NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDENTS
DEPARTMENT OF COMPUTER INFORMATION SYSTEM

INVESTIGATING THE IMPACT OF COVID-19 ON THE ADOPTION OF INSTRUCTIONAL TECHNOLOGIES IN EDUCATION

M.Sc. THESIS

KOWTHER ABDIKARIN HUSSEIN

NICOSIA

June, 2022

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Approval

We certify that we have read the thesis submitted by … Kowther Abdikarin Hussein titled "**Investigating The Impact Of Covid-19 On The Adoption of Instructional Technologies in Education**" and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the Master of Science degree.

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Declaration

I hereby declare that all information, documents, analysis, and results in this thesis have been collected and presented according to the academic rules and ethical guidelines of Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.

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KOWTHER ABDIKARIN HUSSEIN

Abstract

Investigating the impact of covid-19 on the adoption of instructional technologies in education

Kowther Abdi Karin Hussein
Assist. Prof. Dr. SEREN BAŞARAN
M.Sc., DEPARTMENT OF COMPUTER INFORMATION SYSTEM June, 2022. 68 pages

The COVID-19 outbreak has firmly affected learning in Somalia's higher education system. Even though it was complicated for students to adapt to a new learning way, using video conferencing tools in learning management systems as much as possible kept the learning going. However, video conferencing tools (VCT)are utilized worldwide to confirm the impact of responses to the demand. Even though numerous researchers have found that using VCTs to teach and learn is beneficial, it is uncertain what benefits and problems they offer to higher education in Somalia, particularly in terms of students' acceptance of using technology in the classroom in the case of unforeseen circumstances. This research includes designing an investigative model that combines TAM and DOI models. The data was analyzed by SEM with AMOS26 and SPSS, collected from 600 participants from online questionnaires conducted in Mogadishu universities. The study's findings show that four hypotheses were tested, student readiness has a positive and significantly effect on using videoconferencing Quality of service has a negative impact and has statically significant User-Experience, User experience has a positive impact on using videoconferencing hypothetically not supported, Compatibility has a positive impact on user experience an insignificantly. Learners' acceptance of online classes uses the videoconferencing learning system in times of emergency that cannot be planned for it.

This study is essential for learners in Mogadishu who are utilizing videoconferencing tools. They must learn about the advantages of using a VC learning management system, which will help them achieve other learning goals.

Keywords: Acceptance students'COVID-19, DOI, TAM, Technology adoption, Videoconferencing.

Abstract

Investigating the impact of covid-19 on the adoption of instructional technologies in education

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COVID-19 salgını Somali'nin yükseköğretim sistemindeki öğrenimi sıkı bir şekilde etkiledi. Öğrencilerin yeni bir öğrenme yöntemine adapte olması karmaşık olsa da, öğrenme yönetim sistemlerinde video konferans araçlarının mümkün olduğunca kullanılması öğrenmenin devam etmesini sağladı. Bununla birlikte, video konferans araçları (VCT), talebe verilen yanıtların etkisini doğrulamak için dünya çapında kullanılmaktadır. Çok sayıda araştırmacı, öğretmek ve öğrenmek için VCT kullanımının faydalı olduğunu tespit etmiş olsa da, özellikle öğrencilerin öngörülemeyen durumlarda sınıfta teknoloji kullanımını kabul etmeleri açısından, Somali'deki yükseköğretime ne gibi faydalar ve sorunlar sunduğu belirsizdir. Bu araştırma, TAM ve DOI modellerini birleştiren bir araştırma modeli tasarlamayı içermektedir. Veriler, Mogadişu üniversitelerinde yapılan çevrimiçi anketlerden 600 katılımcıdan toplanan AMOS26 ve SPSS ile YEM ile analiz edilmiştir. Çalışmanın bulguları dört hipotezin test edildiğini göstermektedir: Öğrenci hazırlığının video konferans kullanımı üzerinde pozitif ve anlamlı bir etkisi vardır Hizmet kalitesinin negatif bir etkisi vardır ve istatistiksel olarak anlamlıdır Kullanıcı Deneyimi, Kullanıcı deneyiminin video konferans kullanımı üzerinde pozitif bir etkisi vardır hipotetik olarak desteklenmemektedir, Uyumluluğun kullanıcı deneyimi üzerinde pozitif bir etkisi vardır ve önemsizdir. Öğrenenlerin çevrimiçi dersleri kabul etmesi, planlanamayan acil durumlarda video konferans öğrenme sistemini kullanır.

Bu çalışma, Mogadişu'da video konferans araçlarını kullanan öğrenciler için çok önemlidir. Diğer öğrenme hedeflerine ulaşmalarına yardımcı olacak bir VC öğrenme yönetim sistemi kullanmanın avantajları hakkında bilgi edinmelidirler.

Anahtar Kelimeler: kabul öğrencileri'COVID-19, teknoloji benimseme, Teknoloji Kabul Modeli, video konferans, Yeniliğin Yayılımı

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LIST OF ABBREVIATIONS

MOECHE	Ministry of Education, Culture, and Higher Education
ICT	Information Communication Technology
VCTs	Video conferencing tools
TAM	Technology Acceptance Model
DOI	Diffusion of Innovation
HEIS	Higher Education Institutions
PLEs	Personal Learning Environments
LMSs	Learning Management Systems
DVC	Desktop Video Conferencing
IVC	Interactive Video Conferencing
WVC	Web Video Conferencing
IT	Information Technology
IS	Information System
EFA	Exploratory Factor Analysis
CFA	Confirmatory Factor Analysis
CR	Composite Reliability
AVE	Average Variance Extracted
CV	Convergent Validity

CHAPTER 1

INTRODUCTION

This chapter includes an overall outline relating to this research area, a problem statement, the major purpose of the analysis and investigation hypothesis, the limitations of this investigation contain a short description section of this thesis.

1.0 Background

The worldwide pandemic of the COVID-19 outbreaks affected all nations. Initially, COVD-19 was declared in Wuhan, China, in December 2019. The outbreak of COVID-19 has brought about the most significant disturbance in the learning system in human history, affecting over 1.6 billion learners in approximately 200 countries, closure of institutions such as universities and schools that affecting 94% of the world's students (Pokharel S., 2021) this has led to a life-changing difference in all aspects of life. Social isolation and limited action strategies have significantly altered old-style learning practices.

The first case of COVID-19 in Somalia was reported in Mogadishu on March 16, 2020, and the disease quickly spread throughout the country (Government et al., 2020). The Somali Ministry of Education has formally granted institutions the freedom to study from home if the learning quality is maintained. Due to the COVID-19pandemic, the Somali government announced the closure of schools on March 18, 2020. The Ministry of Education, Culture, and Higher Education (MOECHE) has declared that schools will not reopen for the remainder of the academic year because of the uncertainties surrounding the development of the COVID-19 transmission. Under normal conditions, the school year 2020–2021 was scheduled to begin in August 2020. However, this would depend on the changing situation. According to the MOECHE, examinations had been postponed, and they soon released further information on the new examination's timeframe (Barre, 2020). During the COVID-19 pandemic, it was noticed and witnessed the significance of technology in education and its critical role in continuing education in schools, institutions, and universities worldwide. Under COVID-19, Somalia's public and private institutions extensively utilized Information Communication Technology (ICT) in the educational process from March to July 2020. The administration of universities, teaching staff, students, and parents had their first experience with cooperative learning services, sharing information, and

successful interaction between lecturers and students. The administration of universities saw how important ICT was to education and how easy it was to start online courses during this time. (Ahmed, 2020).

Due to the pandemic, it became difficult to continue with face-to-face education. The universities merged with video conferencing methods, which provided new ways to communicate and cooperate with the classes. The increasing popularity of information and interaction innovation (ICT) encourages the broad use of technology in training to enhance teaching and discover the top quality. Finding out with video conferencing is chosen as it adequately connects the teacher with the student or one learner to an additional when they have to distance find out instead of coming up to their classroom.

The mentor team was the central part of the search application, a substantial adjustment from the face-to-face training and discovering process with no preparation to finding out that they executed it online. Online discovery was the only option to remedy the ongoing application of training and learning activities without minimizing the moment and period of education set out in the previous plan for each pupil. For example, lectures are not a challenge for a student to finish on time on the internet. Online learning is the only way to keep teaching and learning going during the COVID-19 pandemic (Maphalala, 2021).

