue that virtual learning is not for everyone, although the reflection of some students give an indication of this

platform as effective as the face-to-face traditional setting (Kilis, & Yildirim, 2019; Bao, 2020). However, other students reported that they value the flexibility provided by the virtual learning, as well as opportunities to communicate with both lecturers and peers through various channels any time of the day (Foronda & Lippincott, 2014:5; Nistor, et al., 2019).

Students' experience with virtual learning is referred to as a vital aspect in their perceptions of learning and satisfaction. Technical difficulties and communication breakdowns were identified as distress experienced by students on various research done on distance learning courses (Moonsamy & Govender, 2018; Baby & Kannammal, 2020). Some students identified technical glitches as one of the main barriers to a conducive virtual learning. Therefore, students' satisfaction was high when students had received adequate training on the "how to" of the virtual learning platform to the newly introduced technology (Baby & Kannammal, 2020). In a previous study, Hamzah et al., (2015) discovered that students with technical skills and a bit of online learning experience were more likely to be content with virtual learning (World Bank, 2020). Comparable findings by Kilis and Yildirim, (2019); Latip and Noh, (2020); Latip, Noh, Tamrin, and Latip, (2020) stated that undergraduate students with some sort of online learning experience did not feel anxious about learning online Barber, (2021) argues that different learning styles must be incorporated in the virtual learning. Different learning styles would ensure that even those students who are not self-motivated to learn online are not left behind (Kilis & Yildirim, 2019). Sywelem, Al-Harbi, Fathema, and Witte, (2012) discovered that students who learn in their own identified learning style perform better academically.

A study by Suryaman and Mubarok, (2020), which particularly focused on how students learned when studying at home, revealed that lack of interaction between students and lecturers, high Internet costs, unfavorable home learning environment conditions. On their study lack of technology mastery stood out as the main obstacles students faced while learning online. This adversely had an impact on students' performance during this period (De Paepe, Zhu & Depryck, 2019; Kapasia, Paul, Roy, Saha, Zaveri, Mallick & Chouhan, 2020). A study by Singh et al., (2020) discovered that half of the students in their study indicated that the face-to-face setting remains the most effective learning platform than the virtual learning. Some students reported

online teaching and learning to be boring and un-engaging sometimes, because it is all theoretical with no practical activities to learn effectively in other modules (Goh, Hong, & Gunawan, 2013; Kimathi & Zhang, 2019; Tseng, 2020). A study by Tang, Hu, Hu, Jin, Wang, Xie, Chen, and Xu, (2020) revealed that lack of communication led students to be dissatisfied with virtual learning in general. A study by Mather, Matashu, and Meyer, (2022) discovered that academic support in terms of frequent communication between lecturers, students, and peers on various platforms available electronically enhance motivation and satisfaction within the virtual learning space. Hence, it is essential to also examine both lecturers and students' attitude on virtual learning.

2.3.3 Students' attitude towards virtual learning

Venkatesh, Thong, and Xin, (2012) define attitude as an individual's feeling about using technology in this context. They specified that attitude is a key factor to overcome resistance to use technological tools in the progression of virtual teaching and learning. The usage or deficiencies of technology in the distance education establish students' attitude concerning it (Aixia & Wang, 2011; Foronda & Lippincott, 2014; Nistor, et al., 2019). The effective usage of technological tools to learn largely depends on students' attitude (Sezer, 2019). The involvement of students in class, prior experience with technology (World bank, 2020) and most importantly the attitude they display regarding it determines their encouragement to accept technology to learn (Hamzah et al., 2015). Online lecturers use technological tools to deliver teaching and learning to students in virtual classrooms (Kalimullina, Tarman, & Stepanova, 2021). Therefore, the attitude of students towards virtual studies plays a key role in its effectiveness. Positive attitude from students towards computer-generated learning is vital to apply in a virtual learning environment, which ultimately has a positive influence in the learning process (Fraihat et al., 2020). Delivering teaching and learning virtually is a challenging task, hence the lecturer must also be skillful and well equipped to play diverse roles instead just facilitating. Although it is not easy to maintain a positive attitude toward virtual learning, for the continuous achievement in the online instructive system, positive attitude of student is vital. If students have a positive response on using technological tools to learn they develop skills to assist them in developing e-

competencies, that has a significant effect on their overall teaching and learning experience in the long run (Fraihat et al., 2020). Although the virtual learning has been acknowledged to be a suitable substitute of the traditional learning by many studies, it is also important to identify its limitations.

2.3.4 Limitations of virtual learning

Although virtual learning has gained popularity over the years, the quality of online learning remains a concern (Jokiaho, May, Specht, & Stoyanov, 2018). Some students may be excluded from accessing classes online due to lack of access caused by their economic status (Nicola, et al, 2020). Lack of minimum computer knowledge and skills from both the lecturer and students may make it difficult for the functioning of this platform. If the lecturer is not well prepared nor trained, then students will have difficulties understanding what is required from them and how to maneuver around this platform.

The study conducted by Farooq, Rathore and Mansoor, (2020) in Pakistan identified a few challenges students came across during the Corona virus breakout that could limit effective virtual learning. The outcomes related to students' difficulty in comprehending the dynamics of virtual learning. The frequent inability to engage with the content virtually and assessments designed for e-learning. Lack of training for faculty members, as well as insufficient institutional support was also identified. Similarly, on the evaluation by Xhelili et al., (2021) on Albanian students regarding how they perceived virtual learning and challenges during the Corona virus period, it was discovered that the principal challenges they faced were unstable internet connectivity and deficiency in technological devices. Demuyako, (2020) discovered that the main challenges Ghanaian students faced while studying online were high rates to purchase the internet. Students felt completely isolated, different time zones, and a slow internet connectivity. In India, Nambiar, (2020) found that the barriers students face with online learning are related to technical problems, no solid structure to follow, problems with the flow of virtual classes, and no interest from students. Lack of motivation from the overall institution also came out strong. Rajab, Gazal, and Alkattan, (2020) reported that correspondingly, in Saudi Arabia some challenges students in faced include lack

of communication from various stakeholders. Online assessments design failure, not knowing how to use ICT tools, lack of online experiences, mental health issues such as technophobia anxiety and lack of time management was also identified. Major factors identified by Al-Shboul et al., (2017) in Jordanian universities when incorporating technology in the teaching and learning process: deficiency in technological skills, lack of e-learning pedagogical training, lack of confidence, no suitable educational structure and system in the curricula.

2.4 The nature of Blackboard

Generally, Blackboard is measured to be the correct LMS in the HEIs context primarily because it is flexible and easy to install and use (Watson and Watson, 2012, Sawsen et al., 2021). Blackboard is the LMS used at the university being studied and it was introduced on this campus in 2016. This platform has mainly been used for announcements from lecturers to students and as a submission tool by students on this campus. This technological software Spann, (2012); Sawsen et al., (2021) does not limit students using different types of devices as it can be operated in Windows, as well as the Mac systems, and on the cellphone operational systems well known as Android and IOS. A basic requirement for one to access this platform is the access and availability of a stable Internet connection, as well as a dependable device. This platform creates a virtual classroom environment that enables all students to access the same information. Blackboard provides multitude of options for students to work in collaboration and jointly with peers and lecturers through its various functions. The modern advancement of smart technology, adequate training and development can increase the lecturers' capability to facilitate online learning effectively and advance the potential abilities of students (MacLeod, Yang, Zhu, & Li, 2018). Students also have access to learning material at anytime from anywhere using any web-browser.

Blackboard has multiple tools such as Blackboard Collaborate, wikis, discussion boards, which can be utilised to carry out lessons, and it supports virtual learning. Blackboard Collaborate is an LMS initially created during the year 1997. It contains a well-rounded distance education toolkit and was largely used in virtual learning platform (Ouyang & Nile, 2014) as an electric system of distance education.

Educational experts indicated that learning online should be effective and interactive (Bower, Kenney, Dalgarno, Lee, & Kennedy, 2014; Bower, Dalgarno, Kennedy, Lee, & Kenney, 2015). Eiffelcorp, (2019) describes Blackboard Collaborate as the superlative instrument that enables real-time lessons in various settings with students attending at a structured time frame for all. Lecturers can clearly display learning contents, conduct learning, class activities spontaneously, connect with students remotely through frequent communication, and interact with students promptly on this virtual platform.

2.5 The nature of Blackboard Collaborate

Blackboard Collaborate is an incorporated LMS accessible in every registered module on Blackboard at the university being studied. Blackboard Collaborate is considered as an interactive platform that can develop technical skills with practice and application (Bower et al., 2014). Blackboard Collaborate as a tool embedded in the Blackboard software provides a lecturer with the ability to host a remote synchronous and asynchronous cyber classroom. Furthermore, this platform includes additional functions, such as electronic whiteboards, interactive response systems, chat box, the raising hand icon, and microphone at students' disposal immediately when they enter this virtual classroom (Tawalbeh, 2018; Julian et al., 2019; & Motlhaka, 2020). Moreover, this tool enables the opportunity for teaching and learning to be delivered outside the physical restrictions executed by a normal traditional education. It enables the availability of online learning and making it possible for learning to be delivered at a suitable time for both lecturers and students (Bower et al., 2014). It also gives the lecturer the capability to allocate students to a specific private room (breakout groups). This permits students to learn together as a group or in pairs without audio interfering or additional text or discussions from other group members in a separate room. This tool also has a moderator function that enables the lecturer to monitor the discussion between students in various groups they are assigned by jumping between groups. The moderator is also able to set how long each discussion must take place.

Blackboard Collaborate tool has been identified as one of the most widely used platform by HEIs globally (Sobaih et al., 2020). It provides students with widespread

variety of technological skills to gain, leading to an advanced knowledge (Cunningham & Lachapelle, 2014; Norberg, 2017). The setting of Blackboard Collaborate is in a manner that students in different locations could be linked for the lecturer to deliver content to them remotely at the same time. These students receive education in a normal manner. They also interconnect with the lecturer and fellow students through multiple enhanced synchronous tools such as conferencing audiovisuals, digital whiteboards, collaborative response systems to mention a few (Bower et al, 2015). Blackboard Collaborate is equipped with versatile advanced technologies that enable lecturers to display learning materials clearly. It enables them to conduct learning activities efficiently, communicate with remote students fluently and instantly and give timely feedback (Phejane, 2022). Just as the traditional class setting, remote students can learn, engage with the content query where they do not understand. They can also respond to questions to improve participation and engagement with fellow classmates and with lecturers in a cyber setting on Blackboard Collaborate through the Internet (White, Ramirez, Smith & Plonowski, 2010). The nature of this tool includes permitting lecturers to generate lessons and activities on its multiple functions (Phejane, 2022).

Blackboard Collaborate virtual learning enables students to receive education as normal as in the face-to-face platform. Students could also interact and communicate with lecturers and with other students in a remote classroom via its versatile advanced functions. Blackboard Collaborate provides a similar effect as the face-to-face physical classroom. It also allows students to carry out higher order cognitive activities, such as mathematical problem solving and language learning (Kilis & Yildirim, 2019). Other studies by various researchers (Alzahrani & Aljraiwi, 2017; Motlhaka, 2020) have studied “the usability of Blackboard” platform. However, there is limited research done on the usability of Blackboard Collaborate particularly on a rural campus. Although this function seems to be effective in supporting students to learn, it is important to get the students’ voice, their perspectives on the research topic at hand and experience of learning online by examining the advantages and disadvantages of using this platform in-depth. The overall understanding of the impact of this delivery is still limited. Hence it is essential to get students’ perspectives on their own experiences. The results of the study offer insights into effective strategies for the use of features of the Blackboard Collaborate to enhance the delivery of teaching and learning for a more

conducive virtual learning environment at this rural campus. The study is also valuable for designing training programs in technology-interceded classroom instruction for students.

2.5.1 Effective use of Blackboard Collaborate in the virtual classroom

Regarding teaching and learning that takes place on the online platform, the role of the lecturer is not only the administrative one of just uploading learning material, sending out announcements or just receiving submissions from students. Washington, (2019) argues that one of the challenges may be that Blackboard has been mainly used by both lecturers and students for administrative purposes. This includes announcements, submission of assessments, and uploads of content slides as opposed to using the embedded tools such as Blackboard Collaborate for pedagogical support. That would have led online classes to have the same quality and standard as the face-to-face courses. This might be identified as one of the factors why it is hard for both lecturers and students to grasp other functions of this platform. The role of a lecturer is more of ensuring that they create an environment where students can learn and interact on the topic and issues at hand (Kalimullina, Tarman, & Stepanova, 2021). It is therefore essential that they are also well equipped with utilizing the technological tool incorporated within their specific unit.

In another research study, it was reported that deficiency in an intensive training on how to use Blackboard Collaborate to hone technological skills leads to ineffective use of this platform (Isabirye et al., 2017; De Paepe, et al., 2019). Some added that the enhancement of teaching and learning on the LMS and extensive training is of utmost importance to motivate the end user to increase the confidence of being able to maneuver this platform with no anxiety (Jokiaho et al., 2018; Washington, 2019). McConnell, (2018) recommended that for users to be able to use the Blackboard Collaborate effectively as a mode of delivering teaching and learning, it is essential for them to undertake proficiency developmental programmes that consist of excellence learning courses. He also added that for users to be able to produce well-integrated courses, they must receive constant assistance from the academic support-based

departments, such as Centre for Teaching and Learning (CTL) available at this specific campus.

According to Jokiaho et al., (2018); Kalimullina, Tarman, and Stepanova, (2021) some lecturers also lack basic computer skills. This leads them to feel awkward in front of students and this results in them finding the Blackboard Collaborate Virtual learning platform not being user-friendly. Alenezi, (2018), also reported that lecturers also find it hard to assist students when asking technical question because they themselves are not highly knowledgeable of this tool nor do they have the relevant skills to show students “how to” (Khafaga, 2021). It is therefore important to highlight the literature based on the advantages and disadvantages of using Blackboard Collaborate as a virtual learning platform.

2.5.2 Advantages of using Blackboard Collaborate

As early as back in 2002, Schroeder already outlined the benefits of using synchronous virtual learning to improve the practice of learning by mitigating the virtual distance learning (Schroeder, 2002). Identified advantages of Blackboard Collaborate virtual classes by literature include reduced feeling of being uninvolved for students, increased being socially present and student communities in the online environment (Akarasriworn & Ku, 2013; Kilis & Yildirim, 2019; Mukhtar, Javed, Arooj, & Sethi, 2020) with immediate and direct feedback from lecturers (Martin et al., 2012).

This platform can also strengthen connections and build close relations between lecturers and students and between students due to live or real time discussions between these parties (Huang & Hsiao, 2012; Yamagata-Lynch, 2014). This platform enables students to contribute to the discussions by posting their own views or by raising their electronic hands on the issue at hand or by having debates with peers (Martin et al., 2012). The benefits of virtual learning are also identified as the improvement of students’ skills in several technology abilities that are beneficial to them as they develop to the following level of life (Mukhtar, Javed, Arooj, & Sethi, 2020) added that online instruction is beneficial for universal competitiveness. Although there are advantages of using this platform to learn, it is also essential to

note its disadvantages for the users to know the possible drawbacks they might encounter.

2.5.3 Disadvantages of using Blackboard Collaborate

Students' satisfaction is a vital component of a quality virtual learning, therefore, the evaluation of this platform is essential to meet this need. Virtual learning environments have their own disadvantages. Research has identified disadvantages of Blackboard Collaborate as: (a) lack of access to other students, whether it be of lack of devices, economic status, (b) lack of minimum level of computer knowledge by both the lecturer and students, (c) technology is not entirely reliable due to continuous connectivity issues which may lead the class to be cancelled at some point, (d) online learning may seem more challenging if the lecturer is not well trained on how to maneuver this platform or if they are not prepared, (e) if the quality of online learning is not evaluated and (f) if the curriculum of online platforms is not necessarily developed for virtual learning (Arkorful & Abaidoo, 2015; Phejane, 2022).

Other scholars reported that the downsides of delivering classes on Blackboard Collaborate include deficiency of flexibility (Huang & Hsiao, 2012) and the usual technical errors experienced during virtual content delivery. These beyond control issues lead to students losing focus from learning activities as it is a distraction for the presenter and the attendees (Peacock et al., 2012; Akarasriworn & Ku, 2013). Further disadvantages of this mode of delivery (asynchronous) include students feeling isolated (Huang & Hsiao, 2012), as well as delayed feedback from lecturers or lack of peer engagement and participation.

Low response of students to Blackboard Collaborate assessments also leads to deficiency in competency of using this platform and unforeseen technological complications with the settings. Blackboard terminology may also create language barriers. Other students may not fully understand the instruction while submitting assessments or learning on this platform. The complexity of the system experienced by students not trained on how to maneuver around this platform has been identified as one of the challenges as well. These identified disadvantages of using this platform

may deter other students from using Blackboard Collaborate as a learning tool, which may create challenges in their academic journey.

2.5.4 Challenges of learning through Blackboard Collaborate

Online learning through Blackboard Collaborate may seem more suitable as it allows students to study during their preferred time and pace. However, it is essential to explore the type of challenges they also encounter on the functions of this platform. Academically, although it may be possible for students to learn effectively virtually with the correct guidance, greater challenge may be faced with courses that require a direct face-to-face interaction (Franchi, 2020). Blackboard Collaborate Virtual learning requires trained staff that would be able to handle both the administration and course delivery online. It is also essential for students to be trained on how to maneuver this platform for the ease of use of this technology. Compared to the 99% of the United States students with a stable internet connection the percentage is very low for students with access to the Internet predominantly in rural areas in developing countries.