Like universities, colleges, and schools were locked to handle the worldwide pandemic, learners, parents, and teachers worldwide possess felt the uncertain wave influence of the COVID-19 outbreak. The educational system is trying to continue its education during these challenging times. Numerous learners living in their homes have felt mental and emotional anguish and have been powerless to involve effectively. The most excellent practices for online homeschooling so far served to use appropriate and related teaching for the online education system to be allowed to lead on the proficiency and vulnerability to data and connecting technology for both teachers and the students. Professors can create courses for their students to improve their learning results using online systems like "Team Canvas, Blackboard, and Google classroom," which incorporate united connections and teamwork (Petrie, 2020).

Although adapting to the new alter, workers' and learners' preparedness needs to be evaluated and helped. The students with a fixed mentality find it hard to adjust to online learning, while students with an extension mindset quickly adapt to the new

online education style. (Doucet et al., 2020). Online education also permits physically obstacles learners with moreover privilege to contribute to teaching the virtual environment, needful restricted actions. This study highlights the changes that covid19 brought to the education system, how the problems of implementing online learning due to the absence of face-to-face are tackled, and what solution to solve these problems. E-learning tools have played an essential role in this covid19 outbreak, helping students continue their education while the universities and schools closed education facilities are closed (Subedi et al., 2020).

1.1 Problem statement

The learning systems have speedily increased during the COVID-19 pandemic, influencing the learning methods from in-person to online. Generally, recognized obstacles to learning management systems are availability, affordability, workability, learning teaching, long-lasting knowledge, and educational strategy (Murgatrotd, 2020). They also had to continue their education due to reliable Internet connection issues. Although economically developing countries can keep up with their children's online education during this pandemic

1.2 Aim of Study

COVID-19's unpredictable consequences necessitated the use of VCTs to educate and study. Research into the usage of VCTs and their benefits and drawbacks are necessary, particularly in student acceptance of the tools. This study will try to fill in some gaps in the research. It will look at TAM and DOI constructs linked to Somalia's students' acceptance of VCTs in distance learning during the COVID-19, and it will also look at external factors that influenced Somalia's students' acceptance of VCTs in distance learning during the COVID-19. As a result, the primary goal of this research is to look into the impact of COVID-19 on instructional technology uptake in higher education.

1.3 Hypothesis

- H1 Student Readiness (SR) has effect on using videoconferencing.

- H2 Quality of Service (QoS)has effect on user-experience to using video conferencing.
- H3 User experience (UXEP) has effect on using videoconferencing.
- H4 Compatibility has effect on user-experience to use videoconferencing.

1.4 Limitation of study

In this study, the researcher's data was collected online from university students on a restricted timetable. The response rate to online surveys limits the analysis of the results. The materials used in formal education will be adequate for all students during COVID-19. Lastly, the data collected from university students in Mogadishu, Somalia, and the number of people who filled out the questionnaires were based on the honest opinions of the people who filled them out.

1.5 Importance of The Study

One of the program's objectives is to examine the impact of the COVID-19 epidemic on the use of learning technologies in higher education institutions, which is now taking place. Because it was difficult for students to engage in face-to-face studies during this pandemic's uncertain era, many resorted to video conferencing to finish their education. Despite the hurdles, universities maintained a high level of quality instruction while maintaining regular contact with their students. Other researchers' knowledge of VCTs should improve due to this study. At the same time, it is envisaged that by gaining a deeper understanding of the social and technological aspects that promote VCT adoption in distance learning, the frequency and efficacy of VCT adoption would increase. A better understanding of these factors could help managers, teachers, and service providers figure out the benefits and drawbacks of VCTs in distance learning and, as a result, make better decisions about technology infrastructures and support services so that more students use them to do better work.

1.6 Overview of the thesis

The study of this research context contains six chapters and some brief descriptions mentioned below:

Chapter one: The first chapters consist of brief details of background of the study, aim of the study, problem statement and importance of the study.

Chapter two: The second chapter describes literature review that related of this study that investigates impact of covid19 that effected in educational system.

Chapter three: this third chapter contain theoretical framework and quality serves of educational technology that affected this pandemic.

Chapter four: in this chapter explains the methodology that was designed of the study that used questionnaire with SPSS information to conduct data in different universities.

Chapter five: this chapter explains the outcome that obtain of this research.

Chapter six: in this section describe summary of this study contain discussion section, conclusions and recommendation for future.

CHAPTER 2

2.0 Literature Review

This chapter contains a literature review that is associated with the investigation of this study. It gives a brief explanation of how the COVID-19 virus affected education and how education systems around the world changed because of it.

2.1 Context of covid-19

As stated by UNESCO, over a billion international and domestic students have been affected by the school and university closures that started in response to the COVID-19 outbreak. Since November 2020, more than 300 million students spread across more than 30 countries, which equals almost 18% of the entire registered students, have been excluded from schools due to lockdown (UNESCO, 2020).

In-person teaching, and knowledge were interfered with by COVID-19, leading to organizations relocating online and implementing what is called "emergency online understanding." current research by Mukhtar et al. (2020). This statement explains how the expansion of COVID-19 has caused the closure of universities worldwide and how this closure has felled the growth of online learning environments to ensure that education was disrupted. Because of the total lockdown, the university under study had little time to prepare for all academics to teach and for learners to find out via remote access. The rapid translation of components from traditional in-person training to online understanding was not without challenges. Professors found it complicated and time-consuming to make online classes that were credible in a short amount of time.

Traditional learning has been reframed with a new type of learning and a definition of online courses. Due to the unpredictable nature of the pandemic and its quick spread, online teaching and learning tools were established in a short time without proper evaluation on a national scale at the start of the outbreak. Under a broad social agreement, most people unconditionally agreed to the internet's education and learning systems. Regardless of quick advancement worldwide, the internet possesses only the essential structure to supplement an average educational institution's education and learning. There is a preceding limited scenario in which a massive on-the-internet educational program has been used in reaction to the COVID-19 outbreak.

Consequently, no colleges were entirely ready to change to on-the-internet education and learning. According to (Han and Sa, H, 2021), short-term decisions were made, and procedures were carried out in every educational and learning area and for every person who was learning.

2.2 Learning Management System Usage in Higher Education During COVID19

Throughout the initial trend of COVID-19, numerous universities were quickly assumed to have disrupted their in-person instructional services. They had to adapt to the unforeseen. This current growth has caused both obstacles and opportunities for learners and instructors. Education and learning service providers, consisting of college establishments, needed to follow their corresponding federal governments' preventative social distancing actions and improve their sanitary techniques to reduce the spread of outbreaks. Many the Higher Education Institutions (HEIS) expressed possibility plans, distributed info concerning the infection, educated their teams to function remotely, and systematized online meetings with learners or course participants.

Nonetheless, a year and a half after the COVID-19 incident, approximately 100 scholastic associate personnel were confident in using remote learning innovations like LMS and videoconferencing packages to teach their training courses. Throughout the pandemic, they became accustomed to the internet innovations that helped with asynchronous discovery through text, recordings, and videoclips. Additionally, several of them arranged collaborative conferences with their learners in the current period. Frequently, they used videoconferencing systems consisting of "Microsoft Teams, Google Meet, Zoom," and some other systems. Covid19 has made them want to use this knowledge from a long time ago to work with their students (Camilleri, 2021).

Assumed from the initial assumption, the concern may significantly impact technology acceptance during the COVID-19 outbreak because most universities and colleges have begun applications that use learning distance to reduce the dangerous and malevolent impact of the coronavirus. Nevertheless, several universities and schools have faced challenges concerning teachers' understanding and enactment of technology, learners' knowledge and experts' opinions, and the lack of moving glass rooms for learning in online classes. The acceptability of technology as a method of

distance learning has a considerable impact on the validation of its utility and the adoption of online learning applications in general. The most of adoption education programs have revealed that the development of adoption is not a straightforward process in and of itself, as it may impact a variety of factors such as study technology, framework, and strategy. As a result, numerous investigators have included technology adoption in their studies. Currently, it is considered that the acceptability of new educational practices, such as Google Meet, within the context of a specific event, such as a coronavirus outbreak, has not been well investigated. According to sources, Google Play and the Apple Store have partnered to deliver Google Meet to every client. (Al-Maroof, 2020).

Since it began changing its patterns, technology and its applications have made significant changes in education, from a closed model with teachers and classrooms to an extra-open and learner- centred model. It allows the educator to go from one container of knowledge meant for a knowledge guide to many, allowing him to administer various communication channels and stimulate the knowledgeable capacities of learners in the behaviour of information and including online learning, hybrid knowledge, and cooperative models. Usually, learning management systems (LMS) elements contain synchronic and asynchronous connection devices, administration features, and evaluation values. These valuation utilities can help professors schematize fundamental estimation fiction. Evaluation can be immediately brought to the learners and, upon conclusion, returned with results and information response. Thus, management learning systems can also be used for valuation objectives in advanced education. (Lopes, 2014).

E-learning can upgrade coaching and knowledge activities and be more well-organized. Teachers must work out teaching resources correctly before opening and keeping them in their sources. The perception of management learning systems, or online classrooms, is changing education in many universities and is being used for a long time, while it is understood that the emotional level of straight knowledge will be reduced. As e-learning technology advances at a breakneck pace, this is one of the primary reasons this concept must be implemented and established extensively. The issues of urgency are lecture restriction, fatigue in learning, and limited communication. Online learning is cooperative. It needs high levels of communication and association to be successful. (Rabiman, 2020).

Today, information and communication technologies (ICTs) have developed as a strategy for universities to develop general learners' performance. The growth of these advanced teaching-learning developments has given students recognition as Personal Learning Environments (PLEs). Through the use of technology, students have a chance to learn off-campus without requiring a teacher. Students need e-learning management system platforms that use online classes (Juarez Santiago, 2020).A present propensity in advanced education involves examining and taking care of data connected to the actions produced by clients. Learning management systems (LMSs) are used throughout the entire process. These platforms' large amounts of data provide information-based data that can assist both teachers and students in achieving their academic objectives (Cantabella, 2019).

So, here will mention some most used applications that using in high education during this pandemic that mad some issues that brought to the closure of all educational institutions, so these platforms made it easier for us to continue our education.

2.3 Google Glass room

is regarded as one of the best platforms to improve teachers and students to continue their work. Also, to give us a set of powerful features that make it the perfect tool to utilize with learners, google classroom aid teachers to keep their time, organizing well, and advancing communication with learners. Besides its accessible to everybody with google apps for education, google classrooms designing to support teachers to administrators to build on a collection of learners' assignments without any paper to prepare for their works environment. Most of the time, Google Docs, Drive, and other applications using as a framework. Google Classrooms, these tools, which allow teachers to spend more time with their students and less time on Workpapers, have evolved in recent years, and they are now even more productive. (Iftakhar, 2016). During this time during a covid-19 pandemic, it caused the use of learning management systems that covered all requirements that needed educational institutions to manage their work.

2.4 Blackboard learning

this platform is also the most popular management learning system that uses educational purposes to cover all educational system wants. Blackboard learning has

provided two products called (NTE)and (NLE). Obviously, from the names, NTE contracted specifically with the transaction system is a sort of commerce set (Alturise, 2020), as well as this platform became one of the best useable understandable apps that using educational purposes using around the world.

2.5 Video Conferencing

Video conferencing is a means of interaction between two people from different places connected through the net. The use of videoconferencing systems took off in spring 2020. Zoom, among the most prominent of the videoconferencing platforms, raised thirtyfold as using its facility from 2019december to 2020 march jumped from approximately10 million day-to-day customers to 300 million everyday customers in college, professors swiftly transitioned their formerly face-to-face courses to entirely on the internet guideline in an issue of days. The bulk utilized video conferencing to remain to talk to their classes. In contrast, internet videoconferencing systems had satisfied niche requirements for remote conferences prior to the pandemic. Modern technology's use abruptly became normalized as a method for individuals to work, learn, and socialize during the extensive lockdowns caused by the pandemic. Customers began spending extensive hrs interacting on the videoconferencing tools. (Massner, 2021).

While there has been research on videoconferencing (VCT) efficiency in education and learning, it concentrates on the effect of ecological or specific facets on knowledge. Those studies, nevertheless, have not had the ability to sufficiently respond to the concerns about the changes and challenges ICTs give higher education to stimulate the sharing of experiences in operation. Furthermore, there is a request for a much better perception of the certifications as well as various circumstances in which exist the learners' acceptance, function, and use of VCTs, among other technological knowledge tools, in addition to an inadequate number of referrals of the everyday use of VCTs in created and developing countries' colleges and also users' attitude towards videoconferencing (VCT) during COVID 19 (Nguyen, 2021).

As stated by Al-Samarrie (2019), there are three parts to video conferencing:

- Desktop videoconferencing (DVC) enables participants to use more than one channel to learn. This approach can link a single person with one or more, one team with one more, or someone with one team.

- Interactive videoconferencing (IVC) enables the audio speaker, or the teacher in the case of education, to provide an online lecture to the student while being together in one environment. To boost the efficiency of this technique, improved configuration and help from various other media must be offered.
- One concern offers Web videoconferencing (WVC) students one concern: the adaptability of their whereabouts. People can be in different places but can still participate in the lesson. The interaction between students and the educator, as well as among students, is also high. Users of WVC also do not need any software or equipment because the meeting takes place on an internet site.

2.6 ZOOM

Throughout the covid19 outbreak, the zoom was the option for numerous federal agencies, colleges, not-for-profit administrations, and persons. Zoom was created by (Eric Yuan in 2011). It is a web-based video clip meeting solution that provides high-quality audio and video and screen-sharing, making it ideal for virtual conferences, online lectures, online conferences, webinars, and more. In numerous colleges, it came to be conveniently available for learners, teams, and faculty. Teachers were talented in custom the various attributes of zoom to produce a collaborative knowing environment. These attributes consist of a digital whiteboard with note capability to discuss principles, escape rooms to produce little co-operative in the grouping, elections for learners' comments, and conversation to service class discourse (Serhan, 2020).

2.7 Learning Distance

About one hundred years ago, learning and teaching were face-to-face experiences. It is impossible to imagine a classroom not bounded by walls with all learners and teachers present. However, Distance education has become a new concept among learners and teachers. It is far from a priority of It predates the highly developed twenty-first century and the postal service. Throughout the outbreak, substantial initiatives were made to make education operate on the best pathway. Technologies can aid remote learning; hence, aspects of their use during the pandemic need to be reviewed and noted. Digital modern technology, specifically online modern technology, permits educational stakeholders to search for answers to what, where, when, and how trainees and instructors learn by searching for online responses. On the

Internet, technology can assist in increasing teachers' duties. Educators can be instructors, mentors, or online. "Modern technology" refers to technological devices that allow people to get information and communicate through the Internet. (Sukendro).

Because of the rapid progress of information and communication technologies, there has been a substantial increase in learning management systems (LMS) available. Worldwide enterprises and academic institutions collaborated to design the LMS, culminating in their research and understanding of the potential benefits of information technology-based business models. These systems allow commercial administrations to design and investigate the requests of the workers and their customers for teaching. LMS concerns the administration's international preparation and management and is connected to assessing, choosing, and improving work qualifications. Learning management system and keeping up a library of accessible courses, guiding supplies, and education-connected actions kept in an appropriate job format. Management learning systems are specific training systems founded on up-to-date internet and web technologies. According to this, there will be a need for organizational, managerial, and instructional basics and the use of a wide range of technical skills. (Blagoev, 2018).

Learning management systems (LMS) work well in the classroom when teachers and students have positive attitudes about learning, the university backs them up, and students use information technology (IT). when it comes to technology adoption and acceptability, the clients of these systems may hold divergent viewpoints. As a result, it is essential to keep this in mind while evaluating technology-mediated online learning systems. Educators and students are the final customers of the LMS in the educational setting. As a result, according to experts, they must play a critical role in successfully implementing this system. Learning management systems (LMS) are important because students are the leading group that will benefit from them, especially at higher education institutions. (Findik-Coşkunçay, 2018).