Other research studies also reported that while learning virtually via Blackboard Collaborate, some students encountered various challenges (Eynon & Potter, 2020; Songca et al., 2021). These challenges included mental health issues, (WHO, 2020) defective internet connections (Subedi, Nayaju, Subedi, Shah & Shah, 2020), unreliable e-learning services, lack of time management skills, and frequent interruptions by either slow internet or by the system itself (Ramij & Sultana, 2020). The efficiency of virtual learning differs among various HEIs around the world. It is more efficient in developed countries that are more digitally advanced. It is less efficient in developing countries particularly in rural, marginalized communities whereby academic and administrative activities were mostly on the face-to-face platform before the Corona virus outbreak (Basilaia & Kvavadze, 2020). The results on the analysis conducted by Koi-Akrofi et al., (2020) on the online learning contexts stated that the challenges students encounter on this platform are more than the ones found on face-to-face and blended learning. Hence, it is essential to get a clear

indication on the challenges a rural based higher education student face in their unique setting.

2.5.5 Technological challenges faced by rural-based higher education institutions

The National Center for Educational Statistics (NCES) reported that there is an increase in the proportion of the enrollment of students from rural areas in HEIs, be it colleges or universities as compared to the historical lower rates of applications received from this population in higher education (NCES, 2014). The increase in enrollment from rural communities opens doors for new challenges. These newly identified challenges need innovative strategies to be dealt with according to the needs of these students. Research states that administering remote learning has not been easy especially in rural areas due to the type of challenges experienced by students in these zones (Nkambule & Mukeredzi, 2017; Dlamini, 2018). It is, therefore, important for researchers to acknowledge the range of needs that exist within students from rural areas. They should focus their attention on how they can assist them to overcome these challenges.

Although shifting to the online platform was the only feasible option during the Corona virus period to save the academic year for many countries across the globe, this idea was not as noble for the rural based campuses. These campuses have always remained behind regarding the infrastructure that contains the development of virtual learning (Dlamini, 2018; Dube, 2020) as rural areas are remote and comparatively underdeveloped in general. Students from rural communities encounter various challenges. This may lead to the disruption of ensuring that teaching and learning take place successfully through the online platform. Socio-economic issues are more of a concern in rural HEIs due to very limited resources for students and staff to manage within the academic pressure due to changes in education deliverance (Dlamini, 2018; Rousseau, Foote, Maron, Diplas, Lu, Argilés, Cercek, & Diaz, 2021). Chuong and Schiess, (2016) added that rural communities lack access to basic socio-economic services and have unique issues. This leads to lack of abilities and capabilities because students from these areas firstly have to deal with socio-economic issues

before they can even attempt to start with learning. Du Plessis and Mestry, (2019) noted that poverty is one of the extensive issues in numerous African countries and this has major implications for quality in students' learning. They further argued that the insufficient supply of quality services by the governments in rural areas, leads to the weakened educational services especially in South Africa's rural areas. Dube, (2020) concurs that due to unique problems faced by rural communities, HEIs need to put more effort and come up with inventive strategies to deal with the type of challenges students face. Effective inventive strategies will make learning conducive, possible, and accessible to them regardless of their predicaments. According to the well-known challenges stated by previous researchers, students from rural communities might have been excluded on the virtual teaching and learning due to limited or no access to the required technological resources to learn online.

A lot of technologically advanced countries already had progressed to virtual learning programmes even before the outburst of the Corona virus. The challenges experienced with virtual learning were mostly extensive to rural based higher education campuses. When the unpredictable shift to virtual teaching and learning was announced, developing countries faced a lot of challenges due to limited technological resources. It was even more difficult for both lecturers and students to adapt to the new normal of learning due to lack of technological skills (Farooq, Rathore & Mansoor, 2020). Kapasia et al., (2020) added that students from remote areas and disadvantaged regions also faced an unfavorable home study climate. They would often feel distracted by siblings and the overall noise at home. Their parents were also not understanding in terms of why they had to stay in front of the screen the whole day while there were chores to be done.

The results from the research conducted by Ramij and Sultana, (2020) suggested some of the factors identified as key barriers to virtual learning in rural HEIs. This included insufficient technical infrastructure, financial implications while data is overpriced, low internet connectivity, and students' mental states. Poor geographical settings, Internet access failure, no devices that support virtual learning, affordability of data, shortage of technological skills, and lack of data are the major challenges in these areas. The study by Rahiem, (2020) reported the technology barriers and challenges in rural campus. Students' case with incompatible devices, sharing of

devices with more than one family member, as well as limited or inaccessible internet, high data costs, and inadequate technological skills formed part of this report. Since rural areas generally suffer from lack of adequate infrastructure, this was a stumbling block for many students as they had to study from home. These challenges were more intensive for those who were first years during that time, because they had never been exposed to Blackboard as a learning platform before.

Thus, this study argues that there is a need to explore the students' perspectives of learning on the online platform through Blackboard Collaborate Virtual learning, as well as their level of acceptance of this technology. The results will assist this specific rural campus to have strategies in place to be able to cater for its students' needs and improve their success to learn adequately on this platform for future purposes (Du Plessis & Mestry, 2019) and for prospective students.

2.6 Higher education institutions virtual learning processes

During the onset of Corona virus, universities and students were obliged to shift to the virtual learning, and students were not prepared to study through the online channels. Motivation and support to learn online became critical (Baber, 2020). A compelling shift towards virtual learning can have a negative impact and perception on the entire learning on this platform, which can convey recurring biases in the future. Students support and motivation for the success of the virtual learning was fundamental (Rhema & Miliszewska, 2014). Virtual learning as compared to the traditional face-to-face learning requires students to be highly motivated and supported to learn effectively on this platform, (Baber, 2020). Students are more likely to learn when they receive academic support from all relevant stakeholders (departments, faculties, lecturers, peers) and when they have developed the competency to use technological tools to learn (Kim & Frick, 2011). A connection between motivation and students' performance has been established on the virtual learning environment. Barber, (2020) added that one of the reasons virtual instructions has not provided fertile results is because students were not fully supported nor ambitious about it. To guarantee that students are absorbed and engaged in a virtual class, it is essential for the implemented technology to be user-friendly to keep students motivated to learn. This

can lead to a successful delivery of virtual teaching and learning, perceived standard e-learning and continuous retention rate. Consequently, student support and motivation form a significant part of students' attitude on the virtual learning because this influences the success of this learning environment. It is therefore vital to highlight the literature based on students' acceptance of this technology that was integrated to deliver content to them on this rural campus.

2.7 Theoretical framework: Technology Acceptance Model (TAM)

According to Alshammari, Ali, and Rosli, (2016) TAM was created by Davis, (1989) to anticipate the users' acceptance and use of new technology. Lai, (2017) added that TAM originates from the theory of reasoned action (TRA), as well as the theory of planned behavior (TPB). According to Fishbein and Ajzen, (2010) the TRA mainly analyses the intent of the person' attitude which has an impact on their behavior. According to their study, attitude is defined according to how the end users evaluate any sort of technology. Behavior is defined according to their intention to use the newly introduced technology. Tarhini, Hone, Liu and Tarhini, (2017) asserts that the effectiveness of virtual learning highly depends on the degree of acceptance of the user.

Davis, (1989) argues that the vital component for the effectiveness of the implementation of any newly introduced technology is dependent on the user's acceptance. Technology acceptance is defined as a person's mental state regarding their intention to use particular technology (Davis, 1989, Davis, Granić & Marangunić, 2024). He describes the major variables of this model as PU and PEOU. According to him, these two variables are interceded by attitude. He further states PU as the first variable which develops performance according to the system. He also reports PEOU as the second variable whereby the end user uses the system effortlessly.

Due to the shift to learning through the online platform, it was essential for recent studies to largely focus on diverse factors that may affect students' acceptance on the integrated technology within their various HEIs. Despite the potential enhancement and support of education on the online platform, its value cannot be recognized if the user does not accept it. Generally, the context of the acceptance of technology is that

it requires the development of new pedagogical skills, self-discipline, motivation, and support Pedagogical design, the interaction between lecturers and students and the institutional support seems to influence students' acceptance of technology. The results displayed that the users' persistence and intention to use new technology is determined by satisfaction. They added that this is also jointly determined by PU and PEOU.

Students' motivation towards technology determines the success of using that specific tool to learn. The knowledge of using technology to learn is a very challenging task. It is, therefore, essential to ensure that students are skillful and competent enough to be able to tackle any challenges they may face on this platform. Their involvement in the classroom, prior experience, technical skills attained, and their attitude determine their aim for the acceptance any technological tool (Hamzah et al., 2015; Sagnier, et al., 2020). The more they are involved in the classroom, the more they enhance their experience with using technological tools. Hamzah and Marhamah, (2015) further argue that students' responses towards this tool determine their motivation to accept technology (Sagnier, et al., 2020). To keep students involved and motivated, it is essential to ensure that the type of technology integrated is user-friendly and less complicated. Insufficient support, as well as lack of motivation to students can be one of the factors that diminish the interest and success of using the tool. Coleman and Mtshazi, (2017) argued that students are at an advantage to learn when they get exposed to how a specific tool works and if they frequently interact with it on their own (Kimathi & Zhang, 2019). Technology-based learning has deeply influenced the academia during the cause of the pandemic, as it was the only available platform for students to learn. The focus of this model is on the analysis of how students' attitude towards the use of technology influences their acceptance of it (Elkaseh, Wong, Fung, & Chun, 2016; Sagnier, et al., 2020). Many studies have used TAM as a tool to evaluate the technological acceptance in diverse contexts (Eraslan, & Kutlu, 2019; Al-Fraihat, Joy, Masa'deh, & Sinclair, 2020). Further research to explore the aspects that may have an effect on students' acceptance of the sudden alteration to learning through Blackboard Collaborate Virtual learning will lead the study at hand.

Blackboard Collaborate Virtual learning was the main substitute mode of teaching and learning delivery to students in many colleges and universities worldwide during the

Corona virus outbreak. Individual's attitude to technology can be defined as desirable or undesirable state of mind towards using that tool (Venkatesh et al., 2012; Sagnier, et al., 2020). In this regard, students' attitude towards using Blackboard Collaborate to learn plays a major role in its success. Therefore, it is critical to explore students' readiness and adaptation of this platform for the continuous success of this virtual learning environment. Successful or unsuccessful learning on this platform can be determined by understanding the challenges students face, as well as their needs and readiness to adapt to the e-learning environment. Coleman and Mtshazi, (2017) added that a deficiency in computer based, such as basic technological skills may demotivate the end user. This may lead to no interest in the acceptance of using technology. This study provides a discussion on students' acceptance of Blackboard Collaborate Virtual learning as a new technology to solely deliver teaching and learning in a rural higher education campus.

The users' readiness and acceptance of technology are crucial for a productive learning process (Almarabeh, 2014; Davis, Granić & Marangunić, 2024). Al-Drees, Khalil, Irshad, and Abdulghani, (2015) states that the effective use of the Blackboard Collaborate Virtual learning is dependent on the users' background with technology, readiness, and acceptance of the system (Sagnier, et al., 2020). While still a growing phenomenon, there is a need to study the comprehensive acceptance of Blackboard Collaborate Virtual learning as a substitute to physical classroom instruction. This is more essential for students based on a rural campus with many challenges, such as lack of devices or constant internet disruptions.

Preceding studies discovered that the successful use of technology can be determined by the users' views and perspectives towards the systems and its usefulness and ease of use, (Eraslan & Kutlu, 2019; Ismaili, 2021; Mather, et al., 2022). The TAM has been especially incorporated as an acceptable theoretical framework that compliments this study. This is on the basis of identifying whether Blackboard Collaborate, offered as an alternative mode of content delivery was accepted by students of this campus or not. In addition, research has shown that positive perspectives in the adoption of a newly introduced technology in the teaching and learning process plays a vital role that impacts students' attitude towards it. Subsequently, the users' readiness and

acceptance to use newly introduced technology are crucial for the successful application of the system (Almarabeh, 2014; Kimathi & Zhang, 2019).

Although HEIs were compelled to deploy the online learning systems due to unforeseen circumstances, students' acceptance of Blackboard Collaborate Virtual learning as a mode of content delivery determines the success of this system. It has been indicated that how the user perceives technology has an impact on the initial stages of accepting it, as well as the behavior and persistence to either continue learning or not (Almarabeh, 2014; Salloum & Shaalan, 2018; Salloum et al., 2020). The active use of technological tools is dependent on the users' perspective, their background knowledge as well as the capability in using the tool (Tarhini, Hone, & Liu, 2013; Salloum et al., 2019; Alshurideh, et al., 2020). The behavioral intention of the user carries an influential impact on their actual experience of the technology used. This is also influenced by the previous technological skills they may possess (Šumak, Hericko, Pusnik, 2011; Alshurideh et al., 2020)

2.7.1 Perceived usefulness and Perceived ease of use

It has been suggested that factors such as technological readiness, PU and PEOU are vital for a successful implementation of a newly introduced technology. The acceptance of any e-learning system highly depends on students perceiving that specific technology as a way to improve their performance while learning. As already confirmed by numerous studies (Aloraini, 2012; Alshurideh, et al., 2020), it is critical to understand the user's preferences of technology to enhance the usage of that specific tool for the user's satisfaction of online learning. User's acceptance of technology, motivation and satisfaction play a major role in increasing the level of online learning usage (Alshurideh, et al., 2020). A previous study has noted that technology acceptance and lack of practice lead to the ineffectiveness and unsuccessful online learning or usage of a particular system (Eraslan & Kutlu, 2019). Positive views on technology usually motivate individual students' intention to use this platform and if students find it easy to use, there is a possibility and big chance for them to find it useful (Kurdi, Alshuriden, Salloum & Zaid, 2020). It is essential to identify factors of acceptance or rejection of technology to easily determine what works and

what does not work for students to be able to establish an effective virtual learning platform for them (Bruggeman, Tondeur, Struyven, Pynoo, Garone, & Vanslambrouck, 2021). There are a lot of contributing factors regarding the user's accepting technology or not. It is, therefore, essential to get a deeper understanding on the issues that students experienced during online activities through Blackboard Collaborate Virtual learning.

The PU of a system refers to the level to which a person considers that the use of new technology would improve how they perform (Davis, 1989). The PEOU of a system refers to the level to which a person distinguishes that using a specific technology would be less complex (Davis, 1989). These two factors are adapted from the TAM (Davis, 1989; Davis, Granić & Marangunić, 2024). Davis, (1989) stated that these two factors can have an influence on students' yearning to use a specific technology and also have an influence on the intent to use a specific system. Hypothetically, PU and PEOU mainly influence a person's attitude towards the use of the newly introduced technology, and this eventually leads to the definite use (Motlhaka, 2020). These factors refer to how well the user has confidence that using new technology might have an impact in improving their performance and also how they perceive the system to be useful and easy to use (Davis, 1989).

According to prior research, students who accepted and used technology (i.e., PU and PEOU) defined self-reported practice as the dependent variable in the framework of virtual learning atmospheres, (World Bank, 2020). Islam, (2013) identified PU and PEOU as crucial elements for self-reported usage (Natasia, Wiranti, & Parastika, 2022). A study by Van Raaj and Schepers, (2008) added that 33% of the total variance on self-reported usage is a direct outcome of PU and indirect outcome of PEOU. A study by Islam, (2013) discovered that 45% of the total variance on direct outcome on self-reported usage on both PU and PEOU. A study by Collazo et al., (2012) discovered a constructive effect on actual use by PU and this leads to students' improved performance. A study by Al-Adwan, Al-Adwan, and Smedley, (2013) reported that PU has a significant influence on behavioral intentions while PEOU had a significant influence on attitude (Natasia, Wiranti, & Parastika, 2022). Al-Azwaei and Lundqvist, (2015) identified PU as the significant predictor of the user's perceived satisfaction and added that online self-efficacy has a significant outcome on PEOU as

compared to perceived satisfaction (Alhumsi & Alshaye, 2021). Furthermore, PU and attitude were identified as influences for video usage, whereas PEOU was found irrelevant on it. Alhasan, Hussein, Audah, Al-Sharaa, Ibrahim, and Mahmoud, (2023) discovered the significant effect of self-efficacy on PU and PEOU on students' intention to use technology to learn. PEOU and PU have an influence on attitude and the behavioral intention, which lead to either a positive or negative impact on the actual usage of technology to learn (Fathema et al., 2013).

In this regard, according to this theory, the user's perception of the system being easy to use automatically influences the idea of it being useful to them. The theory argues that these two features of this model are affected by outward system-based factors which influence the users' response regarding the use of technology. If the student finds the new system user friendly, there is a much significant probability that they will have a positive viewpoint towards using it continuously (Davis, 1989; Davis, Granić & Marangunić, 2024). One e-learning study have noted a link between PU and the behavioral intention to use new technology to learn (Hsia, 2016; Sagnier, et al., 2020). It is argued that the more the PU of technology, the higher the user's positive attitude to perceive it as easy to use (Akman & Turhan, 2018). This study incorporates the TAM to outline the relationships embedded among different variables of this model.