Evaluation of e-learning management system that provides us some service in educational platforms to assessing learners with their knowledge and will take some important point that requires to may have online system platforms that used in hight educational:

- Quiz management tool
- Individual or goop assessments
- Couse evaluation
- Exam’s part (mid-term and final)
- Stand question type (multiple choices, fill in the black and etc).
- Exam result part**.**

2.8 Acceptance Models

Davis' Technology Acceptance Model (TAM) is a framework for evaluating technology acceptance (1989) and has been tested in a variety of investigational learning situations, and as a result, it has gained prominence in the literature on technology acceptance as a result of its use. Another finding of a recent systematic review is that the platforms of the technology acceptance model in instructional technology acceptance have proved their effectiveness compared to other theoretical models. This is consistent with past research. According to the concept, two individual beliefs, such as "perceived usefulness" and "perceived ease of use," are influenced by external and system-specific elements to predict an individual's attitude toward embracing technology. The point of view itself acts on the behavioural desire to custom design a specific technology, which in turn expects the existing system to be used in the process of implementation (Salloum, 2019).

Nevertheless, Davis's technology acceptance model TAM yet does not act as the most excellent set-up and meaningful foundation of technology acceptance. Technology accepts model TAM, which creates different parts, namely, "sociology and psychology," as the most frequently utilized model in research studies. The primary goal of TAM is to predict the adoption of new technology among customers and to highlight design issues with the details system before its widespread use among the general population. (Kamal, 2020).

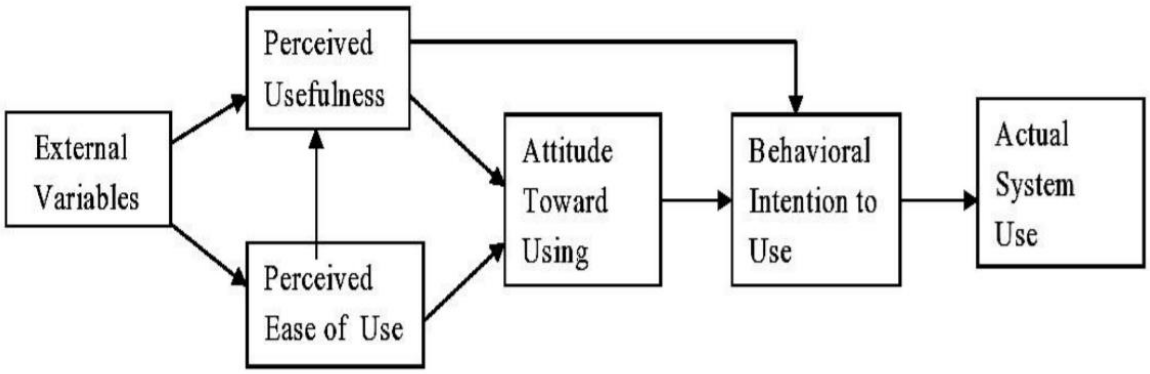

Figure2 .1 Technology Acceptance Model (David 1989)

In this investigation, combined TAM and DOI models are used to explain the technology adoption of videoconferencing contacts from the learning system. Nevertheless, this research also focuses on Behavioural intention. Although the scientist decided to utilize a mix of TAM and DOI concepts because it is closely linked with the here and now study objectives due to the following factors. First and foremost, all of the existing research relevant to the assumptions underlying video-based knowing is firmly established in a collaborative learning context. The pandemic has compelled education and learning to be conducted exclusively online despite this.

According to several academic studies, online learning cannot completely replace traditional face-to-face understanding in the classroom, it can be used as a complement to enhance comprehension. In response to the outbreak, students were forced to change their learning techniques and habits as most of the learning process became completely online. This makes it difficult to determine whether the numerous understanding activities/tasks that the students participate in are a good match for their learning styles. This is a one-of-a-kind circumstance that is in stark contrast to the situation that existed before the epidemic. (Pal, 2021).

As a result, it is difficult to predict if the current outcomes will continue to be valid in the future. It has been established via research that using video and modern technology for online knowledge has been supplemental, supporting the traditional class mentor and him. Therefore, the fostering situation may alter in the present scenario under this brand-new normal of "online-only" schooling and learning, and it is questionable whether the current outcomes will continue to hold in the future under these

circumstances. So, it's important to pay attention to what the students are actually doing. If they don't use video technology and content for online learning, it will make it more difficult for them to get used to it and it will also make it more difficult for them to learn during these difficult times of COVID-19

CHAPTER 3

3.0 THEORETICAL FRAMEWORK

This chapter will discuss quality models of management learning system that is used currently in high educational systems.

3.1 Introduction

The structure of the theoretical versions is an integrated version that catches a person's understanding of the technology acceptance model (TAM) and diffusion of innovation (DOI) designs. The context of this study concentrates on the student Behavioural objective of utilizing LMS with videoconferencing in more outstanding education throughout the pandemic. Innovation adaptation study that primarily takes care of acceptance (IT, IS) has formed a range of corresponding and contending versions to study fostering. As stated, (Rogers & Davis') Diffusion of Technologies (DOI) and Innovation Approval Design (TAM) stands for the most potent academic focus on innovation adaptation literary works. Also, scholars are making extensive use of technology to investigate a variety of technological innovations that are fostering. With about a substantial theoretical idea contribution to preceding TAM with DOI in mentor context thus the acceptance of info system, as well as infotech, is reviewed by two designs specifically TAM DOI which are defined similarly in the same developed finishing with each other

3. 2 Behavioural Intention

Behavioural intention is a way to predict behaviour using information technology. It is based on the motivational factors that lead to a particular behaviour. The more sense it makes to do the behaviour, the more likely it will happen.

3.3 Usefulness

It shows the learners’ opinions on whether they feel that a particular system can improve their efficiency. The factor of usefulness has a positive influence on behaviour intention.

3.4 Ease of use

It describes the students' feeling that a particular system is easy or simple and easy to manage. In this investigation, Ease of use used associated learners' viewpoints on

utilizing this system which can improve their understanding experiences and efficiency. The connection between Ease of use and behavioural intention has positively affected students utilizing the learning system.

3.5 Quality of service

Quality of service It is a standard for how much the actual execution of the help coordinates with the assumptions of the clients or the contrast between the beliefs of the clients and their awareness of the virtual exhibition of the assistance, which is the arrangement of administrations of top quality by the bodies that offer types of aid to individuals, who in turn hope to provide the best types of assistance—those by a specialist provider. The investigator procedurally characterized administration quality as "a pointer by which the recipients' fulfillment with the assistance they got is estimated according to what the help clients expected before getting the assistance and the subsequent input." *Data adaptability* is defined as "addressing the capacity of foundations to acquire the necessary data at the opportune time, with the goal that they can settle on choices productively and adequately." Quality is a significant and compelling component in any area or industry. It has become a proportion of the accomplishment of any association, regardless of whether it is mechanical or administrative, and a norm of greatness in giving an item or administration. Furthermore, because the well-being area is a significant area for the general public, it was essential to focus on the service of administration given in this sector (Abu-Nahel, 2020).

3.6 User satisfaction

Users must be satisfied with what they require and how they want to be, if possible, from the management learning system. Even though feedback from users is critical to getting what they wish or knowing how they admire your work, you must respect their opinion. Replies found from the review will help them see the area they need to develop. To improve goals that make use of knowing what users expect from the system, which makes them more satisfied with the tasks they must do.

3.7 University support

In high education, suitable teaching materials are required so that students do not have to complain. In order to be ready for the education system, they must be able to manage

the university and administration of each student's information if necessary. University applications must be available anytime to access students. Colleges are spending much money on e-learning systems to help them teach and learn because of the recent development of the internet. The LMS is an e-learning framework with highlights for circulating courses over the internet and coordinating online efforts. It works with teacher-to-understudy correspondence, keeping tabs on students' development and allowing the protected sharing of content online. These days, LMSs have become practically virtual devices. Whether focusing on distance instructional or study hall-based teaching, most colleges presently use LMSs to help improve learning and educational measures. Distance and traditional education are typically aided by a wide range of features that can be used to aid both. LMSs can offer new learning and instructive techniques that meet various instructive necessities. For example, LMSs in advanced degrees have made it simple to bring half-and-half courses to the table for understudies. A half-breed course is a mix of face-to-face study in a classroom with online learning. This method also gives college groups more flexibility when booking classrooms, for example.(Islam, 2013)**.**

3.8 Student readiness

Preparedness for online study acquiring includes the specialized abilities of PC use and website route. Likewise, there are issues related to how understudies learn online and the student styles, inclinations, and techniques that might be identified with successful understudy commitment to online learning. Numerous online projects distribute student status overviews to assist forthcoming learners with evaluating their readiness for the web or to anticipate the degree to which an understudy will effectively learn on the web. Even though attributes of effective online students have been very much recorded, the inquiry stays about the degree to which schools and colleges can utilize their insight into these qualities to assist understudies with fruitful learning on the web. Existing studies of online understudy availability canter around broad student attributes. Mattice and Dixon (1999). fostered an overview in the last part of the 1990s to evaluate their student’s interest in learning on the web just as their understudies' status for distance training. The review obtained some information about their previous experience with distance education (e.g., way of life decisions, such as using time productively, need for organized direction, interest in online classes, length of the drive, and plans for getting work done) and their willingness to experiment. However,

it also obtained information about their plans (or lack thereof) to later participate in an online course. (Dray, 2011).

3.9 Relative advantage

It related to a period during which many individuals believed that the new idea was significantly better than the previously established norm. As a result, this word is employed in the current study to clarify how students' perceptions that using LMS can increase their understanding effectiveness are correct. Because the benefits that may be obtained from using the E-Learning system have been repeatedly highlighted in the relevant compositions, the search for the goal of utilizing the system is positively influenced by the benefits that can be obtained (Y.-H. Lee, 2011). According to scientists, the connections between appreciating one advantage, Behavioural purpose in TAM, and DOI investigator have gotten a little attention. The sole research study in this area revealed that trainees who reported more loved ones' benefits were more likely to report a higher level of effectiveness in interpreting systems than those who did not record any treasured gifts.

3.10 Complexity

is explained as the extent to which technologies are difficult to comprehend., as well as the ease with which they may be used, as viewed by those other than the user. Following this description, the current study uses these phrases to characterize the level of difficulty perceived by the learner, which has an impact on his or her learning performance. Individuals who regard the e-learning system as complicated, according to previous research, have a lower intention to utilize the system, which is a result of their low perception of its complexity. As required, the partnership between complexity and behavioural goal has positively influenced the employment of a learning management system; nonetheless, students will not be required to utilize the learning management system.

3.11 Compatibility

It underlines those students get the sense that the development is driven by their needs and expectations, prior involvement, and the demands of potential adopters. They agreed with Moore and Benbasat, who stated that when a learning management system (LMS) enters the course with students' worth, requirements, and experiences, the

degree of found closeness is thought to be high. Considering the students' viewpoints on the potential of using the learning system, this study assesses how the study uses the period allotted. The primary literature on the adoption of information systems has frequently been cited. Generally speaking, perceived compatibility is a sign of the trainees' behavioural intention to put their skills to good use. According to the results, perceived compatibility was associated with a considerable increase in the behavioural reason for using the product, the perceived effectiveness, and the perceived ease of using the product. The interaction between modern technologies that are comparable and prior experience was found to be positively associated with the ease with which technology development might be implemented. This was reported as favourable (Al-Rahami, 2019).

3.12 Observability

The level at which the effect of the advancement is visible to others is defined as "the point at which the effect of the advancement is visible to those who are not involved in it." It is anticipated that your neighbours and friends will frequently request that you respond to their inquiries. Visibility is considered an essential factor in encouraging peer discussion of originality. The term "trialability" is defined as follows: The reputation of a learning management system (LMS) that is checked out by learners and has an impact on their knowledge efficiency is defined as follows: A large number of research studies have been conducted in an attempt to discover the relationship between the objective of using the system and the dependability of the system in question. These studies found that "the desire to use the understanding management system has been positively influenced by the system's ability to be tried out." The findings confirmed this.

3.13 Trialability

People believe they need to experience the development before deciding whether or not to change it. People who are considering adopting it as well as those who are studying it, tend to view it as less unpredictable. In the current study, this idea outlines how learners' perceptions about using E-learning systems impact their learning efficiency. The customers' attitude toward using the system and their intent to do so are greatly affected by observability, according to a study done on a variety of public (Y. H. Lee, 2007). Studies in TAM and DOI have shown a significant impact of viewed

use of systems on trainees' observability. This observability also positively impacts other metrics, including This includes perceived ease of use, intention to utilize the LMS, and perceived efficacy of the system.

CHAPTER 4

4.0 METHODOLOGY

This chapter describes the research model that was used to collected the data from participance, furthermore explains the reliability test date that obtained the questionnaires.

4.1 Introduction

Figure 4.1 represents a model used in this study. The research model combined important attributes from two models: TAM and DOI, to understand how learners prepare to adjust to this new technology. The items were thoughted to be up-to-date because the tools used to collect data were well-organized and took into account these factors: student readiness, quality of services, user experience, use videoconferencing, compatibility, as seen in figure 4.1.

Most research subjects are limited to utilizing one or two models, and it is encouraged that direct study of two models is sufficient to understand the issue.

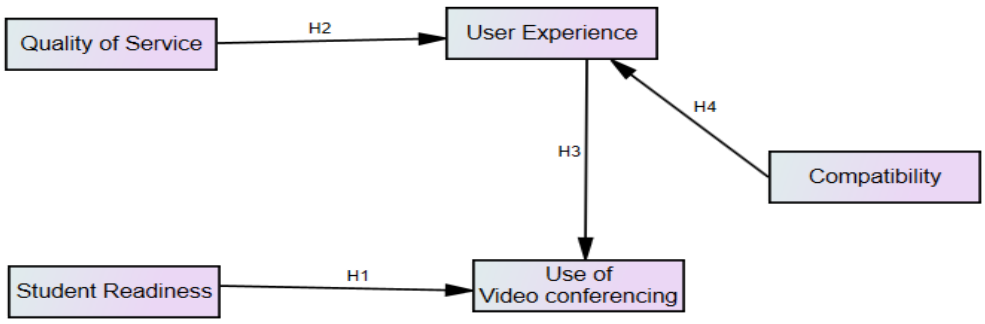

Figure 4.1 The Research Model

4.2 Participants

Respondents were enrolled as students in Mogadishu, Somalia. More than 15,000 students were emailed a cover letter with a link to this study's survey form. The recipients of this email were currently enrolled in full-time, part-time, and distance education programs. The people who filled out the questionnaire were told what the

goals of this empirical study were and how to fill it out. the participants in the survey were students from universities such as, Somalia University (UNISO), Mogadishu University, Jamhuriya University, Jazeera University, with different background levels and faculties.

The formula given by (Aburagaga & Agoyi, M., 2020) as mentioned below, was utilized to derive the finite population.

$$n = \frac{N}{1 + N(e)\,2}$$

where n represents the sample size, N the population size, and e the accuracy level. Using this approach, we determined the minimum sample size to be 389.

$$n = \frac{15000}{1 + 15000(0.05)^2} = 389$$

According to the size of the population, 389 is the minimum sample size that may be used to fill out the questionnaire after it was decided to expand the survey to avoid the error. However, the objective of our survey was to obtain a greater number of responses in order to obtain more accurate data; 600 responses were received, so it appears that our study was successful.

The participants who filled out the questionnaire were volunteers, and the complete number of participants in the survey conducted with 600 questionnaires with response duration of two months. The total number of learners, grouped by gender and age group, was obtained from Mogadishu Somalia universities. These data contrasted with a group of Age and Gender, level of study, Department, LMS use experience, and Videoconference use. The distribution of gender represented was 55.3%males and 44.7%females. The outcome shows that it comes out to be the male gender in this survey. The demography of age delivered was the first group 56.3% were between 18-25 years and the second group 34.3% were between 26-35 third group was 9.3% above 36 years. The students in a distribution level were 45% Undergraduate, master's degree 45%, and Ph.D. 10%. This survey included any university that participated in filling out the questionnaire as an online form in this research.