2.7.2 The general perception and acceptance of technology to learn

Davis, (1989) clarifies that in the framework of TAM, PEOU and PU lead the incorporation of technology to enhance the performance of organizations. The concept technology acceptance by Davis, (1989) states that the PEOU factors lead to the effective utilization of technology. It is vital to examine self-regulation and intrinsic motivational factors as identified as the components that determine the success of online courses. Davis, Granić & Marangunić, (2024) argues that if the technological tool is not usable and not easy to use it leads students to have a bad experience and lack of engagement with the tool and they are less likely to go back to it. Students' attitudes to the newly introduced form of learning influence the effectiveness and the success of learning (Sezer, 2019). Students who approach any learning technological tool with a negative attitude cause more challenges to the delivery of teaching and

learning (Hazwani, Noor Raudhiah & Norziah, 2017). Pasani, Amelia and Hassanhassan, (2020) also emphasise that attitude towards the use of any type of technology in learning is crucial to develop the acceptance of technology. Nurul, Muhammad, Muhammad & Mohamad, (2020) added that students should rather take learning virtually on Blackboard Collaborate as an opportunity to improve their technological skills and strive to adapt to new technologies for a lifelong learning. When the academic staff are not trained on how to use a specific technology to deliver teaching and learning, students are more likely to suffer. Students are encouraged to use technology if they find it easy to use and useful in helping them to learn. Results on the research by Nelson, Courier, and Joseph, (2011) on the acceptance of e-learning solutions established that deficiency of self-discipline by students was one of the barriers related to the acceptance of using technology to learn. Although Blackboard Collaborate Virtual learning was integrated to deliver teaching and learning, one of the concerns has always been students' acceptance of this technology. Overall, the conclusions made by various authors in their studies disclose that the utilization of TAM has a positive reception from end-users as stated above.

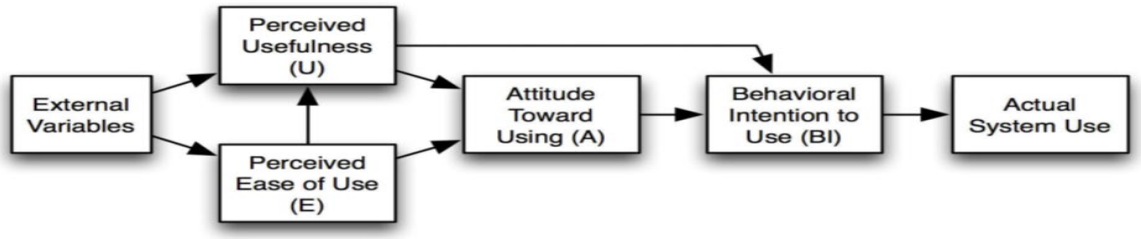

Figure 2.2: Technology Acceptance Model (TAM): adapted from Davis, Bagozzi & Warshaw, 1989: 320).

Figure 2.2 above clearly states the core aspects that the TAM model consists of:

i. PU: is degree to which the user can improve their performance in the learning process.

ii. PEOU: Users' successful use of new technology is determined by the perception of the user.

iii. Attitude: The valuation by the user of new technologies.

iv. Behavioural intention: The users' desire and determination to use new technologies.

v. Usage Behaviour: The actual behaviour while using technology.

2.8 Justification for using TAM as a theoretical framework in this study

As already stated, the TAM theoretical framework has been tested and applied in various research projects to get an indication of the technology acceptance in different organizations. This theoretical framework was therefore a good choice to guide the current study. Table 2.1 below states some of the researchers who specifically applied TAM in their studies on the acceptance of technology in teaching and learning and the results thereof. These were qualitative studies. The common things about these studies were that the results stated that students found technology useful and easy to use. The aim of this study is to factor in the students' voice through a qualitative research approach to get students' narratives on using technology to learn.

Table 2.1 Technology Acceptance Model subject-specific studies

AUTHOR/DATE	SUMMARY	CONCLUSION
Gamble C. 2017	The study investigated students' acceptance and intention to use various online platforms by employing TAM and to measure the students' overall perceptions of the CMS in a blended learning context.	The study found the effective applicability of TAM in HEIs context and that students did not find various learning platforms difficult to use.
Salloum, S.S, Alhamad A.Q.M, Mostafa A, Monem A.A, & Shaalan, K. 2019	The study aimed to analyse other e-learning studies that applied TAM and to explore external characteristics that influenced the adoption e-learning by students.	The findings concluded a positive impact and students' perceived ease of use of e-learning systems. Furthermore, they discovered that PU and PEOU of technological tools leads to growth in the intention for students to use technology for a lifelong learning.
Sakarji, S. R., Nor, K. M., Razali, M. M., Talib, N., Ahmad, N., & Saferdin, W. A. A. W. M. (2019).	This study attempts to investigate students' acceptance of e-learning by employing the technology acceptance model	The result established that the TAM is a reliable model that can be used to identify the students' acceptance of e-learning.

They also recommended that the challenges of Industrial Revolution 4.0 should become the main focus for future research studies in the field of higher education.

When implementing the e-learning system, focus is on developing positive perceptions of students and ensuring that it is useful and easy to use in order to encourage positive attitudes toward it. The researchers stated above also discovered that the institution's involvement to encourage its students is crucial and should provide support (student access to the internet, resources, training) to keep them motivated. Lecturers still remain the main driving force of ensuring a meaningful incorporation of technology in teaching and learning as the experts on the pedagogical design. Kilis and Yildirim, 2019); Chasanah, (2019) also discovered that the benefits of using technology to learn are that it enhances technical skills and cognitive characteristics of an individual, these researchers concluded that the resistance of using technology to learn leads to negative perceptions, as well as the ineffectiveness of the system overall. They emphasise that a lot of work has to be done by different stakeholders (departments, faculties, lecturers) to ensure that they push students to the point whereby they perceive technology as useful and easy to use. It is therefore important to examine students' perspectives of an implemented technology. This is important to get an indication of individual experience with the system. The results will also unfold the challenges they faced in order to be able to come up with strategies for the learning environment to be beneficial to students.

2.9 The rationale behind using TAM as the theoretical framework for the study

The TAM has been identified as the most effective theoretical framework that could be adapted for studies on the acceptance of technology in the delivery of teaching and learning (Sumak et al., 2011; Alhumsi & Alshaye, 2021). The researcher in this study chose this theoretical framework to guide the study in answering the main research question. The TAM framework outlines the users' intention to use technology to learn.

The TAM has become a great model suitable for the prediction of the acceptance of new technologies by users (Al-Busaidi, 2013; Raman, Don, Khalid, & Rizuan, 2014; Al-Emran, Mezhuyev, Kumaludin, 2018; Ugwoke, Ernest; Edeh, Nathaniel Ifeanyi & Ezemma, Joseph, 2019), by also examining its variants (PU & PEOU) on the users to get an indication of their intention to use technology to learn.

The acceptance of technology in the learning environment and the intention to use it is a process that enables students to have a positive attitude to learn effectively on the online platform. This also leads to the successful implementation of this platform and an effective teaching and learning in the classroom. Blackboard Collaborate has been employed as an innovative way for quality enhancement in teaching and learning in the 21st Century. It is, therefore, essential for the use of technology to be provided in a manner that is usable and easy to use to the end-users who are students in this case. Incorporating the TAM enables this study to determine what contributed to students' successful learning through Blackboard Collaborate Virtual learning and what hindered students to learn effectively on this platform.

Different studies on technology acceptance by Andana and Elvina, (2015); Sezer, (2019); Motlhaka, (2020) found that the effective use of e-learning is dependent on students' satisfaction of the system, in which usefulness impact the intention to use it. Furthermore, they discovered that motivation from various stakeholders leads to the intention to use the virtual learning system. The acceptance of technology also enables students to develop lifelong learning technical skills they can apply in different contexts by applying high order thinking (Kilis & Yildirim, 2019) on various models through the experience they acquired on this platform. The TAM framework employed in this study guided the researcher to make sense of how the acceptance of technology aligns with the effective learning on the Blackboard Collaborate Virtual learning.

2.10 Related work

Figure 2.2 below adapted from a study by Ahmad, Umar, Kadar, and Othman, (2020) illustrates related work by various scholars on the acceptance of technology. These authors employed different models to get a meaningful understanding of what influences students to accept technology as a tool to learn. These previous studies

employed Unified Theory of Acceptance and Use of Technology (UTAUT) (Salloum et al., 2019); TAM (Hanif, Asrowi, & Sunardi, 2018); and Structural equation model-neural network (SEM-NN) (Sharma, 2017). These models are employed in many research studies to predict the usage of technology by examining the variables that influence the acceptance of technology by users. A common thing discovered by these scholars was that the user of technology benefits from the e-learning system when they accept technology, and this leads to the intention to use it. They further discovered that motivation on the end user to have an interest and intention to use technology to learn plays a major role, as it changes their attitude to be positive towards learning. Davis, (1989) concurs that the initial stage is for students to accept the online learning platform. This will lead them to feel comfortable in using it, so that they can lessen the threat of the level of difficulty or complexity.

	Model Used			Internal Factors
	UTAUT	TAM	SEM-NN	
Salloum (2019)	√			Performance expectancy, effort expectancy, social influence and facilitating conditions
Hanif et al. (2018)		√		Result demonstrability, Subjective Norm, Enjoyment, Self-efficacy, Perception of External Control, System Accessibility.
Sharma et al. (2017)			√	technology experience, personal innovativeness, system quality, information quality, and service quality
Indahyanti (2015)		√		perceived usefulness, perceived ease of use, and attitudes towards to use, affecting the intention to use
Andana & Elvina (2015)	√			e-learning motivation, facilitating conditions, behavioral intention.
Al-Rahmi et al. (2015)		√		self-efficacy, learner interface, learning community, students' satisfaction, perceived usefulness, intention to use e-learning, e-learning effectiveness

Unified Theory of Acceptance and Use of Technology (UTAUT); Technology Acceptance Model (TAM); Structural equation model neural network (SEM-NN)

Figure 2.3: Summary of the Internal Factors on Technology Acceptance: adapted from a study by (Ahmad, Umar, Kadar and Othman, 2020: 56).

2.11 Summary of the chapter

The onset of Corona virus led the traditional face-to-face classes to be seized within a short period of time without any preparation by HEIs. Teaching and learning were shifted to virtual learning through Blackboard Collaborate Virtual learning. It is essential to take into account students' perspectives, suggestions, and concerns based on their experiences during this period (Hodges et al., 2020). Students' perspectives, experiences, level of acceptance and expectations assist with the implementation or amendment of policies. This will align with their expectations and the university's missions and objectives to produce competitive graduates.

This chapter explored the literature review relating to students' perspectives on the incorporation of Blackboard Collaborate Virtual learning in teaching and learning in HEIs across the globe. The focus was on the context related to the nature of virtual learning, the nature of Blackboard and Blackboard Collaborate, its advantages, disadvantages and challenges, and students' perspectives and experiences of using this platform at one higher education rural campus in the Eastern Free State, South Africa. Furthermore, this chapter also referred to the TAM as an ideal theoretical framework used as a measure to analyse the acceptance, as well as the PU and PEOU of the newly introduced technology. The next chapter focuses on the research design and methodology of the study.

Chapter 3: Research Methodology

3.1 Introduction

This chapter is divided into the research design and data collection methods sections. It outlines the research methodology of the overall study. The research design, the targeted participants, the sampling procedure, the data collection instruments, as well as the data analysis process are described in detail. This qualitative research study is also rooted in the exploratory research methodology which is explored in-depth. The prime focus of this chapter is to provide validation of the employed research methodology to determine students' perspectives pertaining their experience of learning virtually on Blackboard Collaborate at a rural higher education campus in the Eastern Free State. Furthermore, the measures followed for the assurance and validity of ethical considerations of the study are outlined as well.

3.2 Research Questions

The drive of this qualitative case study is to get an indication of the integration of Blackboard Collaborate as a virtual learning platform from the perspective of a rural higher education campus students. This research could be a helping hand in assisting on how to incorporate strategies that can help the current and future students at this campus. It will also help them to learn productively on the online platform without anxiety of not knowing how to go about it due to lack of support. It can also contribute to the recent data regarding the challenges and solution of learning virtually for the students. Furthermore, it can assist other rural HEIs on how to make the virtual learning platform conducive and effective. The leading research objective of the study was to explore the perspectives of rural higher education campus students pertaining Blackboard Collaborate as a learning tool. The objectives of this study were covered by addressing the following two secondary research questions that guide this study:

- How do students in a rural higher education campus experience virtual learning through Blackboard Collaborate?

- How can students' learning experiences on Blackboard Collaborate in a higher education rural campus be understood and explained?

It is essential to generate research questions that have reference to the context of the study (Creswell, 2014; Fouché, 2021). The context of the study has to be clearly clarified in the research questions as they guide the overall study. The type of research questions formulated in a qualitative study usually give the study a direction that leads to both theoretical and methodological rapports (Johnson & Christensen, 2020). To be able to follow this study, the research questions should clearly and precisely reflect all details of the study for a rich context. They added that it is important for the research questions to be phrased in a manner that they link directly to the theory. Research questions help clarify the purpose of the study. Qualitative research questions have to be articulated in a manner that they articulate what the researcher wants to achieve as the goal of the study. Research questions map possible directions of the research study and also try to figure out the unexpected. The research questions above were formulated to produce valuable and robust findings by ensuring that the investigation on the topic of the study is done in a systemic and disciplined manner, while engaging with the participants. As stated by these scholars, Creswell, (2014); Leedy and Ormond, (2021) research questions impact all relevant elements of this qualitative study, as well as the collection and the analysis of data (Fouché, 2021).

3.3 Research paradigm

This study aims to examine students' perspectives and experiences with studying via Blackboard Collaborate Virtual learning platform. Kivunja and Kuyini (2017) define paradigms as human structures which deal with philosophical orientation that signifies where the researcher comes from to construct the rooted meaning in the discovered data and its significance (Leedy & Ormond, 2021). The aim of the researcher is to discover students' perspectives and experiences of learning virtually through the PU and PEOU of Blackboard Collaborate as a learning tool that was incorporated within their studies to deliver teaching and learning. Interpretivism research paradigm is the empirical measure and interpretation of human behavior and the interactions between the individual and their environments, (Pulla & Carter, 2018). Interpretivism was identified as the most suitable paradigm to enable the researcher to obtain this

valuable information from the realities that students face. This paradigm will assist the researcher to observe how students interact with various learning tools embedded within the Blackboard Collaborate Virtual learning. The information collected will also enable the researcher to have a clear understanding of how students interpret and engage with the functions on this learning platform. Furthermore, this paradigm is going to contribute to this study by seeking analyse students' narratives on their individual experiences of learning virtually through this platform, (Pulla & Carter, 2018). Students' experiences of learning through technology bearing in mind the exclusive context of a rural campus and the background of the participants involved are examined. The focus is on students' perspectives on the integration of Blackboard Collaborate Virtual learning is investigated. The interpretivism approach is applicable to this study as it focuses on respective students' experience of learning through Blackboard Collaborate Virtual learning (Alharahsheh & Pius, 2020: 42). Furthermore, the assumption of this paradigm is that reality is subjective and can differ considering different individuals (Alharahsheh & Pius, 2020: 42). This paradigm further determines the interrelation between students' perspectives on the PU and PEOU of technology as a form of a learning tool to deliver teaching and learning. Students' motivation, satisfaction, attitude, and experiences of this shift are outlined.

3.4 Research Approach

A qualitative research approach is employed in this study. The qualitative research approach aims to address questions that evolve around an understanding of the meaning and experience magnitudes of human lives and social worlds (Creswell, 2014; Johnson & Christensen, 2020; Fouché, 2021). As stipulated, this research approach is relevant to address the objectives of the study for a holistic view of students' perspectives and experiences of using Blackboard Collaborate as a virtual learning tool. A well outlined qualitative research is subject to the participants' understanding of the meaning, action, and social context, as it stipulates the underlying opinions and experiences of human participants (Fouché, 2021).

An exploratory case study is employed in this study. The information discovered from various students according to their different experiences of learning through

Blackboard Collaborate Virtual learning help to develop an in-depth understanding of whether they perceived this mode of content delivery useful and easy to use or not. Interviews and observations were used as data collection tools. In this regard, the participants were able to express their views verbally. The researcher got the opportunity to witness how students interact with the Blackboard Collaborate as a technological tool used to deliver teaching and learning.

The collection of data was done in two different methods, namely: semi-structured interviews and observations. The researcher approached fifteen students to participate in the study. Out of the fifteen, the researcher worked with eight students. Fifteen students were approached to be on the safe side and have a large pool in case other students were not able to make it. There was no need to postpone. The participants were invited to contribute to the interview arranged by the researcher. Two of the participants were the same students that were observed by the researcher on how they interact with technology in class.

3.5 Research Design

This study focused on understanding students' perspectives of learning through Blackboard Collaborate Virtual learning. A qualitative research design was more relevant for this study as a guide for the data collection and analysis purposes. Maree, (2016) describes research design as a strategic move from the basis of philosophical assumptions specifying data-gathering methods utilised as well as the data analysis method. My role as the researcher was to contrast and structure meanings the interpretation of data. This research design was influenced by the epistemological perspectives. Furthermore, the study was guided by the phenomenological approach as well as the explanatory case study design. This approach the gathering, interpretation and the analysis of data that relates to the research questions of the study.

An explanatory case study was employed in this study. This case study outlines "how and why" did something happen. A case study as a mode of inquiry is employed to study students' perspectives of learning through a Blackboard Collaborate Virtual learning. A case study approach Leedy and Ormond, (2021) has been valued as an

applicable method in the context of instigating online teaching and learning. This research design clarifies the students' behavioral patterns of using or not using technology at their disposal according to their experience. Furthermore, Creswell, (2014), Johnson and Christensen, (2020) argue that this method is useful in providing perspectives on the development purposes, as well as policy making within various institutions. In this study, eight students were interviewed to get an indication of how they experienced learning through Blackboard Collaborate Virtual learning and why they either found this learning method easy or challenging. This research design gave students the platform to raise out their views and experiences of learning virtually on a foreign platform. Furthermore, two of the eight students were observed while facilitating content virtually to give the researcher as indication of how students interact with various Blackboard Collaborate functions.

3.6 Position of the researcher

The researcher must be able to examine their own roles and perspectives and know exactly how they are positioned in relation to the participants and their study. The majority of recent qualitative research has shifted towards engaging both the researcher, as well as participants in the research process (Johnson & Christensen, 2020). They further argued that all relevant stakeholders affected by the issue under study ought to be involved in the investigation process. This study was mostly stimulated by the researcher's role as a student, who also had a different experience on learning solely online and was interested to get an indication of how others experienced that virtual period.

The researcher was solely responsible for selecting participants, the data collection process, conducting interviews, doing observations and the analysis of the data in the study. The researcher was transparent about her position to the participants as a researcher. She indicates to them that she was also one of the students of the campus being studied. This information was shared for students to be comfortable and not feel like there were any power dynamics that may have led them to tilt their responses. The researcher wanted them to understand that they are on the same level as students, and it would strengthen the research for them to give their different views.

She further noted that she has her own perspective as well as experience regarding studying virtually on the Blackboard Collaborate Virtual learning platform. The participants are assured both verbally (during the interview) and in writing through emails that their voluntary decision to partake in the study does not affect their positions as students on the campus this study is conducted.

3.7 Sampling procedure

This campus was selected as part of the study because it is a rural higher education campus. The structure and geographical stance of this campus makes it qualify as a rural higher education campus. Avery, (2013) defines a rural educational institution as one outside the urban area (Du Plessis, 2014), characterised by insufficient resources and infrastructure, high in poverty and with limited access to economic opportunities (Nkambule & Mukeredzi, 2017; Dlamini, 2018). The settlement of this higher education campus allowed the researcher to continue with research. That was due to its structure to obtain an in-depth information of the type of challenges experienced by students enrolled on this campus as compared to those in urban regions.

The sample of interest for this research study comprised of eight students at a rural HEI in the Eastern Free State, South Africa. This rural higher education campus was selected because the researcher has easy access to the institution. Moreover, there was no need for budget and time to conduct this study in other similar universities. This university campus has four faculties, however, only two faculties formed part of the data collection, EMS and HUM faculties. These students were invited to partake in the interviews per faculty. Participants were invited via their students email accounts to participate in the study.

Fifteen students were invited as a contingency plan to have a larger pool to choose and select from. Students were selected according to their final results on the compulsory module they had completed during their first year of study. These students were selected because they had experienced one academic year studying fully at this university on the face-to-face platform. It was essential to get the perspectives of those students as well to get an indication of how they experienced the transition of studying from the face-to-face to the online platform. These students were then requested to

attend a face-to-face interview. Two of the participants who formed part of the interview sessions were observed by the researcher Their role was to facilitate content on Blackboard Collaborate. The aim of the observation was for the researcher to experience how students interact with the content, Blackboard Collaborate function, how they engage amongst themselves and with the facilitator. Some of these participants were first year students at this campus in the year 2019 and others in 2020. Some of them were doing their final year of study while others are doing their postgraduate studies. These are students who have also completed a compulsory module at this campus previously. Both male and female students were selected to partake in this study. These participants were requested to share their perspectives and experiences of learning virtually on the Blackboard Collaborate Virtual learning.

Thus, a non-probability purposive sample selection (Etikan, 2016) of eight participants was selected to attend the interviews as per request. This sampling procedure was based on the subjective judgment of the researcher rather than random selection, not all members of the population have an equal chance of participating in the study. The data was accumulated over a three-week cycle, depending on students' availability. The interview took place for 30 minutes per session.

Furthermore, two participants were then selected for purposes of observation from the eight students who were interviewed. These participants were selected because they were also facilitators. The role of these participants was to facilitate content on Blackboard Collaborate Virtual learning. The observations only took place for two online synchronous sessions because only two of the eight participants were also facilitators. The observation took place for 50 minutes per session on this platform. The purpose of the observation was for the researcher to witness students' interaction with the Blackboard Collaborate functions.

3.8 Ethical Considerations

Issues with ethics have been a concern in the life history of research studies. In a review of scholarship on narrative ethics, discovered that while working with ethics, one should be cautions as they do not know how others will respond to or interpret their work (Denscombe, 2017). He added that not following the correct ethical

procedures can paralyze the researcher. Hence, institutional review boards at universities ensure that researchers clearly state the level of risks to the participants. According to Stanton, Sinnott-Armstrong, and Huettel, (2017) addressing potential ethical issues that one foresees beforehand is the best approach.

Mbabe, Ajayi, Bagula, Leenen, and Schoeman, (2021) argues that it is an obligation for ethical issues to be addressed throughout the research project. The standard ethical clearance process was followed. The application was made with the Ethics Clearance Committee of the Faculty of Education of the University of the Free State (UFS), South Africa and approved, Ethical Clearance number: UFS-HSD2023/0091/23 (Appendix A). The type of the research approach design, methodology, consent form, confidentiality, and risks were included in this request. Full details regarding the nature, the aim and the objectives of this study were discussed with the participants. Respect is one norm that was administered in this study. Individual rights were protected by ensuring that the information is kept confidential, anonymous voluntarily.

Full details regarding the role of participants were shared and discussed. They were also made aware that they could withdraw at any stage. It was also ensured that no conflict of interests exists. Letters inviting participants to the interview (Appendix C) were sent electronically via their student email addresses. The participants also received consent forms (Appendix B) for them to read and sign before the interviews were conducted. These mentioned documents contained the overall details regarding the study. This was to ensure that the participants were well informed of this research study, to give them the opportunity to make informed decisions about their involvement in the study. Furthermore, the names of participants, as well as of the higher education campus studied were not mentioned in the study to ensure confidentiality.

3.9 Data Collection

This study used semi-structured interviews and observations to collect data. In this study, the researcher used interviews to shift from seeing human subjects as elements to just manipulate data. Information was rather generated among human beings, where they discussed their views pertaining the world in which they live in (Seidman,

2013; Fouché, 2021). Through the interviews of participants who were students at the selected rural higher education campus, the aim was to explore their perspectives and experiences on the integration of Blackboard Collaborate Virtual learning. The interview as a two-person conversation enabled the researcher to obtain a specific research and relevant information from the participants focusing on the specified content of the research.

The interview invitation was sent electronically through their student email accounts. The interviews were arranged to take place face-to-face on the same campus studied. However, a contingency plan was put in place for the interviews to be conducted virtually on the Microsoft Teams platform should there be any sorts of disruptions during the interview sessions. The arrangements for the interviews were done by the researcher. The reminders were done electronically on their student email accounts, as well as telephonically to confirm their interview times.

The interviews took place face-to-face and online. This was according to the participants' availability and preference, as there were community protests during the week the interview sessions were scheduled. Some participants could not go to campus, while others were on in-service training. The interview sessions were recorded and transcribed on Microsoft teams with participants' permission and their anonymity was preserved at all times. Subsequently, the interview sessions were conducted. A debriefing was done to allow the participants an opportunity to make any inquires, comments or additions regarding the aspects discussed within the interview session. The data collected from the interviews and the observations was coded in themes and patterns. The researcher assures all participants that their involvement within the study remains confidential. Furthermore, the anonymity was employed on their personal details and the information pertaining the institution.

Furthermore, data was collected through observations. This enabled the researcher the opportunity of collecting live data from a class of one of the compulsory modules at this institution. These classes took place online on Blackboard Collaborate Virtual learning. This approach allowed the researcher to observe how students interact with Blackboard Collaborate functions. This further enabled the researcher to have a better understanding of the context beyond the perception-based data from the interviews.

The researcher was given the opportunity to attend two online classes and explore students' interaction with this platform. During these live classes the researcher is able to see which functions students used the most and whether they knew how to use them to learn effectively.

3.9.1 Instrumentation

In a qualitative research study, the researcher aims to explore the participants' lived experiences (Creswell, 2014; Johnson & Christensen, 2020; Leedy & Ormond, 2021). Relevant data of this study was collected through two varied data collection methods. This study, therefore, employed semi-structured interviews, as well as observations as data collection instruments. The interview consisted of 10 open-ended questions. These questions aimed at understanding students' perspectives of their experience of learning through Blackboard Collaborate Virtual learning. These questions focused on students' experience of transition from the face-to-face to the online platform, the challenges they faced and the recommendations they could give should it be a requirement for teaching and learning to solely move to the online platform again. Furthermore, the observation sheet consisted of six tables whereby the purpose was to observe how both students and the facilitator interact with Blackboard Collaborate Virtual learning functions. These six tables gave the observer a guide to observe the principles of the 1) session design, 2) the learning environment, 3) students' interaction with the Blackboard Collaborate system, 4) instructional design, 5) students' interaction with the Blackboard Collaborate Functions, and 6) the Blackboard Collaborate functions used during the session.

This study argues that students' experiences and voices are highly valuable. These instruments enabled participants to disclose how they experienced Blackboard Collaborate Virtual learning as a platform that delivered teaching and learning. Conducting both interviews and observations in a qualitative study ensured triangulation where the two methods complement each other and enable the researcher to collect an in-depth knowledge of subject under study (Simonÿ, Specht, Andersen, Johansen, Nielsen, & Agerskov, 2018; Johnson & Christensen, 2020). When conducting observations and interviews, the researcher captured how what was

said during the interviews compliments what was witnessed during the observations and transformed everything in writing. Having what has been observed and expressed by the participants enabled the researcher to generate rich data.

3.9.2 Pilot Study

A pilot study was conducted to test the interview protocols and observations protocols prior the initial research. This was done with a person not forming part of the interview sample of participants. The participant in the pilot study was one of the students who had completed the first-year compulsory module in 2020. The pilot study was done through one interview with a student at the same university as a participant. The aim of the pilot study was to ensure that the interview questions are clearly formulated and comprehensive for participants to be able to respond according to the context of the study (Du Plooy-Cilliers et al., 2014). Moreover, it was to determine roughly the duration of the interview progression would take per individual. The pilot interview was recorded and transcribed. Comparing the information received, there were a lot of similarities on what this student provided as well as the data collected from the participants. While doing a pilot study, there were a lot of connectivity issues as well on the students' side because she could not make it for the face-to-face session. However, it was evident that Microsoft teams was a good choice of an instrument because it has a transcription function. The transcription was downloaded to try to make sense of what was reflected on by the student. One of the themes that stood out from the pilot study was that this student also experienced challenges with studying virtually on the Blackboard Collaborate Virtual learning as they were on campus for only two and half months. They found this platform as not easy to use because they were mostly focused on learning the platform which took a lot of time. One of the themes that was similar was the experienced connectivity issues that also hindered effective learning. The pilot study of the observation was conducted with one of the facilitators who also did not form part of the participants. This was done for the observer to get an experience of how the session would be conducted and if the six principles on the observation sheet made sense to evaluate during the session. The similarity of the observation in the pilot study was that students did not make use of the Blackboard Collaborate functions. The majority resorted on participating in the chat

box instead of using the raise hand function to participant during the session no matter how hard the facilitator tried to pursue them to use the available functions.

3.9.3 Semi-structured Interviews

Interviews formed part of the data collection methods followed in this study. Data collected from the interviews was used to answer the primary research question: What are rural higher education campus students' perspectives of Blackboard Collaborate as a learning tool? Semi-structured questions were formulated to conduct the interviews and are placed as an Appendix D. The researcher is able to collect a valuable descriptive data by having a conversation with the participants verbally. The interviews were recorded and transcribed. By transcribing the interviews, the researcher captured the way of being-in-the-world experienced by the participants and also discovered what else ought to be explored further either in interviews or in the observations (Simonÿ, et al, 2018). In addition, the researcher took notes during the interview sessions. The interview questions were based on the participants' perspectives on the integration of Blackboard Collaborate Virtual learning in teaching and learning.

3.9.4 Observations

Observations were another form of collecting data in this study. Conducting observations gave the researcher the opportunity to observe the participants' movement and interaction with a specific subject (Simonÿ, Specht, Andersen, Johansen, Nielsen, & Agerskov, 2018). The results documented what was discovered in class and might align with the data collected during the interviews. The researcher observed live virtual classes to get an indication of how students interacted with the Blackboard Collaborate platform. The researcher was a non-participant observer during the session. This was to give students an opportunity to interact with the platform than the researcher to dominate the session and end up losing focus on the purpose of visiting the class. The researcher mostly checked how students used Blackboard Collaborate functions, such as (raising the electronic hand, communicating in the chat box) to name a few.

The researcher used an observation form adapted from one of the tutorial programmes on this campus (Appendix E). This document stated in detail what the researcher was looks out for during the virtual sessions on Blackboard Collaborate. This document was also validated by the study supervisor, as well as the committee reviewers for approval to go ahead with using it while observing students online. The observations were conducted during an actual class that took place virtually on Blackboard Collaborate. The researcher firstly had a meeting with each facilitator of that specific session to explain the purpose of this research in detail. Two of the students interviewed were the same students observed as facilitators during a virtual class. The role of these two students was to facilitate the content to students during the session. During the formal class observation, there were some similarities that aligned with the data that was collected during the interview sessions. Students experienced a lot of connectivity issues. The majority would connect and disconnect during the session. Even the facilitator experienced the same issue. What was also noticed was that students were reluctant to participate. As already stated, these are rural campus students who lack technological skills. The majority only preferred to partake in the chat box and did not use a lot of Blackboard Collaborate functions at their disposal. That gave an indication that training, and development is essential for students to be knowledgeable of the system.

3.10 Data Analysis

Data analysis involves reviewing data while it is being collected and the attempt to synthesize and recognize what is observed. Leedy and Ormond, (2021) cite that the focus of data analysis is to reduce vast raw data received the about decreasing the large amount of raw data by only selecting valuable data that the researcher can work from. Fouché, (2021) added that when valuable data has been identified, it will be a guide in answering the research questions of the study by identifying substantial patterns. This study aimed to investigate rural higher education campus students' perspectives and learning experiences of virtual learning through Blackboard Collaborate. According to Seidman, (2013) the verbal data collected from the participants must be transformed into writing. The data received from the interviews was categorized into various codes and themes. To obtain accurate information, the

researcher listened to the recorded audio tapes carefully before transcribing data. The information that was collected during the observation sessions was aligned with the data received during the interviews to bridge the gaps (Maree, 2016; Johnson & Christensen, 2020). To ensure the trustworthiness of the data received, the rigor in the qualitative research of this study which are credibility, transferability and conformability guide the study.

The qualitative data gained during the interview sessions was analysed using the thematic analysis technique. The analysis was done through the ATLAS.ti 22 software to capture the similarities of participants' perspectives and experiences from the data collected, which relates to the research question one. The information received can be utilised to generate improved perceptions on the findings (Denscombe, 2010). Data obtained from the participants was categorized into three themes subjectively. The following sub-themes: 1.1) Useful and ease of use of the Blackboard Collaborate Virtual learning were then categorized for each respective theme that relates to the research question and the topic, 1.2) Limited accessibility to the Blackboard Collaborate Virtual learning needed and financial support, 1.3 Overall institutional. Support. During the analysis process, data was classified according to the main theme, namely: (1) Participants' barriers to learn effectively on Blackboard Collaborate Virtual learning.

The analysed data comprised of transcriptions of the interviews, their voices on the recorder, as well as the note taking that formed part of the sessions. The researcher analysed the transcriptions, as well as the recordings several times. It was very difficult to hear what other participants were saying at some point. The researcher had to rephrase what was said to make sense, as the recorder was also unable to capture the exact spoken words verbatim due to different accents. Therefore, a few changes to make sense of the contracts that were narrated by participants were made where necessary.

During the observation analysis the researcher aimed to have an in depth understanding of how students learn on Blackboard Collaborate virtual learning (Di Pietro et al., 2020). The data gained through the observation analysed consisted of six tables 1) session design, 2) learning environment, 3) interaction with the Blackboard

Collaborate system, 4) instructional design, 5) students' interaction with Blackboard Collaborate functions, and 6) Blackboard Collaborate functions used during the session. The aim of these principles was to guide the observer to analyse students' ability to study effectively virtually. Common themes discovered were that students resorted participate in the chat box than to raise the electronic hand during the session. Due to lack of technological skills Ndung'u and Signe, (2020) the observation analysis aligned with the data collected during the interviews whereby students stated that they did not find it easy to learn through Blackboard Collaborate (Davis, 1989).

3.11 Trustworthiness of the Data

3.11.1 Credibility

Credibility concerns the truthfulness of the inquiry's findings. Its value in this study contained the researchers' ability to create assurance in the results founded on the research design, participants, and context of the study (Creswell, 2012). Furthermore, credibility requires the researcher the responsibility to embody the realities of students' perspective on the use of Blackboard Collaborate Virtual learning as a mode of teaching and learning as accurately as possible. Credibility is more focused on the validity on the truthiness of the data collected. Member checking was therefore applied to validate data. This process took place whereby participants checked and validated their data, by checking for accuracy. Furthermore, the researcher summarised and confirmed participants interpretation.

To find support from both the interview and the observation, the triangulation process was applied. Data collected from the interviews and observations is used for triangulation. In data triangulation, the researcher explores whether the information gathered with the same procedure or instrument confirms data collected using a diverse procedure or tool (Creswell, 2014, Johnson & Christensen, 2020). Data from these two sources is consolidated and compared to determine if the information received and produced is equivalent to conclusions and results.