Table 4.1 Demography data of research participants

		Frequency	**percentage**
Gender	Male	332	55.3%
	Female	268	44.7%
Age	18-25	338	56.3%
	26-35	206	34.3%
	36 above	56	9.3%
Level of education	Undergraduate	270	45%
	Master	270	45%
	PHD	60	10%
Department	STEM	310	51.7%
	others	290	48.3%
LMS use	Moodle	584	97.3%
	Blackboard	16	2.7%
VC use	Google meet	584	97.3%
	Zoom	16	2.7%

4.3 Preface Analysis

The exploratory factor analysis was managed by a group of observed variables and determined the form of the survey of the factors. Consequently, EFA, the theoretical results directly executed in confirmatory factor analysis (CFA), was employed to apply the structural equational model to improve the modification of latent variables to fit the model**.**

4.4 Results of EFA survey

At the beginning of exploratory factor analysis, the principal component with varimax rotation combined the previous factor, constructed and provided the new elements, and determined the new structural model designed in confirmatory factor analysis.

The first survey contained 54 items, where 6 items related to the demography part, and the other 48 items were five-point scale Likert questions. Some factor loadings had become overloaded, so it has become necessary to delete recurring ones so the data was not disturbed. After extracting observed variables with unclear factor loading and rotating component, removed factor with less than 0.3 absolute value. Finally, the principal component produced 45 observed variables, the best result in model form.

The sample size was 600 data collected from Mogadishu universities. The creation sample size represented the 1 to 5 scale. The kaiser-Mayer -Olkin measure of the sampling adequacy of values was 0.910, and Bartell's sphericity value test was significantly tested (<0.001).

In EFA Relative Advantage factor was remove and the reason of extraction is less than 0.3 absolute value.

Table4.2 KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.910
Bartlett's Test of Sphericity	Approx. Chi-Square	28474.006
	Df	990
	Sig.	.000

Finally, data analysis in exploratory factor analysis indicated 5 factors with explicit observed variables and sorted out the issue factor loading overloaded the rotate component. Five factors explain the whole variance, with 45 items being 67.724%. The survey concentrated on factors greater than 0.3 absolute factor loading value.

The rotate component table mentioned below explains the factor loading of observed variables. Scree plot graph represented 4.2 factors that built the structure model

Table 4.3 Rotate component

Rotated Component Matrix[a]

	Component				
	1	**2**	**3**	**4**	**5**
BIU1	**.864**				
BIU2	**.881**				
BIU3	**.904**				
BIU4	**.874**				
US1	**.944**				
US2	**.874**				
US3	**.948**				
EU1	**.734**				
EU2	**.912**				
EU3	**.953**				
EU4	**.941**				
EU5	**.819**				
UniS1	**.893**				
UniS2	**.934**				
UniS3	**.947**				
UniS4	**.937**				
SR1		**.907**			
SR2		**.860**			
SR3		**.883**			
U1		**.794**			
U2		**.812**			
U3		**.772**			
U4		**.892**			
U5		**.838**			
QoS1			**.702**		
QoS2			**.657**		
Q0S3			**.628**		
QoS4			**.727**		
QoS5			**.629**		
QoS6)			**.625**		
Q0S7			**.726**		
QoS8)			**.776**		
QoS9			**.807**		

Table 4.3 Rotate component(continued)

CO1		**.849**
CO2		**.922**
CO3		**.923**
CX1	**.677**	
CX2	**.737**	
CX3	**.716**	
OBS1	**.479**	
OBS2	**.686**	
OBS3	**.732**	
TRI1	**.718**	
TRI2	**.676**	
TRI3	**.663**	

Finally, five factors were named; Student Readiness, Quality Of Services, User Experiences, Compatibility, and Use Of Videoconferencing. The table mentioned below explains the Eigenvalues, variance, and cumulative.

Table 4.4 Eigenvalues, variance, and cumulative

Component	Total	variance	Cumulative	Cronbach alpha
Use of Videoconferencing	13.071	29.047%	29.047%	0.983
Student Readiness	6.110	13.577%	42.624%	0.950
Quality of Services	4.488	9.973%	52.596%	0.869
User Experience	4.345	9.656%	62.252%	0.857
Compatibility	2.462	5.472%	67.724%	0.885

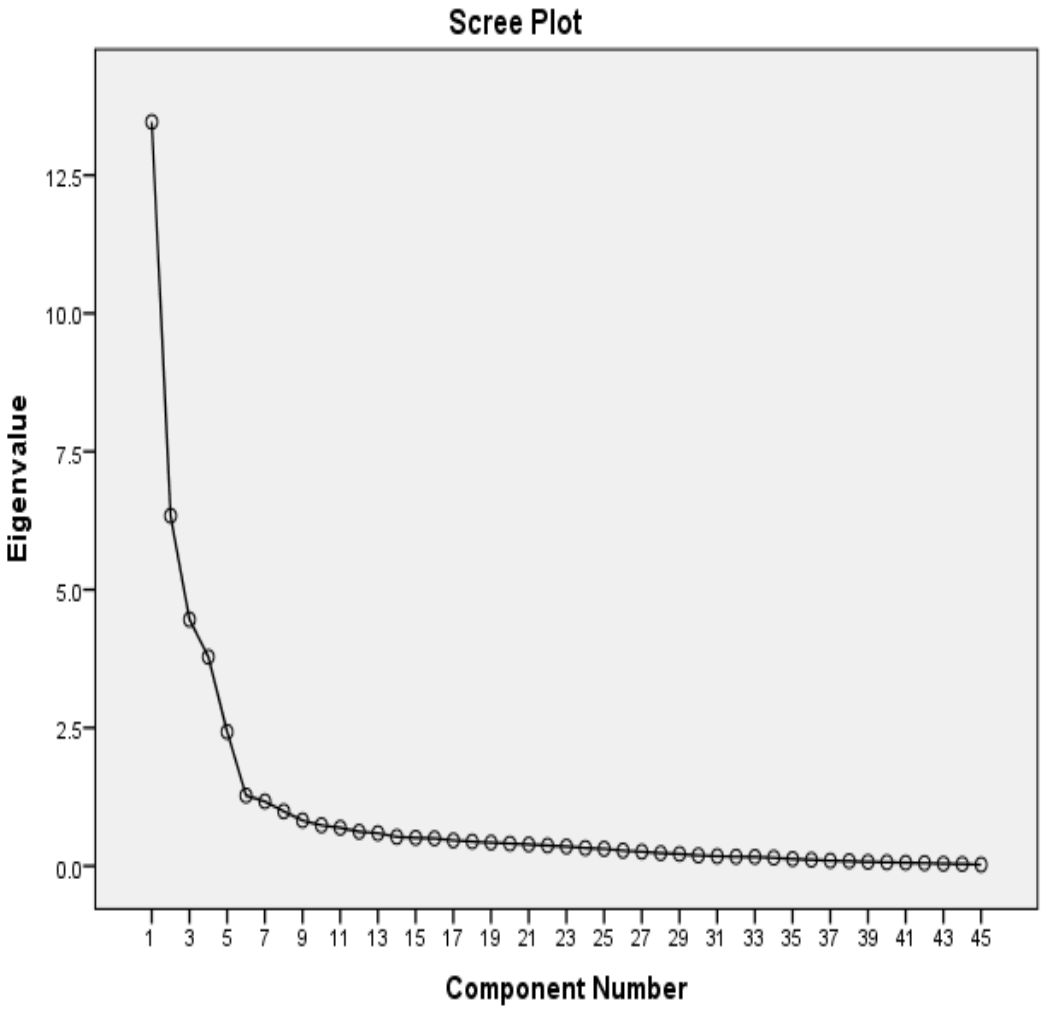

Figure 4.2 screen plot of all factors

4.5 Confirmatory factor analysis (CFA)

EFA evaluation was initially gauged and then directly applied for CFA to get a good model fit and then predicted the hypothesis using the AMOS structural equational model. The Fornell-Larcker is essential that measures the assessment of factor-loading methods for examining discriminant validity (DV), Composite Reliability (CR), and Average Variance Extracted (AVE) (Fornell & Larcker, D. F., 1981).

As stated, (Garbing & Anderson, 1988). Convergent Validity (CV) valuates using the measurement model by determining whether each indicator's approximated pattern coefficient variance on its projected original construct variable is significantly greater than two times its average error. Table 5 displays the model estimation for legitimacy and dependability assessment that contains factor loading, Cronbach alpha (α), (CR), and (AVE) worth. In this study, only one item, called OBS1, was taken out and not used to evaluate because its factor loading was less than the 0.4 thresholds suggested by (J. F. Hair, 1988).