3.11.2 Transferability

This is the degree to which the conclusions can be used practically or generalized to additional contexts or groups (Creswell, 2012, Johnson & Christensen, 2020). To avoid generalisation, a small sample is used in this study. The researcher was responsible to deliver adequately rich, comprehensive, thick descriptions of the context. This led possible users to make the required contrasts and decisions about comparison. Hence transferability for descriptive adequacy, as this helps the readers to determine transferability for the comparison of contexts.

3.11.3 Confirmability

Confirmability deals with the idea of neutrality or the extent to which the research is free of bias in the procedures and the interpretation of results (Leedy & Ormond, 2021). To ensure no biasness of the study, the researcher disclosed that she works at the same campus under study. This had the potential to prompt biasness in the study. To address this challenge, mitigating factors were applied. Triangulation as well as audit trail as well as member checking were applied to demonstrate confirmability. Data from various sources was linked as a validation to patterns and themes discovered from the findings when analysing data (Creswell, 2014). Furthermore, an external auditor reviewed some aspects of the research such as transcriptions and research questions to validate the data analysis and its relevance to this study. This was a form of ensuring the validity of the data collection and analysis process.

3.12 Summary of the chapter

This chapter outlined the research methodology selected for this study. A qualitative research approach was employed. This was the most suitable method for this study to obtain the students' perspectives on learning through Blackboard Collaborate Virtual learning. This research approach was the most suitable to obtain in-depth discussion of students on the topic at hand, as the facts on how they experienced this platform and contribute to build a student voice. This was done through interviews of

students who have learned online through Blackboard Collaborate Virtual learning. This was additionally done through observations of the actual classes taking place to get an indication of how students interact with this system. The next chapter focuses on the findings of the study.

Chapter 4: Presentation of the Findings

4.1 Introduction

This chapter reviews the presentation of the findings collected from data. The first section represents data collection from the semi-structured interviews while section two focuses on the data collected through online synchronous classes. Qualitative data analysis was employed to explore participants' perspectives on the integration of Blackboard Collaborate Virtual learning into teaching and learning in a form of experiences. Furthermore, data collected during the observation sessions is also presented on how participants experienced learning through Blackboard Collaborate. The results of the study are presented, as well as the biographical section of the participants who took part in the study. This entails aspects such as gender, faculties, year of study and qualifications. Participants' experience with studying on Blackboard Collaborate Virtual learning and their recommendations are aligned with the research questions stated below:

Primary research question:

- What are rural higher education campus students' perspectives of Blackboard Collaborate as a learning tool?

Secondary research questions:

- How do students in a rural higher education campus experience virtual learning through Blackboard Collaborate?
- How can students' learning experiences on Blackboard Collaborate in a higher education rural campus be understood and explained?

4.2 Demographic Information of Participants

The presentation of the findings launches a summary of the demographics data of the participants. Table 4.1 below exhibits the demographic information of participants with

five demographic attributes, namely, age, gender, faculty, year of study, and qualification.

Table 4.1 Demographic information of participants

Participant	Age	Gender	Faculty	Year of study	Qualification
P1	Female	23	Humanities	Honours	Bachelor of Arts Honours with specialization in History
P2	Male	23	Humanities	Final year	Bachelor of Community Development
P3	Male	24	Economic and Management Sciences	Final Year	Bachelor of Commerce with specialization in General Management
P4	Male	22	Economic and Management Sciences	Final Year	Bachelor of Commerce with specialization in General Management
P5	Male	22	Economic and Management Sciences	Final Year	Bachelor of Commerce with specialization in General Management
P6	Female	26	Humanities	Final Year	Bachelor of Community Development
P7	Female	23	Humanities	Honours	Bachelor of Social Science Honours with specialization in Sociology
P8	Female	24	Humanities	Honours	Bachelor of Arts Honours with specialization in English

Table 4.1 above represents the demographic information of the participants. Firstly, discussing the gender sample of the participants. The study included one male and four females from the HUM faculty and three males from the EMS faculty. Secondly, the age of students who participated in the study differ according to when they joined the university. Some of them joined the university in 2019 while others joined in 2021. Their age varied between 22 – 26 years old. Furthermore, participants were also required to specify their year of study and qualifications. Some participants varied in the level of study and qualifications, although they were from the same faculties respectively. The majority of the participants were doing their final year of study while a few were on their postgraduate level of study pursuing their Honours degree.

In addition to demographics of the participants, the main theme and the three sub-themes that emerged from the data are discussed further in the next sections.

4.3 Students' perspectives on learning through Blackboard Collaborate

Table 4.2 below shows a summary of the emerging theme, sub-themes and categories which relate to the first research question.

Table 4.2 Summary of the emerging theme, sub-themes and categories which relate to secondary research question one.

Secondary question one	Theme	Sub-themes	Categories
How do students in a rural higher education campus experience virtual learning through Blackboard Collaborate?	Participants' barriers to learn effectively on Blackboard Collaborate Virtual learning.	1.1 Useful and ease of use of the Blackboard Collaborate Virtual learning	Difficulty to transition from face to face to Blackboard Virtual learning
			Constant connectivity and network issues while studying on Blackboard virtual learning
		1.2 Limited accessibility to the Blackboard Collaborate Virtual learning needed and financial support	Expensive data and lack of data
			Error on the learning access data app
		1.3 Overall institutional Support	Positive reflection that came out a lot from the students while studying on Blackboard Collaborate learning

This theme as stated on Table 4.2 above aligns with the secondary research question one. Participants' perspectives and experiences are comprehended with regards to learning solely through Blackboard Collaborate Virtual learning. The theme is fragmented into the arising sub-themes: 1) Usefulness and ease of use of the Blackboard Collaborate Virtual learning, 2) Limited accessibility to the Blackboard Collaborate Virtual learning needed and financial support and 3) Overall institutional support. The emerging sub-themes are fragmented into categories that are discussed below.

4.3.1 Useful and ease of use of the Blackboard Collaborate Virtual learning.

This sub-theme captures data from the participants' interview sessions on their experience of studying on the Blackboard Collaborate Virtual learning to get an indication of whether it was useful and if this platform was easy to use. The sub-theme is arranged according to the categories stated on (Table 4.2) above: a) Difficulty to transition from traditional to virtual learning and b) Constant connectivity and network issues.

4.3.1.1 Difficult to transition from face-to-face to Blackboard Collaborate Virtual learning

The reflection made by various participants according to their different experiences of learning through Blackboard Collaborate Virtual learning gives a clear indication of whether they perceived this mode of content delivery useful and easy to use. It also states the challenges with regards to transitioning from face-to-face to online. Participant 1 stated that the virtual learning environment was not useful to her:

- Participant 1: "I once had an incident whereby I asked the question in class. I was doing self-study and needed clarity. I asked the question and as the lecturer was explaining back to me, I lost network. When I came back, she was done explaining and I couldn't ask a follow up question, which wouldn't have been the case during the face-to-face class because of no connectivity errors. Everyone is in class during the face-to-face session. One could even ask the lecturer after class, which led me to experience the platform as not useful to me because I lost out on a lot of information when I disconnected".

Participants 2, 3, and 4 seemed to share similar sentiments as they explained the challenges they faced with transitioning from face-to-face to virtual learning. LMS technologies in teaching and learning existed for a while, but only gained prevalence during the Corona virus incident (Sousa & Rocha, 2019). This was when teaching and learning were solely shifted to Blackboard Collaborate Virtual learning on this rural

campus under study. The transition was heavy on these participants because they were first year students then. They were not much exposed to virtual platforms such as Blackboard in general nor were they exposed to learning using devices. These participants narrate various challenges they faced when teaching and learning was transitioned to the virtual platform:

- Participant 2: “It was difficult because in high school we were not familiar with the technology and the devices that we had to use when we shifted to learning on the online platform”.
- Participant 3: “The experience was difficult. In high school we were taught face to face. We were not used to lecturers moving a chapter in one day, it was difficult. In first year, you're doing approximately 7 to 8 modules. Sometimes we didn't have break time or time for lunch. It was class after class, and it was confusing us. We moved online to have classes on Blackboard Collaborate, that was a problem. It was very difficult to learn the functions of this platform. Everything moved very fast, and it was not easy to be on par with what the lecturer was doing in class. In addition, we were not used to checking emails. You would just hear from friends: “did you see there was a test on this day?” The transition was not easy”.
- Participant 4: “I'd say that face to face was much better for me because back in high school when I was doing grade 11, I was able to find myself. I was able to discover that I am faster in studying when I attended a lesson face to face. When I had to do a revision, everything becomes easier. That's when I attended every class. Moving online to Blackboard Collaborate, I missed some of the classes because of network connection and then when I went to do that chapter myself it was difficult”.

Participant 5 emphasised on the fact that it would have been much easier to adapt to the shift if there were phases of taking students through the virtual learning platform. She said it would have been easier for them to have a better understanding of how it works. The Corona virus breakout compelled HEIs to fast-track the adoption of sustained cybernetic Blackboard learning tools for teaching and learning across the globe (Mahyoob, 2020) although students were not prepared in terms of the

infrastructure or training. The shift to virtual learning was not a choice. Students were not ready or trained for the transition. Participant 5 describes why the expectations of students to learn smoothly on the virtual platform were not met:

- Participant 5: “It was not easy, I don't want to lie. It's better if something is done in levels or really where you are slowly introduced to it. We had to literally move from face to face straight to Blackboard Collaborate, so it was quite difficult, especially because you would already see how students struggle with online learning on online platforms in general.”

Although the shift was challenging to many students, there are other students who also did not find the transition difficult due to being exposed to technology prior this incident and being computer literate. Unlike the rest of the participants who found the transition extremely difficult due to various challenges faced as stated above, participant 6 had a different experience with the transition. The World Bank (2020) argues that students who are knowledgeable and skilled in using technological tools to support learning will find it easy to function and learn effectively on this platform. Participant 6 just needed training on the Blackboard Collaborate functions or just the “how to” guide to be able to learn effectively as she narrates her experience below:

- Participant 6: “I have been computer literate from a very young age, so it was not really a big struggle for me to find my way around Blackboard Collaborate. We were taught how to navigate Blackboard in first year, so I was a bit familiar with it, although it was a bit confusing at first. In general, I think it brought anxiety, but once we received the instructions on how to navigate around online classes and getting recordings, everything got better”.

Participant 7 reflected more on the external factors faced which she did not have control over that made the transition more difficult for her. To ensure that she did not miss any tests, she had to come up with a strategy of how to deal with these external challenges faced of no electricity which led to no network and continue learning. She explains the situation below:

- Participant 7: “No electricity in my area. I couldn't charge my laptop, no network. Sometimes I had online tests, so I was just forced to travel from one place to another in order to write those tests”.

Participant 8 found the virtual learning rather distracting her learning sequence than the system being more difficult to learn. She indicated that learning virtually, she got easily distracted. She stated that there would be nobody supervising her and at some point, she would find herself focusing on other things or opening another tab on the internet. The distraction led her to lose focus on what was being discussed in class. Participant 8 narrates her experience with the virtual learning as follows:

- Participant 8: “I can say that it was not difficult, though it was not easy at some point because in physical class even if I know the answer, I will not just raise my hand. So, on Blackboard Collaborate I found the opportunity to type whenever we needed to answer a question. But at some point, I found learning on Blackboard Collaborate as a disadvantage because I apply a method of study whereby, I don't want any devices while I’m studying. I just want my hard copy book. So, by using soft copies it was a bit difficult because, I would be in class but reading something else on the internet. I did many things at ones, that was a lot of distraction while in a virtual class”.

Corona virus outbreak led virtual learning to be the only available platform for a period of two years. However, it is imperative to understand that it would take time for any type of LMS to completely replace the conventional classroom atmosphere. Virtual classes come with a lot of challenges and barriers (Mahyoob, 2020). The reflection was narrated by the end users above when having an interaction with them on their individual experiences of learning virtually on Blackboard Collaborate. These participants kept on reflecting on how teaching and learning was much easier when conducted on the face-to-face platform than when they transitioned to the online sphere. In general, this sub-theme came across as mixed end results regarding students’ perspectives in a form of experiences with the transition from traditional to virtual learning. Some students experienced learning through Blackboard Collaborate Virtual learning as an easy transition mainly due to prior computer literacy knowledge. Whereas the majority found it very difficult and felt demotivated to learn on the same platform as they have stated various reasons that hindered effective virtual learning above. Due to various challenges they faced as stated in their reflection, they did not find this technology useful or easy to use. Hence, they regularly referred to face-to-face teaching and learning as more conducive than on the virtual learning platform.

4.3.1.2 Constant connectivity and network issues while studying on Blackboard virtual learning

Participants 1, 2, 4 and 7 discussions on the following section accounts to students' reflection to constant connectivity issues while studying on Blackboard Collaborate Virtual learning. All participants are from rural settings. Therefore, have the same challenge of constant connectivity and network issues. They described their experiences as follows:

- Participant 1: "I was living in a village. The network is so much worse there. As soon as the electricity goes, the network is gone. If there's too much wind, the network is gone. It was a lot. It was a lot trying to stay sane and keep up with the online learning with all those problems showing up".
- Participant 2: "As much as I was receiving data, I also had network issues because of the rural areas I was staying at. What normally happens is that when there is no electricity, the network goes off. The network would just shut me off, then when I come back to a class, I got disturbed a lot".
- Participant 4: "The network coverage in my area was bad. I missed many sessions, quizzes, and tests because of the network coverage. I even failed one module in the second semester of my first year because I could not submit because of the network coverage. It was a coincidence that both tests were set at the date whereby there was loadshedding. So, during that time, there was no network coverage at all. I would get a zero because something would happen with the Internet when I had to submit".
- Participant 7: "I come from a village, so the network coverage there is bad. It was a really a big challenge for me when having to write online tests because they had a time limit. So, I did not get to finish, or maybe when I tried to submit the network would give me problems".

The reflection above as stipulated by participants 1, 2, 4, and 7 led these students to focus more on dealing with the digital shortcomings, instead of using time effectively to equip themselves with the content at hand. These were caused by external factors

such as the national power load-shedding as well as experiencing no electricity frequently in their areas. The issue of no electricity may happen for consecutive days according to the rural settings they reside. Students lost out on a lot of in-class virtual activities. Others missed online tests because there was nothing one could do while learning virtually with no network coverage.

4.3.2 Limited accessibility to the Blackboard Collaborate Virtual learning needed and financial support

This sub-theme captures participants' experience with limited accessibility to the Blackboard Collaborate Virtual learning. It also outlines the identified needed financial support to learn effectively on the Blackboard Collaborate Virtual learning. The sub-theme is categorized as follows (also see table 4.2): a) Expensive data and lack of data, b) Error on the learning access data app.

4.3.2.1 Expensive data and lack of data

The results of the study reveal that one of the challenges that led students to have unpleasant experience with learning virtually through Blackboard Collaborate was high costs of data. This led to limited access to the virtual learning platform. Although the world is operating within the Fourth Industrial Revolution (Shava & Hofisi, 2017), internet dissemination and affordability in Africa are very low than other continents internationally. The sentiments below are shared by the participants who highlighted the challenges at hand:

Participant 2 struggled with data as well as the device he was using. These challenges led him to miss out on a lot of tasks that were performed virtually. He narrates his experience as follows:

- Participant 2: "The challenge was the device that I was using and data. I was not able to watch the videos lecturers uploaded for better understanding of the content or attend classes sometimes".

Participant 3 describes that due to expensive data and financial challenges he was faced with at home, it was sometimes a struggle to choose between buying data constantly or buying household necessities for him to continue learning online. He narrates his story as follows:

- Participant 3: “It was very expensive having to buy data constantly. This caused a big issue financially because I then had to take from the household money or resources to get data. It caused a huge dent because we had to decide, are we going to buy all the household necessities that we need or are we going to skimp on the necessities in order to ensure that there's enough data for me to learn. And that for me, was the biggest challenge of all”.

Participant 4 indicates that it was a relief when the institution provided students with data to mitigate the financial challenges they faced. He indicated that the struggle began when there was no assistance either from the institution or the financial aid office. He stated the following:

- Participant 4: “In the beginning, while I was still funded by NASFAS we received data. The institution gave us 30 gigabytes of data, but for me I only had that privilege for a month before NASFAS dropped me, from there getting data was a struggle”.

Participant 5 indicated that all students’ expenses including data to learn should be covered by the bursaries or financial aids that fund their studies to assist students in need. This is how he described it in his own words:

- Participant 5: “We shouldn’t be taxed for data as students. Data should be covered by bursaries or NASFAS”.

Participant 6 also indicated that students must be assisted with data, even if there can be a partnership between the institution and a specific service provider for them to cover the data costs on a specific network. This is how she narrates it:

- Participant 6: “If, however, they could be a way to help out with data. I don't know if it is maybe possible to be on some kind of network even if it's specifically for Blackboard where it is not affected by network issues. I use two different

network companies for data, and I've noticed how one company struggles more than the other one when it comes to network coverage".

The majority noted that financial assistance was one of the barriers they faced while learning on Blackboard Collaborate Virtual learning as stated above. Not many students have access to smart or adequate digital devices, a stable internet connection, and/or uncapped Wi-Fi. The fact that teaching and learning operate on various technological platforms, high expensive data has a main influence on the success of students' learning (Stelmach, 2011). Thus, this study theme argues that the correct route for HEIs would be to invest in free data access of the overall Blackboard platform to fully support and sustain online learning for students in need. Limited access to proper digital tools, unstable internet connections or Wi-Fi connections led other students to perceive learning on the digital platform as not useful nor easy to use. It led a lot of them to forfeit the opportunity to learn. As the research is done at a rural campus whereby a lot of these students come from villages, they belong to less technological-savvy families with financial resources restrictions. Therefore, all these factors led them to not be able to attend all classes or write all online tests as stipulated due to their socio-economic background status as well.

4.3.2.2 Error on the learning access App

The university came up with a contingency plan to address the challenge of lack of data from students. The Global Protect App was introduced as a mitigating factor to assist students in need to access classes virtually, as well as the learning materials. The following participants noted the challenges associated with online learning with reference to the error on the incorporated App that was made available for students as a mitigating factor to assist with lack of data:

Participant 1 stated that the Global Protect App that the institution provided to assist those who did not have data to connect did not work properly. She stated that it also required one to have a bit of data to login. She said that the data they were provided did not cover the whole month. So, if students ran out of data, they would not be able to login onto Blackboard to learn. She stated her narrative below:

- Participant 1: “Global Protect App, sometimes you would not be able to connect with it and sometimes not at all. The data that we were provided, the 30 Gig wouldn’t last the full month. Therefore, you end up not having data to log in on Blackboard”.

Participant 7 indicated that she noticed that there was a difference when logging in through the Global Protect App and logging in with data only. She discovered that network was better when she used own data than when she connected to the App. This led to challenges due to lack of data. She stated what she discovered below:

- Participant 7: “The network was always horrible. It was always kicking me out when I was on Global Protect App. If I was using my own data, it wasn't as bad”.

Participant 8 indicated that the Global Protect App did not work all the time. It used to disconnect a lot while in class which caused her to constantly lose concentration. She would end up not attending the whole session sometimes because she felt like there was no use if she kept on disconnecting. She describes her experience as follows:

- Participant 8: “I used to have electricity issues than data issues. Even though we had the Global Protect, but that App did not work all times. Sometimes it disconnects during a class, and it would be very difficult to concentrate in an online class where there are network issues. For instance, to start reconnecting you couldn’t hear what the lecturer had said for the past 10 minutes. Then you come back your train of thought is literally lost and at some point, students wouldn’t even finish attending some classes because they felt like there was no use”.

All participants above share the same sentiments of not having a good experience with the Global Protect App. This challenge affected their studies as they were not able to attend the sessions fully due to constant connectivity issues. The Global Protect App as a zero-rated application was incorporated to address data costs issues (Dube, Maphosa & Jita, 2021). It was meant to assist students with lack of data but according to the reflection provided above, it seems this mitigating factor was not effective. Higher education institutions must ensure that the educational Apps they install work properly so that students do not struggle alone. This is an ICT infrastructure which should be a prerequisite when shifting to virtual learning. If the

basics had been covered properly, this would not have been another challenge that limited access to the virtual learning platform.

4.3.4 Overall institutional support

This sub-theme came out as a positive reflection from all the participants. It is categorized as the positive reflection that came out a lot from the participants while studying on Blackboard Collaborate Virtual learning as stated on (table 4.2).

4.3.4.1 Positive reflection that came out a lot from the students while studying on Blackboard Collaborate learning

Participant 1 indicated that there was academics and personal support provided from the lecturers. She stated that the lecturers were very considerate and also shared the relevant information to ensure that no student was left behind by sharing the academic resources on WhatsApp as well, because that is the immediate platform students have access to. She also stated that due to the anxiety caused by the transition, she was referred to the relevant stakeholders who form part of the student support services to assist with the personal issues she was facing as well. Participant 1 narrates her experience below:

- Participant 1: “My lecturers would always record classes, and then we we'd be able to get access to it. Alternatively, they would record the class, some just the audio and share it in the WhatsApp group chats so that whoever could not get onto Blackboard Collaborate during class would at least hear what they had to say about the chapter or part of the module that we were studying. They would also post slides in the WhatsApp group chat. Well, and I thought that was very good because half the time I couldn't get onto Blackboard Collaborate. I think the support definitely went much further than just academics. I had a lot of personal issues, and with the anxiety that came with the pandemic and not being certain what's happening. I got a lot of support with the lecturers. They referred me to the relevant stakeholders, (Student Counselling Department) to assist me”.

Participant 4 noted that the lecturers were very lenient with him even when it came to tests because they understood the challenges students faced. He describes his experience as follows:

- Participant 4: “The support was there to be honest. Our lecturers were very lenient. There was a time I wrote two tests. The first one I failed and the second one I passed. I wrote an email to the lecturer telling him that can he just please credit the second test, the first one I didn’t pass. He credited it and I passed the module”.

Participant 5 stated that the institution provided him support with the necessary equipment and resources to learn as he did not have his own device. The university had an initiative to provide students with no resources laptops and he was one of the 20 students. This is how participant 5 narrates his experience:

- Participant 5: “Well, I did receive support from the institution. I remember it was late August and a month before the University sent me an email that one of the commercial banks will give out 20 laptops to students in need. So luckily enough, I was one of those students who were going to receive a laptop. That is where I had a good device to use for my studies”.

Participant 6 got the institutional support through the support services units available as part of the university community to assist students. All support services were also shifted to operate virtually. The Blackboard help desk was at the forefront to assist students, and contacts were provided for them to be contacted anytime of the day. Lecturers were also lenient with students and extended deadlines to ensure that the majority are able to submit. Participant 6 states her experience below:

- Participant 6: “I also say that the support was very good. I'd say in terms of the Blackboard help desk. They would always send emails indicating that if students encounter any problem during the test or quiz, then they should contact the Blackboard help desk or the lecturer. The lecturers were fair enough to give us additional time to finish the quiz or give us another date to write that missed quiz. There was no case whereby I failed because of the system error and or that the lecturers refused to help. The support was fair enough. Also, the provision of data in Global Protect it was good”.

Participant 7 noted that there was a lot of support from the institution and the lecturers. She indicated that the initiative of partnering with the financial aid office and providing students with adequate learning resources assisted a lot. She stated that the lecturers were very understanding and provided multiple attempts as they knew of connectivity issues that could be faced while writing tests online. Participant 7 expresses her gratitude as follows:

- Participant 7: I think the university really came through for us honestly, because they actually introduced Global Protect so that everyone would have access to learning resources. Guidelines were also provided on how to navigate the Blackboard system while we were at home. They also worked in partnership with NASFAS to actually help students that didn't have gadgets so that they would be able to also study from their homes. The support from the lecturers to provide lessons if we encounter connectivity issues. They would make the recordings so that we catch up and then give us enough time and multiple attempts on tests. If you experience connectivity issues or maybe you don't data or it runs out while you are writing, you knew that you had another chance to write".

Participant 8 raised another view of the support from ICT. She indicated that the ICT department was there to assist with the Blackboard issues as well. She additionally stated that even students were supportive among themselves and provided others with links if they struggled to login onto Blackboard. She also noted the additional support of online tutorials to further ensure that students understand the content. She shares her experience as follows:

- Participant 8: "One thing that I noticed from the lecturers was that when it came to network and connectivity issues the support was that they would at least record the session just for students go back and listen to them. The Blackboard Collaborate training. For instance, when you login onto Blackboard, you were trained on how to navigate the platform. And the support from ICT if Blackboard was not working. Lecturers and fellow students were very supportive in terms of sharing the links. If you were not able to enter though a link, they would tell

the lecturer to let you in. There were also online tutorials. The tutors would also upload slides".

The findings above indicate that there was adequate support provided to students during the virtual learning period. All participants indicated that there was an adequate overall institutional support for students amidst the challenges encountered while learning online. Lecturers incorporated various mitigating factors such as providing students with prerecorded video lectures, slides with a voice to explain the content as plan B to ensure that the teaching and learning process was not hampered. Personal attention was also provided to students as some noted that they suffered the anxiety due to the transition. Some stated that they were not used to checking or responding to emails and that is where important information regarding their modules was communicated. The Blackboard office and the ICT department were also at the forefront to attend to students' queries with any technical challenges faced. The institution came up with a lot of strategies to ensure that students easily adapted to the virtual learning environment.

4.5 Observation of the sessions on Blackboard Collaborate Virtual learning which relates to research question two

Remote learning played a valuable role in avoiding the discontinuation of teaching and learning subsequent the interruption of educational activities that led HEIs to shutdown (Di Pietro et al., 2020). This section addresses the findings on the observed sessions on Blackboard Collaborate Virtual learning. Two of the participants who are also facilitators were observed while conducting their sessions with students who are currently doing their first year of study. The findings give an indication of how participants observed as well as students utilised and interacted with the Blackboard Collaborate functions. The observation form below was adapted from one of the tutorial programmes. This form consists of a scale of 1 – 4, where 1 is needs discussion which indicates that there is still guidance needed for an effective usage of the Blackboard Collaborate system and 4 is strongly agree which is an indication that the end user knows how to operate the system. This form also consists of six elements

that will assist the observer to effectively observe and analyse the session. The elements are listed below:

1. The session design element mainly focuses on the structure and the material used for the online session.
2. The learning environment element analyses the learning atmosphere which is more focused on the Blackboard Collaborate tools such as (polls, breakout groups, chat box and mics) to check if students know how to use these tools. Facilitators are also observed to check if they know how to make the online session conducive for students to learn effectively.
3. The students' interaction with the Blackboard Collaboration system element is mainly students' interaction within the Blackboard Collaborate platform to check how they interact with the system and how they interact among each other as students, with facilitators and if they are able to follow instructions.
4. The instructional design element checks the flow of the class to also ensure that the virtual class is designed in a manner that students will be able to receive the study materials even after class should they experience any connectivity issues in between.
5. The students' interaction with Blackboard Collaborate functions element is where the overall session is rated to get an indication of whether students' interaction with the Blackboard Collaborate functions during the session was low, average, or good.
6. Blackboard Collaborate functions used during the session is to check the various functions that were used during the session.

After each element has been evaluated during the session, feedback is provided by the researcher as the observer of the two sessions. This feedback contains what the observer noted in terms of both the facilitator and students' interaction with Blackboard Collaborate Virtual learning functions. General feedback is also provided at the end of each observation form that states how the session was conducted overall.

Participant 8 was observed during the Blackboard Collaborate Virtual learning session as a facilitator on how she and students interacted with the functions of this platform. The results will follow below:

4.5.1 Session Observation Form 1

Facilitator: Participant 8 Observer: Dinkeng

Scale: 4 = Strongly Agree, 3 = Agree, 2 = Neutral, 1 = Needs discussion

Elements of the Session:

Give table numbers to the following observation schedules

Table 4.3 Session Design

Session Design				
Facilitator had a well-structured material that enables online teaching and learning	**4**	**3** X	**2**	**1**
Facilitator carries out a session well-structured for online learning	**4**	**3** X	**2**	**1**
Facilitator uses activities that are structured for the online learning platform	**4**	**3** X	**2**	**1**

Feedback: The material allowed the online learning setting. Participant 8 was knowledgeable pertaining the online platform and used activities well suited and structured for students to learn effectively.

Table 4.4 Learning Environment

Learning Environment				
Facilitator master Blackboard Collaborate learning platform, material and the technology used for online teaching	**4**	**3** X	**2**	**1**
Facilitator awaits students' responsiveness of the Blackboard Collaborate functions (demonstrated through polls, emojis, chat box)	**4** x	**3**	**2**	**1**
Facilitator creates opportunities for interaction between students and Blackboard Collaborate functions (breakout rooms, use of the chat box, mics)	**4** x	**3**	**2**	**1**
Session provides various learning styles (virtual, textual, kinesthetic and/or auditory) activities to enhance student learning and accessibility.	**4** x	**3**	**2**	**1**

Feedback: The learning environment enabled students an opportunity to showcase their knowledge with regards to using various Blackboard Collaborate Virtual learning functions, but they did not. The majority of students did not partake during the session. Participant 8 tried several times to get students engaged, but only a few participated in the chat box and not through the mic. Participant 8 did not master the platform. There was a question that needed students to partake on the polls and she did not know how to display it. She asked the assistants to help. The African continent in general faces a challenge of digital division which subjects to technological gaps (Ndung'u & Signe, 2020). This statement was visible during the session on how students were reluctant to use the Blackboard Collaborate functions they were not familiar with because the majority of them were not exposed to the system as they were from high school.

Table 4.5 Students interaction within the Blackboard Collaborate System

Students interaction within the Blackboard Collaborate System				
Activities are structured in a manner that enable students to interact with the Blackboard Collaborate system through visual and auditory prompts	**4** **x**	**3**	**2**	**1**
Students know how to respond to questions asked in the session using mics as well as the chat box.	**4**	**3**	**2** **X**	**1**
Students are able to follow instruction on what they have to do when divided into breakout rooms	**4**	**3**	**2** **X**	**1**
Students know how to ask and respond to questions using the Blackboard Collaborate hand icon during the session.	**4**	**3**	**2** **x**	**1**

Feedback: The activities were well structured and that enabled students to partake in the session. Students who participated used the chat box. No student used a mic during this session no matter how much participant 8 encouraged them to. Some students followed the instructions well during the session, while some would just keep quiet in the breakout groups. Assistant facilitators were assisting by leading the topic in the breakout groups. No student asked a question during the session.

Table 4.6 Instructional Design

Instructional Design				
Students are orientated on how to utilise the Blackboard Collaborate and its functions.	**4**	**3**	**2**	**1** **X**
The class session is structured in a manner that demonstrates logical flow for students to be able to learn effectively on the online platform.	**4** **x**	**3**	**2**	**1**
Instructional materials are well planned and organised for the online session with easy access, no errors and with no broken hyperlinks.	**4** **x**	**3**	**2**	**1**
Learning materials are made available, and the session is recorded for students with technical issues.	**4** **x**	**3**	**2**	**1**

Feedback: Participant 8 did not orientate students on how to use the Blackboard Collaborate Virtual learning functions during this session. This could probably be because it was not their first session. The researcher suggests that it is something the facilitator must do at the beginning of each session because new students login during each session. All students must be exposed to the “how to” of the Blackboard Collaborate functions because it cannot just be assumed that everyone knows how to utilise the platform. The session was well structured and there was no error on the links. The lesson is not recorded during the class because these classes are conducted by various facilitators. For consistency, the content creator records one session to be contributed and made available to all students. Therefore, the recording of the same content is made available to students throughout the semester for those who missed the sessions to catch-up.

Tables 4.7 Students' interaction with the Blackboard Collaborate Function

Students' interaction with the Blackboard Collaborate Functions	
Low	
Average	X
Good	

Feedback: Students' interaction with the Blackboard Collaborate Virtual learning functions was just average because they did not use the majority of the available functions on this platform. A few who participated during the session only used the chat box. No student raised their hand to participate nor answered questions using the mic.

Table 4.8 Blackboard Collaborate function used during the session

Blackboard Collaborate functions used during the session	
Polls	X
Chat Box	X
Interactive Electronic Whiteboard	
Mics	
Hand raising feature	
Screen sharing	X
Breakout rooms	X

Feedback: Participant 8 shared the screen for students to see the content and be able to follow what was displayed. Polls were designed for students to answer certain questions that checked students' understanding during the session. Students who participated used the chat box. For students to interact among themselves regarding the topic at hand, they were divided into groups and sent into breakout groups.

General Feedback: Majority of students still need training on how to use Blackboard Collaborate Virtual learning functions. It is also very difficult to get students to fully

participate on this platform. Only the same students participated throughout the session. As indicated by Williamson et al., (2020), students with no digital access in their homes usually lack digital skills which hinder their ability of effective learning. An additional training is needed for Participant 8 to be able to boost morale on how to encourage students' participation and engagement online. A study conducted by Songca et al., (2021) shares the same sentiments when it ascertains that a common challenge students faced while learning virtually was due to the unpreparedness of students and the academics to function fully online. A lot of students would disconnect during the session and reconnect again. Even participant 8 experienced connectivity issues. It is clear that a lot of students will still face challenges while studying online should HEIs face another incident that would require teaching and learning to be fully shifted online again especially at a rural-based setting.

Session Observation Form 2

Facilitator: Participant 2 Observer: Dinkeng

Scale: 4 = Strongly Agree, 3 = Agree, 2 = Neutral, 1 = Needs discussion

Elements of the Session

Table 4.9 Session Design

Session Design				
Facilitator had a well-structured material that enables online teaching and learning	**4**	**3** x	**2**	**1**
Facilitator carries out a session well-structured for online learning	**4**	**3** x	**2**	**1**
Facilitator uses activities that are structured for the online learning platform	**4**	**3** x	**2**	**1**

Feedback: The material allowed the online learning setting. Participant 2 was knowledgeable pertaining the online platform and used activities well suited and structured for students to learn effectively.

Table 4.10 Learning Environment

Learning Environment				
Facilitator master Blackboard Collaborate learning platform, material and the technology used for online teaching	**4**	**3** x	**2**	**1**
Facilitator awaits students' responsiveness of the Blackboard Collaborate functions (demonstrated through polls, emojis, chat box)	**4** x	**3**	**2**	**1**
Facilitator creates opportunities for interaction between students and Blackboard Collaborate functions (breakout rooms, use of the chat box, mics)	**4** X	**3**	**2**	**1**
Session provides various learning styles (virtual, textual, kinesthetic and/or auditory) activities to enhance student learning and accessibility.	**4** x	**3**	**2**	**1**

Feedback: The learning environment enabled students an opportunity to partake in class using various Blackboard Collaborate Virtual learning functions. The majority of students participated during the session. The majority participated and engaged using the chat box while a few used the mic. Participant 2 mastered the platform and how to use various functions and it was visible that he was well prepared.