Table 4.5 mentioned below displays that the factor loading is more extensive than 0.4, as proposed by the value (Ogden, 1997), which indicates that constructs are highly correlated with each other as well as that ultimately AVEs surpass 0.5, all- (CR) values exceed 0.7, as well as Cronbach's alpha(α) worth reaches 0.7, representing the existence of durable integrity and convergent validity (CV).

Discriminant validity is the degree to which may distinguish unexposed variable from other unexposed variables. Discriminant validity indicates that a latent variable can account for more significant variation in observed variables than assessment error or equivalent unmeasured external influences; or other constructs inside the theoretical structure. (Farrell, 2009).

Table 4.5 Reliability test for CFA

Construct	Items	Factor loading	Cronbach alpha (>0.7)	CR (>0.7)	AVE (>0.5)
Use of video conferencing	EU1	0.692	0.983	0.984	0.887
	EU2	0.903			
	EU3	0.950			
	EU4	0.936			
	EU5	0.795			
	UniS1	0.866			
	UniS2	0.931			
	UniS3	0.954			
	UniS4	0.948			
	US1	0.946			
	US2	0.869			
	US3	0.950			
	BIU1	0.837			
	BIU2	0.831			
	BIU3	0.922			
	BIU4	0.873			

Table 4.5 Reliability test for CFA(continued)

Student Readiness	SR1	0.881	0.950	0.948	0.831
	SR2	0.821			
	SR3	0.870			
	U1	0.799			
	U2	0.793			
	U3	0.759			
	U4	0.903			
	U5	0.828			
Quality of Services	QOS1	0.633	0.869	0.867	0.647
	QOS2	0.574			
	QOS3	0.501			
	QOS4	0.708			
	QOS5	0.609			
	QOS6	0.683			
	QOS7	0.608			
	QOS8	0.762			
	QOS9	0.737			

Table 4.5 Reliability test for CFA(continued)

User Experience	CX1	0.596	0.857	0.857	0.652
	CX2	0.686			
	CX3	0.658			
	OBS2	0.669			
	OBS3	0.733			
	TRI1	0.734			
	TRI2	0.590			
	TRI3	0.557			
Compatibility	CO1	0.731	0.885	0.889	0.850
	CO2	0.906			
	CO3	0.912			

Table 4.6 displays that the square root of AVE is more than just a correlation between variables, indicating great discriminant credibility and satisfying the demands required to continue the upcoming phase of CFA.

Table 4.6 discriminant validity

	UEXP	**EU**	**SR**	**CO**	**QOS**
UEXP	**0.807**				
UVC	0.080	**0.941**			
SR	0.236	0.149	**0.911**		
CO	0.025	-0.023	0.063	**0.921**	
QOS	-0.097	-0.003	-0.032	0.052	**0.804**

According to (Asmundson, 2000), The build must be better than perfect for finding good model fit indices. The following model fit used statical estimates: Good Fit Indices (GFI), Comparative Fit Index (CFI), Trucker Lewis indices (TLI), Normed Fit Index (NFI), Relative Fit Index (RFI), and Incremental Fit Indices (IFI) needed > 90, and Root Mean Square Error of approximant RMESEA value required less than 0.08. In this study, the result finds this model appropriate: (chi-square = (X2) 2492.359 and df=839, X2/df=2.971, NFI=0.914, RFI=0.903, IFI=0.941, TLI=0.934, CFI=0.941, GFI=0.846, SRMR=0.0531.

Table 4.7 CFA model fit index

Fit index	criterion	value
chi-square = (X2) Degree of freedom= df	Ration X^2/df <3	2492.359 839 2.971
Normed Fit Index =NFI	>0.90	0.914
Relative Fit Index =RFI		0.903
Incremental Fit Indices =IFI		0.941
Trucker Lewis indices =TLI		0.934
Comparative Fit Index =CFI		0.941
Good Fit Indices =GFI		0.846
Root Mean Square Error of approximant (RMSEA)	<0.08	0.057
Standardized Root Mean Residual (SRMR)	<0.08	0.0531

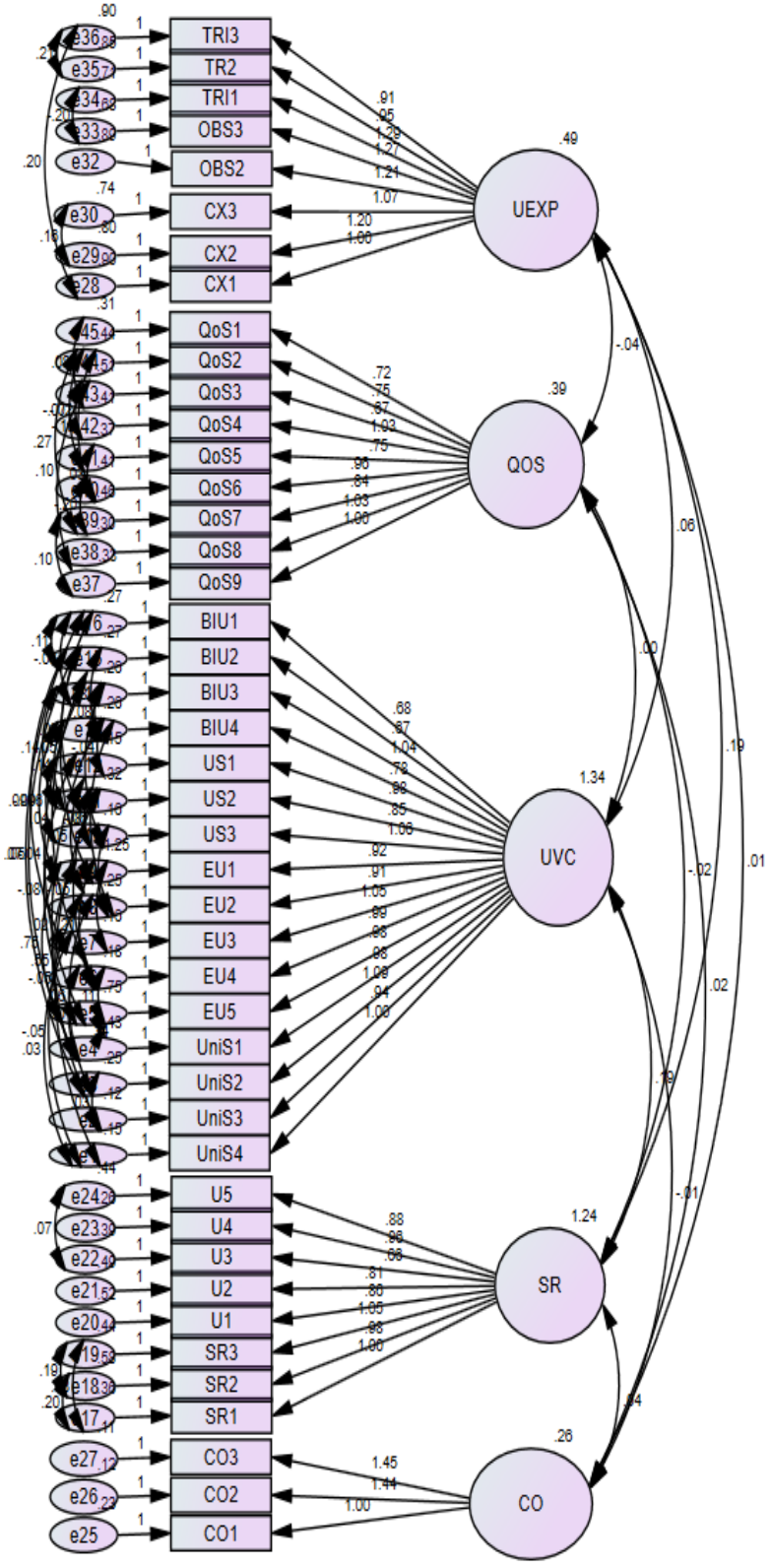

Figure 4.3 Standardized estimates for CFA survey

4.6 Data Collection Tool

The data collection method was based online and the data analysis tool used was SPSS with AMOS 23. The questionnaire contains two parts: the first part contains demographic information, and the second part contains dimensions associated with investigation models (TAM, DOI), namely, ease of use, usefulness, university support, student readiness, quality of service, user satisfaction, behavioural intension, relative advantage, compatibility, complexity, observability, and trialability. The questions comprised 48 questions, and the scale of the questions used was 1up to 5.