Table 4.11 Students interaction within the Blackboard Collaborate System

Students' interaction with the Blackboard Collaborate System				
Activities are structured in a manner that enable students to interact with the Blackboard Collaborate system through visual and auditory prompts	**4** x	**3**	**2**	**1**
Students know how to respond to questions asked in the session using mics as well as the chat box	**4** x	**3**	**2**	**1**
Students are able to follow instructions on what they have to do when divided into breakout rooms	**4**	**3** X	**2**	**1**
Students know how to ask and respond to questions using the Blackboard Collaborate hand icon during the session	**4** x	**3**	**2**	**1**

Feedback: The activities were well structured in a manner that enabled students to partake in the session. Students who participated used both the chat box and the mic. Some students followed the instructions well during the session and in the breakout

groups, while some would just keep quiet. Assistant facilitators were assisting by leading the topic in the breakout groups. Students asked questions in the chat box only. Students used the hand icon when they wanted to answer questions.

Table 4.12 Instructional Design

Instructional Design				
Students are orientated on how to utilise the Blackboard Collaborate and its functions	**4**	**3**	**2**	**1** **X**
The class session is structured in a manner that demonstrates logical flow for students to be able to learn effectively on the online platform	**4** **x**	**3**	**2**	**1**
Instructional materials are well planned and organised for the online session with easy access, no errors and with no broken hyperlinks	**4** **x**	**3**	**2**	**1**
Learning materials are made available, and the session is recorded for students with technical issues	**4** **x**	**3**	**2**	**1**

Feedback: Participant 2 did not orientate students on how to use the Blackboard Collaborate Virtual learning functions during this session. This could probably be because it was not their first session. Like the previous session, the suggestion would be that it is something that they do at the beginning of each session because new students login during each session. They should also be exposed to know the “how to” of Blackboard Collaborate functions because it cannot just be assumed that everyone knows how to utilise the platform. The session was well structured and there was no error on the links. The lesson is not recorded during the class. However, the recording of the same content is made available to students throughout the semester to catch-up.

Tables 4.13 Students’ interaction with the Blackboard Collaborate Function

Students’ interaction with the Blackboard Collaborate Functions	
Low	
Average	
Good	**X**

Feedback: Participant 2 did an ice breaker at the beginning of the session and asked students what is their favorite car and encouraged them to answer using their mics. Students' interaction with the Blackboard Collaborate Virtual learning functions was rather good because they used the majority of the available functions on this platform. Those who participated during the session used both the chat box and the mic. Students raised their hands to participate and also used the mic.

Table 4.14 Blackboard Collaborate function used during the session.

Blackboard Collaborate functions used during the session	
Polls	**X**
Chat Box	**X**
Interactive Electronic Whiteboard	
Mics	**X**
Hand raising feature	**X**
Screen sharing	**X**
Breakout rooms	**X**

Feedback: Participant 2 shared the screen for students to see the content and be able to follow what was being displayed. Polls were designed for students to answer certain questions that checked students' understanding during the session. Students who participated used the chat box and the raising hand function to use the mic. Students were also grouped to interact among themselves into breakout groups on the topic at hand.

General Feedback: Participant 2 came up with a strategy to get students to be comfortable to participate by including an ice breaker because students are intimidated by a foreign platform. Simonÿ, et al., (2018) described in their research findings in the observation of a study taking place on a synchronous class, noting that the virtual learning environment can also include a human element, whereby a lecturer would begin the class by asking students, ‘‘What's the weather like where you are?" as a form of an ice breaker. Many students in this session were encouraged to partake and use Blackboard Collaborate Virtual learning functions. Although a lot of them participated and engaged, there were also a lot who did not participate as well. Only

the same people participated. A lot of students would disconnect during the session and reconnect again. This was a challenge because students as well as participant 2 also reside in rural areas where network connectivity is usually poor. This leads to problems for live streaming sessions due to infrastructural inequalities in many developing countries (Subedi, Nayaju, Subedi, Shah & Shah, 2020).

4.6 Summary of the chapter

The presented findings from this chapter resulted from the qualitative research study. The purpose of data analysis was to determine rural higher education students' perspectives in a form of experiences of learning through Blackboard Collaborate Virtual learning. This design enabled an in-depth analysis of the study and produced the findings that answered the secondary research question two. The results discovered suggest that students experienced various challenges when teaching and learning was shifted to the online platform through Blackboard Collaborate Virtual learning. The participants did not state any benefits experienced while learning on this platform. This could be due to their background. They found difficult to learn computer skills while they were also required to learn from it at the same time. Adequate training for facilitating online classes is a determinant for students' success on this complex platform even for the facilitators if not well trained to be competent within their field (Hammer, Hughes, McClure, Reeves & Salgado, 2005). It also suggests various factors that can be incorporated into HEIs overall to mitigate these factors, in order to overcome these challenges and be ready for any obstacle that may be faced in the future.

The next discussion in chapter 5 focuses on the findings and touch base on the reflection of the overall study. Furthermore, the chapter that follows is also based on the implications of what has been discovered and makes recommendations, as well as suggestions for further research study in this area.

Chapter 5: Conclusions and Recommendations

5.1 Introduction

This chapter provides a detailed discussion on the summary of how the study was conducted. The initial discussion is on the research problem and the research questions. Subsequently, it is the literature review and the empirical study which aligns with the objectives stated in Chapter 1. The sample aspects on the use of Blackboard Collaborate Virtual learning are followed by identified factors on the analysis on students' perspective that are discussed in a form of experiences through these empirical findings. The recommendations derived from the findings set a layout on the future direction of the study. Finally, the conclusion is addressed and presented in this chapter.

5.2 Summary of the study

Freeman, et al., (2020) cited that the shift from traditional to virtual teaching and learning put enormous pressure and stress during the Corona virus and national breakdown period. The study examined students' perspectives of studying through Blackboard Collaborate Virtual learning in a form of experiences when teaching and learning through the online platform was the only option to deliver content. This is articulated by exploring their different views, understandings, and experiences as rural higher education campus students on the research topic under study. The study explored participating students' perspectives by obtaining their reflections on how they experienced learning through this platform with no option of the traditional face-to-face interaction.

The study was also constructed in the alignment of the voices and findings of the previous scholars through literature to support and build evidence-based arguments on the topic under study. Since online learning became prominent in HEIs during the Corona virus eruption period across the globe, the institution under study integrated Blackboard Collaborate Virtual learning to deliver teaching and learning to its students. It was a lot of pressure for students to learn solely from this platform as they are mostly

from a rural setting and the majority have never seen a computer until they enrolled at this campus. The use of technology to learn was rather perceived as a barrier and a limitation for students to learn effectively. For any type of adapted LMS to be utilised well and its effectiveness in HEIs, it is vital for the end user to have a thorough knowledge of its entire features (Zanjani et. al., 2016). Blackboard is an LMS that has been used by this higher education campus for years. However, it was only used for announcements and submission of assessments and never as an interaction tool between lecturers, students, and the content. The traditional face-to-face teaching was used as a primary platform to deliver content until the Corona virus pandemic triggered and compelled the shift from face-to-face to online teaching and learning within a short period of time.

The research was conducted from a qualitative approach perspective (Creswell, 2014; Johnson & Christensen, 2020) by following an exploratory research design (Leedy & Ormond, (2021) to determine students' perspectives of learning through Blackboard Collaborate Virtual learning in a rural campus. Semi-structured interviews and observations were incorporated as the research instruments of the study. Eight participants from this rural campus were interviewed. These participants came from two faculties of the campus under study, namely: the EMS and the HUM faculties. Various open-ended questions were drawn and based on seeking the participants' perspectives and experiences of learning through Blackboard Collaborate Virtual learning. Subsequently, the observation of live sessions on this platform added to support evidence discovered from the interview sessions. Only two participants of the eight were observed. These candidates were selected because they were also facilitators. The purpose of observing the live sessions was to get an indication of how they interact with the Blackboard Collaborate functions, as well as how students interact with this platform. The observation form consisted of six elements that were a guide that enabled the researcher to be able to evaluate the Blackboard Collaborate Virtual learning live sessions.

The purpose of the study was to respond to the main research question: What are rural higher education campus students' perspectives of Blackboard Collaborate as a learning tool?

To ensure that the main research question was fully addressed, the study subsequently answered two secondary research questions.

Research instruments that were incorporated to collect the qualitative data that relate to the respective secondary research questions are represented on Table 5.1 below as a summary.

Table 5.1: Secondary research questions and research instruments

Research questions	**Research instruments**
1. How do students in a rural higher education campus experience virtual learning through Blackboard Collaborate?	**Interviews**
2. How can students' learning experiences on Blackboard Collaborate in a higher education rural campus be understood and explained?	**Observations**

Table 5.1 above illustrates two secondary questions and the research instruments employed for data collection. Interview questions were formulated and asked to participants to answer the secondary research question one. This relates to rural campus students' experience when teaching and learning was solely shifted to the online platform through Blackboard Collaborate Virtual learning. The second secondary research question was answered through data derived from the observations which relates to understanding and explaining students' interaction with the Blackboard Collaborate functions through a synchronous live session.

The study was guided by the TAM as a theoretical framework. Sezer, (2019) reports that the results of any type of LMS can only be fruitful if the end user has positive attitudes towards it, as the use of technology is directly related to the user's intention to use it. This study aimed to collect data on the views and experiences of rural campus students on learning on the virtual platform. The TAM directed this study as its framework to unpack diverse reflections on various aspects and enabled successful

processes to get an in-depth understanding of the feedback students provided in terms of their experiences and knowledge of using technology during that time.

Data was collected from two sources for triangulation grounds in addition to the analysis and comparison of the applicable literature. The key findings that respond to the question on whether the ICT goals set in these policies are in line with teachers' daily classroom experiences and practices. The researcher also sought to respond to the question on whether different schools in South Africa are able to achieve these goals. The following section presents a discussion on the key findings of this study.

5.3 Key Findings and Value

Deficiency in technical support was reported as one of the hurdles to a constant use of LMS in HEIs (Jokiaho et al., 2018; Moonsamy & Govender, 2018) and this seem to be a global trend as similar results were discovered by Dutch (De Paepe et al., 2019). The study aimed to investigate rural higher education campus students' perspectives of learning through Blackboard Collaborate Virtual learning.

The study is articulated and aligned with the research objectives below:

- To examine students' experience in learning through Blackboard Collaborate in a rural higher education campus.
- To determine students' understanding and explain their learning experiences with Blackboard Collaborate in a higher education rural campus.

The findings related to the respective objectives stated above are discussed below.

5.3.1 Participants' perspective and experience on learning through Blackboard Collaborate Virtual learning in a rural higher education campus

The secondary research question focused on and discussed for this section is: How do students in a rural higher education campus experience virtual learning through Blackboard Collaborate? Useful and ease of use of the Blackboard Collaborate Virtual learning, limited accessibility to the Blackboard Collaborate Virtual learning needed,

financial support and the overall institutional support were identified as important sub-themes to follow in exploring participants' reflection, understanding and experience on learning through this platform. The study was undertaken at a rural higher education campus in the Eastern Free State. This higher education institution was represented by two of its four faculties. The findings on the sub-themes noted above gave the researcher a clear indication on the various challenges students faced through this transition. Common factors that arose from the findings include challenges to transition to the new learning platform, constant connectivity and network issues, expensive data and error on the learning app. This section represents the participants 1) Useful and ease of use of the Blackboard Collaborate Virtual learning 2) Limited accessibility to the Blackboard Collaborate Virtual learning needed and financial support, and 3) Overall institutional Support (see table 4.2).

In terms of useful and ease of use of the Blackboard Collaborate Virtual learning, the findings of the study discovered that students experienced mixed end results. Some students experienced the transition from traditional to Blackboard Collaborate Virtual learning as an easy process, while the majority found it very difficult. The majority found technology as not easy to use while learning through the online platform (Eraslan & Kutlu, 2019). Within an international context, American students found virtual teaching and learning interactive and more effective than the face-to-face classes (Foronda & Lippincott, 2014:5). The fact that students of the rural campus under study found it difficult to learn on the virtual platform led them to spend more time trying to figure out how to use technology to learn than spending time on learning the actual content delivered.

Furthermore, participants reported on the challenges faced in terms of the constant connectivity issues and poor network on the online platform. Previous studies by Mulyanti, Purnama, and Pawinanta, (2020); Putra, Witri, and Sari, (2020) also reported that the ineffectiveness virtual learning particularly in rural regions was constant due to unreliable internet. This campus is situated in the rural setting and the majority of the students enrolled at this campus also come from rural settings where they stay in villages. Students from Universities in Central Kalimantan experienced similar network constraints during the 2020 academic year while learning online (Mairing et al, 2021). Attending classes and studying physically on campus was an advantage because of

the stable internet connection and campus unlimited Wi-Fi. Studying off campus was a major challenge faced because there were times when there was no electricity for days in a village which affects the Internet connectivity. Constant connectivity issues as reported by participants added to the challenge faced. They reported that they would be kicked out of the session several times and ended up losing a lot of contexts regarding what was discussed during Blackboard Collaborate Virtual learning synchronous sessions.

In addition, participants shared their experiences in terms of limited accessibility to the Blackboard Collaborate Virtual learning and financial support needs. Participants explained that it was very expensive to purchase data from their own pockets on a daily basis to try to connect to the online sessions. Similar findings were reported by Mairing, et al., (2021) in Central Kalimantan that also stated that 72.2% of students faced challenges with the purchase of large data quotas to learn online. Furthermore, although the institution came up with the strategy to mitigate the challenge of expensive data by incorporating the Global Protect App to assist in this regard, it also came with its own challenges. Participants reported that network would kick them out of the class quite often when connected on this App than when using their own data. Chaamwe and Shumba (2016); Mairing, et al. (2021) argue that the integration of any media and software must be well executed for positive results on the learning outcomes. This led participants to rather rely more on buying an expensive data in order to connect and attend class than relying on the Global Protect App which was meant to assist them with expensive data issues.

In addition, the results on how can students' learning experiences on Blackboard Collaborate in a higher education rural campus be understood and explained? as a secondary sub-question was also collected. This research question focused on students' experiences of learning virtual. Students stated that it was a very challenging experience than how class was conducted on the face-to-face platform. They noted the challenges of not being able to partake in class due to not knowing how to utilise the system effectively. On of the participants stated that they were not able to ask a question in class which delayed the learning process from their side and wished classes were still online where they could just clarify everything with the lecturer after class. This gave the researcher an indication that from this feedback from the student,

they did not find this learning platform useful (Davis, 1989) as they could not learn effectively like they did while learning on the face-to-face platform.

Furthermore, to have a better understanding of students' learning on Blackboard Collaborate virtual learning, the researcher visited two synchronous virtual classes that took place on the Blackboard Collaborate Virtual learning. This was whereby the researcher could view how students interact with this platform. Although (Di Pietro et al., 2020) stated how virtual teaching and learning assisted during the pandemic, it was essential to observe how students experience learning through it. The researcher adapted an observation document that consisted of six tables meant to evaluate the following elements within the session 1) session design, 2) learning environment, 3) interaction with the Blackboard Collaborate system, 4) instructional design, 5) students' interaction with Blackboard Collaborate functions, and 6) Blackboard Collaborate functions used during the session. The aim of these principles was to observe how is the virtual class structured and if students were able to relate with all the processes to follow for effective virtual learning. According to what the researcher observed, the facilitator tried to make the virtual learning environment conducive to learn but it was a very challenging experience for students to be comfortable to use the Blackboard Collaborate Virtual Learning functions. The majority of students of students did not participate at all during the session while only a few participated in the chat box. As the study was conducted at the rural campus whereby the majority of students are not equipped with technological skills, (Ndung'u & Signe, 2020), students did not find learning through Blackboard Collaborate easy to use (Davis, 1989). Furthermore, the majority of students did not use the electronic mics at all during the session, meaning they couldn't get their voices heard pertain to how they understood and engaged with the content at hand. To try to get students to participate in the session, they were also grouped to engage with one another in the breakout rooms but only a few participated. The researcher witnessed a similar behaviour that aligned with the interview results and that gives an indication of the challenges students faced with studying virtually in both sessions.

Despite the issues participants noted above, they also indicated positive impact regarding the support they received from the institution at large during this period of studying solely online. They indicated that the university put a lot of supportive

measures forth to assist them to learn on this platform. They cited that the lecturers were very understanding and supportive. They used different platforms and modes of communication to ensure that no student was left behind. They noted that lecturers recorded the sessions and slides with a voice recorder. They then shared the slides with students on Blackboard and other platforms such as the WhatsApp chat for them to catch-up on what was missed in class when they were struggling with connectivity issues. They stated that lecturers were also lenient pertaining re-opening tests and assessments submission links because they understood that students might have faced network connections, hence, they could not meet deadlines. Due to the psychological pressure that came with the pandemic, a lot of students suffered anxiety. They were referred to relevant students support services such as the Student Counselling Department accordingly to assist them to deal with their emotions. Furthermore, the institution came up with the initiative of assisting students who had no devices by providing them laptops to be able to access learning materials online and to attend classes. The Blackboard office was also in the forefront to assist students with the "how to" materials of navigating this platform and they were also always on call to assist students who were struggling. The ICT department was also very helpful to assist students facing technical difficulties during that time. Participants appreciated the type of support structure that was provided by this institution during this time of crisis.

The next discussion is based on the recommendations provided by participants in case the same challenge is faced in the future which relates to the theme and sub-themes of the study.

5.3.2 Recommendations and suggestions of learning through Blackboard Collaborate Virtual learning in a rural campus by participants

The secondary research question answered in this section is: How can students' learning experiences on Blackboard Collaborate in a higher education rural campus be understood and explained? What participants recommended and suggested when giving their perspectives of learning through Blackboard Collaborate Virtual learning

were recognized as significant to explore their various perspectives and experiences on the research topic under study. This section presents the participants' 1) holistic perspectives, 2) perspectives significant to this respective institution, and 3) perspectives directed to HEIs globally.

Firstly, in terms of general perspectives of participants, it has been noted that there are several strategic plans that can be incorporated to assist students with dealing with various challenges faced. Students from rural backgrounds firstly struggle economically to access basic resources. Participants gave an indication that HEIs must ensure that students are assisted with financial needs should teaching and learning be shifted to the online platform again. This is so because the majority of students' tuition fees are covered by study loans, the financial aid office, and bursaries on this campus. Participants believe that it would be beneficial if data costs are also covered by their funding because it is a struggle to constantly buy data to be able to attend class or access learning materials.

Secondly, students also provided recommendations to this respective HEIs. They expressed their gratitude for the idea of the Global Protect App which was introduced to assist them with data related issues. In the study by Dube, Maphosa and Jita (2021) they also noted that the use of this App was applied in one of the universities in Zimbabwe as a mitigating factor for high data costs. One participant had noted that this App must be modified in order to be able to cover students' data costs and poor connectivity issues, as it can assist a lot of students who struggle financially to also have access to the learning materials. Another participant also suggested that the LMS used by the university should be modified in a manner that it operates on all networks for students who do not afford expensive gadgets to still be able to access learning materials on the online platform.

This part focuses particularly on how students' experiences with virtual learning can be understood and explained. Moreover, with regards to the perspectives directed to HEIs globally, it was discovered that students share the same sentiments in terms of the continuation of blended learning post the corona virus pandemic. This perspectives from students comes from the challenges they had experienced while learning virtually on Blackboard Collaborate. They stated that this would assist students to have an

experience and knowledge of learning on both platforms as the majority of students enrolled on this campus lack technological skills. They added that blended learning would also assist the new generation students enrolling for the first time each year to get used to the use of Blackboard Collaborate functions for effective learning. One participant stated that it would be beneficial if students are taught how to be internet savvy on their first year of study as some of them are not exposed to learning through gadgets in high school, as they come from rural schools where technology is not used. Three participants stated that they highly recommend blended learning to ensure that all students can navigate any online platform used by their institution to limit the previous challenges they faced as students. They also stated that blended learning would be beneficial in case the world faces another pandemic or any other natural disaster which may require teaching and learning to be shifted solely to the online platform again. If students are taught how to use technology, they will then find it useful and easy to use.

5.4 Study limitations

There are several limitations that might have an influence on the study outcomes. Data was collected from only two of the four faculties of this rural campus. Therefore, there was limited comparison and variety in terms of students' perspectives and experiences with learning on Blackboard Collaborate Virtual learning on this campus. The study also focused on students who enrolled at this institution in 2019 before the Corona breakout and not those who enrolled in 2020 only**.** A comparative study of those who enrolled in 2021 might have provided additional insights on their perspectives and experiences as well.

Furthermore, this university consists of three campuses on different locations and settings. A comparative study of discovering students' perspectives on learning on Blackboard Collaborate Virtual learning on all campuses might have also provided more insightful information on the differences and similarities of how different students in different settings, but under the same university management experienced virtual learning. This could have also been beneficial to get views of students in both rural and urban areas. Therefore, a similar study can be extended and conducted within the

other two branches of this higher education institution to get different perspectives and compare data thereof.

5.5 Implications and Recommendations for Training, Access, and Future Research

The subsequent part of the study presents the viable inferences as exposed from the results of the study. These inferences are divided into three categories: training and development, access to resources and future research.

5.5.1 Implications and recommendations for training

Due to exploring rural campus students' perspectives on learning through Blackboard Collaborate Virtual learning, it was expected that they might have faced similar challenges according to their context. For example, the majority of students studying on this campus also come from rural locations. The majority of students on this campus are also first-generation students and they also come from high schools where technology is not used to learn. Most of them see a computer for the first time when they get to campus and do not have prior experience on how to utilise it. One of the challenges faced was not knowing how to maneuver the Blackboard platform. It is therefore essential to establish a training and development support system that will assist students to gain technological skills to mitigate and overcome the challenges students faced while learning on the Blackboard Collaborate platform.

5.5.2 Implications for access to resources

According to the findings, lack of access to resources limited some students from learning and accessing the learning materials on Blackboard. According to Avery, (2013) the setting of this campus which is classified as rural has a default impact to the insufficient resources and structure (Du Plessis, 2014; Nkambule & Mukeredzi, 2017; Dlamini, 2018). The institution could assist by enabling all students access to needed equipment such as laptops, so that no student is left behind. The institution

could also ensure that the learning App provided to students as a mitigating factor of the expensive data has been well modified. Moreover, it must be ensured that it is accurate and works properly to assist students to have access to classes, write tests and assessments online without frequent connectivity issues. The App must firstly be tested to see if it works in all different settings and locations. This would ensure that all students have access to learning materials on the Blackboard platform.

5.5.3 Implications for future research

The segment grounded on the restrictions of the study at hand depended on the scrutiny of the interviews of students who were enrolled on this campus before and during the first year of the Corona virus pandemic period, as well as the observation of the synchronous live sessions on this platform. It is, therefore, highly recommended that the future research should include students who also enrolled on this campus during the second year of the Corona virus period as well to get different views. In addition, data was only collected from students enrolled in two of the four faculties on this campus. Students from all faculties available on this institution must be represented for more insights on the similar research study. Furthermore, the research only took place on one of the three campus of this higher education institution. A comparative study of students' perspectives on learning on the Blackboard Collaborate Virtual learning with more participants from all three campuses could be conducted for a comprehensive data comparison.

This study was directed by the TAM theoretical framework to comprehend the discovered data. This framework has been successfully used in various research papers nationally and internationally specifically and focused on integrating technology in teaching and learning in the respective subjects (see Table 2.2).

The following segment represents the conclusion of the study.

5.6 Conclusion

A lot of developing countries have been following processes of advancing and incorporating technology in HEIs. The breakout of the Corona virus has compelled all

these HEIs to shift teaching and learning to the virtual platform instantly with or without proper training of relevant stakeholders (lecturers, students, support staff) and without any proper resources.

This incident gave an indication of the importance of basic computer literacy skills. The findings in this study state that the use of technology is dependent on students' perspectives of finding it useful and easy to use. The data collected on the usefulness and easy to use of technology states that students did not find technology easy to use and learning online useful. This is due to the challenges they faced with the rushed and unplanned transition from traditional to virtual teaching and learning. This made it difficult for students joining the university for the first time with no prior technology knowledge or basic computer skills.

In order to address the challenge of entering higher education institution with no basic computer skills, there is a need for the integration of the computer subjects in all high schools in South Africa regardless of the geographic location. This subject must be compulsory in all high schools. Higher education institutions must build a rapport with high schools. Department of Basic Education and higher education must be aware of this challenge experienced by first year students and work in collaboration to assist in this regard. Higher education institutions must also ensure that students are competent enough on how to utilise the LMS employed by the university. They must also ensure that they have a compulsory computer module embedded in all courses to ensure that students are exposed to the basic computer literacy.

Although participants cited various challenges with learning on the Blackboard Collaborate Virtual learning, one positive factor emphasised on. They stated that they would prefer teaching and learning to be delivered through the blended platform for them to have the knowledge and experience of learning through both platforms. This is so because they do not want to struggle, and no student should be left behind should HEIs face the same incidence of having to deliver content through the online platform only.

This study aimed to address rural higher education campus students' perspectives on learning through Blackboard Collaborate Virtual learning in a form of experiences in the Eastern Free State. The objectives of the study were accomplished over the

research methodology, presentation of the discovered data and sections of the discussions. Data was collected from students and permission was granted by the research committee to complete the study at this campus. The data received will contribute to the comprehension of students' perspectives and experiences of virtual teaching and learning in a rural context.

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Appendix A: Ethical Clearance

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

24-Apr-2023

Dear Ms Dinkeng Motaung

Application Approved

Research Project Title:
Students' perspective on a Blackboard Collaborate Virtual learning experience in a rural campus.
Ethical Clearance number:
UFS-HSD2023/0091/23

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely
Dr Adri Du Plessis
Chairperson: General/Human Research Ethics Committee

Adri Du Plessis
Digitally signed by Adri Du Plessis
Date: 2023.04.26 07:48:43 +02'00'

205 Nelson Mandela Drive
Park West
Bloemfontein 9301
South Africa

P.O. Box 339
Bloemfontein 9300
Tel: +27 (0)51 401 9337
duplessisA@ufs.ac.za
www.ufs.ac.za

Appendix B: Consent to participate in the study

Consent to participate in this study

I, the undersigned, _____(participant's full names to be included), (the "Participant") confirm that I voluntarily agree to participate in the research study referred to as the _____ (the "Study") in relation to _____ and which Study is being conducted by_____ (insert the name of the researcher), (the "**Researcher**").

I, the undersigned Participant, further confirm that–

1. the Researcher has explained the nature, procedure, potential benefits and anticipated inconvenience of my participation in the Study;

2. I have read (or had explained to me) and understood the Study as explained in the attached information sheet;

3. I have had sufficient opportunity to ask questions and am prepared to participate in the Study;

4. I understand that my participation in the Study is entirely voluntary and that I am free to withdraw at any time without penalty (if applicable);

5. I voluntarily provide the UFS and the Researcher with my personal information and consent to the UFS and the Researcher collecting, disclosing and processing my personal information in order to conduct the Study and any related activities in relation thereto;

6. I hereby acknowledge and confirm that I understand the purpose for which the UFS and the Researcher may collect, store, use, delete, destroy, outsource, transfer or otherwise process, as the context and circumstances may require and as contemplated in terms of POPIA, my personal information as set out herein;

7. I am aware that the findings of the Study will be anonymously processed into a research report, journal publications and/or conference proceedings and that my personal information will be aggregated and deidentified at such stage;

8. I also give the UFS permission to share, without notification, the collected data with other researchers at the UFS or other Higher Education Institutions. This permission is dependent on the same principles of ethical research practices, anonymity/confidentiality, safekeeping of information, and other issues listed above applying.

I, the Participant, agree to the recording of the interview.

Full Name of Participant: _____

Signature of Participant: _____ Date: _____

Full Name(s) of Researcher(s):_____

Signature of Researcher: _____Date: _____

Appendix C Interview invitation letter to participants

Dear UFS Student,

My name is Dinkeng Motaung, a Masters student in the Faculty of Education. I would like to invite you as a UFS Qwaqwa Campus student to participate in my research study which aims to investigate: ***Students' perspective on a Blackboard Collaborate Virtual Learning experience in a rural campus.*** The UFS Qwaqwa Campus was selected for this study due to its unique context and challenges faced as compared to its co-campuses in Bloemfontein. The contribution of students' reflections, experiences as well as their attitude towards the adoption of virtual classes and learning through Blackboard Collaborate as compared to the face-to-face traditional learning platform is crucial and will assist me as the researcher to make valuable conclusions regarding students' level of satisfaction of learning through the Blackboard Collaborate Virtual Learning.

Kindly take note that participation in this study is voluntary, and the information provided will be kept confidential. Furthermore, participants are free to withdraw from the study at any point they wish to, without any consequences.

UFS Gatekeepers' approval and Ethical Clearance were applied for and received from the **General Human Research Ethics Committee (GHREC).** Attached is the certified ethical clearance to conduct this research. The ethical clearance number is: **UFS-HSD2023/0091/23.**

Should you wish to participate in the interview, the study involves semi-structured interviews that will be conducted face-to-face on campus. The duration of the interviews will be approximately 20 – 30 minutes. Please confirm by replying to this email if you are interested in participating. I will therefore contact you to give me at least three suitable time slots so that I can align one with mine in this respect.

I am looking forward to having a fruitful encounter with you.

Should you require further information on the research study, do not hesitate to contact me.

Researcher: Ms. Dinkeng Motaung

Email Address: MotaungDN@ufs.ac.za/ 2010066401@ufs4life.ac.za

Study Leader (Supervisor): Prof Thuthukile Jita

Email Address: JitaT@ufs.ac.za

Thank you for this.

Kind regards,

Ms Dinkeng Motaung

Appendix D: Instrument: Interview Protocol

Interview Guide

THE PURPOSE OF THE INTERVIEW GUIDE IS TO COLLECT INFORMATION TO SUPPORT AN EMPIRICAL STUDY ON THE STUDENTS' PERSPECTIVE ON A BLACKBOARD COLLABORATE VIRTUAL LEARNING EXPERIENCE IN A RURAL CAMPUS

Briefing:

The interview will begin with the researcher thanking participants for attending this session and signing an informed consent to authorize the interview. Then a reminder to the participants that the interview is being recorded and that the focus of this research is to understand participants experiences with Blackboard Collaborate on their first year on the Qwaqwa campus at the University of the Free State. Finally, participants reassurance would be given that there would be complete anonymity and all information will be treated confidentially and treated with caution.

Responses will be used only for analysis and inclusion in the academic study and will not be used for any other purposes.

1. Tell me a little bit about yourself where you come from, schools or universities you attended previously, if available and why you chose to study on this university and specifically on this campus.
2. How did you find the transition of studying from face-to-face from the school you come from to studying online using Blackboard Collaborate?
3. How would you describe the difference between learning face to face and online using Blackboard Collaborate?
4. What was that one thing you enjoyed about learning on Blackboard Collaborate? Follow up: listen to what skills or tools listed as exceptional enjoyable and ask them to explain how.
5. What do you think was the biggest challenge for you when studying online using Blackboard Collaborate? Follow up: listen to what skills or tools listed as a challenge and ask them to explain how.
6. How would you describe the support you received from the institution (faculties, lecturers, etc.) whilst you were studying online through Blackboard Collaborate Virtual learning? Follow up: specify the support received by sharing if the support received assisted in making the online learning conducive or not.
7. How did studying online through Blackboard Collaborate Virtual learning experience offer you the opportunity to learn new skills that you would not have before? (Please specify the new skills acquired)
8. In terms of learning through Blackboard Collaborate, how would you advise and recommend the university to go about it in the future?
9. If you were to choose whether to fully study online, face-to-face or blended set up which one would you prefer and why?
10. Do you have any other recommendations regarding the online learning specifically on Blackboard Collaborate Virtual Learning in higher education?

Appendix E: Instrument: Observation Protocol

Session Observation Form 1

Facilitator: Participant 8 **Observer: Dinkeng**

Scale: 4 = Strongly Agree, 3 = Agree, 2 = Neutral, 1 = Needs discussion

Elements of the Session

Session Design				
Facilitator had a well-structured material that enables online teaching and learning	**4**	**3**	**2**	**1**
Facilitator carries out a session well-structured for online learning	**4**	**3**	**2**	**1**
Facilitator uses activities that are structured for the online learning platform	**4**	**3**	**2**	**1**

Feedback:

Learning Environment				
Facilitator master Blackboard Collaborate learning platform, material and the technology used for online teaching	**4**	**3** x	**2**	**1**
Facilitator awaits students' responsiveness of the Blackboard Collaborate functions (demonstrated through polls, emojis, chat box)	**4**	**3**	**2**	**1**
Facilitator creates opportunities for interaction between students and Blackboard Collaborate functions (breakout rooms, use of the chat box, mics)	**4**	**3**	**2**	**1**
Session provides various learning styles (virtual, textual, kinesthetic and/or auditory) activities to enhance student learning and accessibility.	4	3	2	1

Feedback:

Students interaction within the Blackboard Collaborate System				
Activities are structured in a manner that enable students to interact with the Blackboard Collaborate system through visual and auditory prompts	4	3	2	1
Students know how to respond to questions asked in the session using mics as well as the chat box.	4	3	2	1
Students are able to follow instruction on what they have to do when divided into breakout rooms	4	3	2	1
Students know how to ask and respond to questions using the Blackboard Collaborate hand icon during the session.	4	3	2	1

Instructional Design				
Students are orientated on how to utilise the Blackboard Collaborate and its functions.	4	3	2	1
The class session is structured in a manner that demonstrates logical flow for students to be able to learn effectively on the online platform.	4	3	2	1
Instructional materials are well planned and organiseorganised for the online session with easy access, no errors and with no broken hyperlinks.	4	3	2	1
Learning materials are made available, and the session is recorded for students with technical issues.	4	3	2	1

Students' interaction with the Blackboard Collaborate Functions	
Low	
Average	
Good	

Blackboard Collaborate functions used during the session	
Polls	
Chat Box	
Interactive Electronic Whiteboard	
Mics	
Hand raising feature	
Screen sharing	
Breakout rooms	

Feedback:

Appendix F: Language Editing Letter

Dr Mathobela's Chipmunk Language Editing Service
"Where Professional and Corporate Language matters"

To whom it may concern

Re: Confirmation of Professional Language Editing Service

This is to certify that I, Dr. Moodiela Victor Mathobela (MA, Linguistics, PhD, Higher Education Studies) language edited **Ms Dinkeng Motaung's Master's Thesis** entitled:

"STUDENTS' PERSPECTIVES ON A BLACKBOARD COLLABORATE VIRTUAL LEARNING EXPERIENCE IN A RURAL CAMPUS"

For further inquiries, please feel free to contact me.

I hope you find the above in order.

Kind regards,

Dr. Moodiela Mathobela
Professional Language Editor
C: 063 073 3135
E: moodiela@yahoo.com
Date: 23 February 2024

Appendix G Plagiarism Report

Document Viewer

Turnitin Originality Report

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