4.7 Data analysis

In this study, 600 questionnaires were distributed to different universities in Mogadishu-Somalia at the beginning of the data gathering, and SPSS was directly applied to ensure the data analysis in Exploratory factor analysis finds the accurate data. Anny missing data was checked, and the reliability between the construction items. After checking it, then CFA was applied to get a good model. CFA was also utilized to assess the accuracy of each variable, test hypotheses, and verify the architecture.

- Descriptive statistics
- Structure Equation Model (SEM)

4.8 Procedure

The preliminary research began with a data review to better understand the topic discussed. The proposal was written and sent to the department's school. The supervisor authorized the research idea, and the researcher received and handled an ethics letter from their department. The questionnaire was created based on two models, TAM and DOI, using SEM with AMOS. The researcher then used an internet approach to disseminate the questionnaires to university students from several faculties. Completed the questionnaire after a 2-month data collection period and imported the data into SPSS for analysis. Analysed the data and then created a thesis report, then the finished thesis report was sent to the supervisor for review.

CHAPTER

5.0 RESULTS

This chapter describes the data analysis conducted throughout the course of this inquiry. The result of comparing the preceding literature review to the identification of similarities and differences is explained. This inquiry employed questionnaire data analysis and correct information to test the four hypotheses. The structural equational model was used to investigate the hypotheses.

5.1 Path coefficient

The path coefficient approximates the design utilizing SEM to examine the hypotheses and identify the significance level. The table mentioned below shows how related factors construct relationships between them.

Student readiness and Use of Video (β=.153, $p<0.01$) have a positive and statistically significant effect, indicating that students using videoconferencing increased by more than 90% during the covid-19 period, and instructors and learners utilized it without hesitation and were also encouraged to use to complete education systems. Quality of service (β.-115, $p<0.05$) has a negative impact and has statically significant on User Experience, users need a reliable system that can access anytime. Compatibility(β-.36,$p>0.05$) has a positive effect on user experience an insignificantly. User Experience (β-.067, $p>0.05$) has a positive impact and insignificant statistics. Thus, the path hypothesis is supported, except H3 and H4 are not supported. These outcomes show that the various other variables are valuable and meaningful when figuring out the key constructs of the TAM, DOI Model. The R2 describes the variance in the dependent variable described by the independent variables and the direction of the predictable path coefficients in the model. Thus, the r2 and the path coefficient in SEM examination are used to establish how well the information supports the four hypotheses of this investigation model. The relationship between R2 statistics estimation and path coefficient is provided in this investigation model shown in the figure below. The r2 of student readiness that directly Impacted use of videoconferencing was discovered,15represented as 15% of the variance. Quality of service r2 was find out-11 directly affected user experience, which represented 11%of the variance. User experience r2.07impacted use of video conferencing and represents 7% of the variance. The compatibility R2 .04 impacted user experience and

represented 4% of the variance. Hence, the hypothesis result shows that the investigation supports some hypotheses, and some are not supported.

Table 5.1 Summary finding

Hypothesis	Effect	Estimate β	Standard Error (SE)	Critical Ratio (CR)	P-value	supported
H1	SR -UVC	.153	.045	3.428	***	yes
H2	QoS-UEXP	-.115	.058	-1.975	.048	yes
H3	UEXP-UVC	.073	.072	1.012	0.312	no
H4	CO- UEXP	036	.69	.529	0.597	no

The following model fit index are indicated how good model fit has this survey :(chi-square = (X2) 2516.021 and df=840, X2/df=2.995, NFI=0.913, RFI=0.902, IFI=0.941, TLI=0.933, CFI=0.940, GFI=0.840, SRMR=0.0646.

Table 5.2 Model fit index

Fit index	criterion	value
chi-square = (X2)	Ration X^2/df <3	2516.021 / 830 = 2.995
Degree of freedom= df		
Normed Fit Index =NFI	>0.90	0.913
Relative Fit Index =RFI		0.902
Incremental Fit Indices =IFI		0.941
Trucker Lewis indices =TLI		0.933
Comparative Fit Index=CFI		0.940
Good Fit Indices =GFI		0.840
Root Mean Square Error of approximant (RMSEA)	<0.08	0.058
Standardized Root Mean Residual (SRMR)	<0.08	0.0646

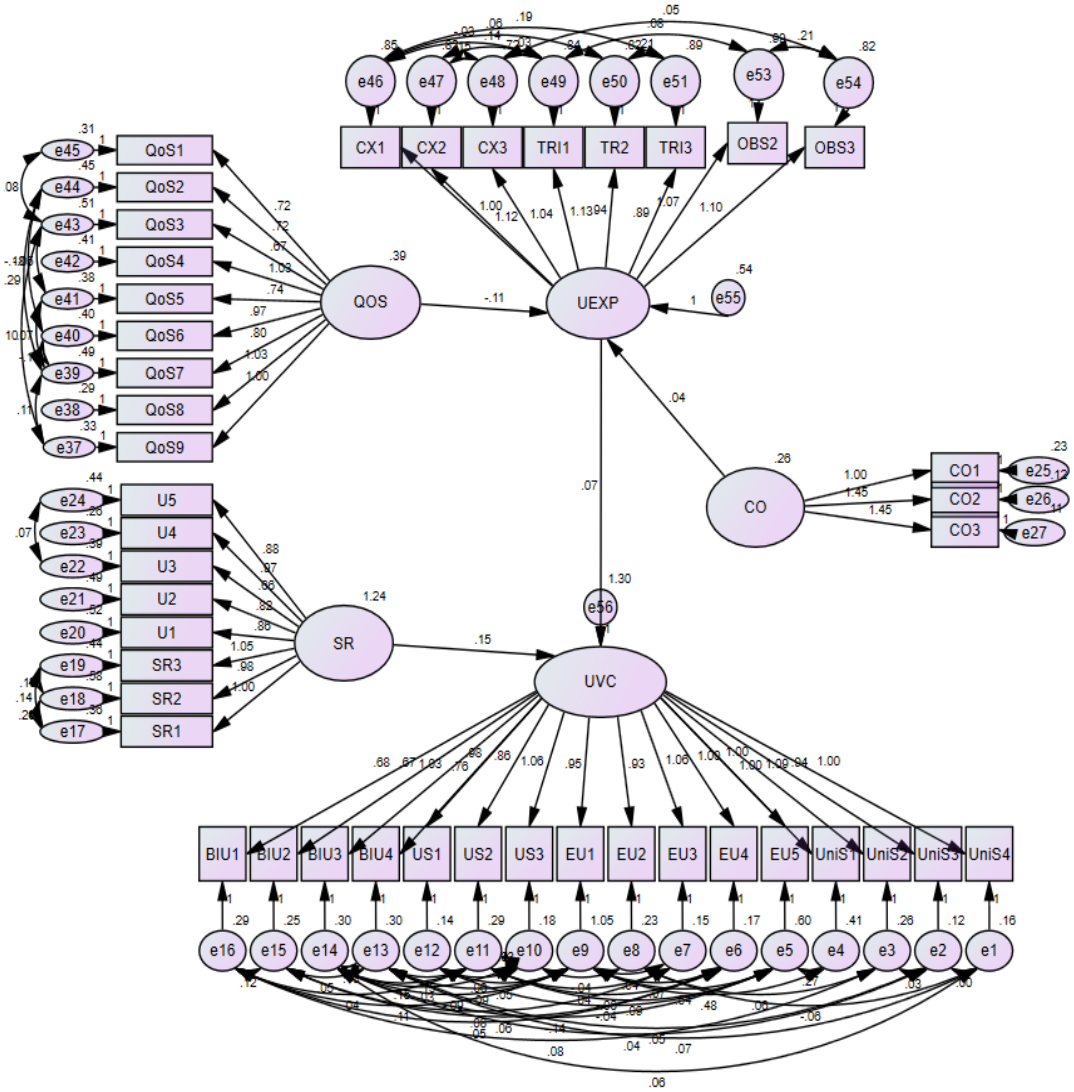

Figure 5.1 summary finding of hypothesis

5.2 Discussion

This study literature review shows how the impact of COVID-19 on higher education structures changed the traditional way of education and adapted new online platforms. The world's students have been impacted by the closure of institutions of higher learning, such as universities and schools, which resulted in life-changing changes in all aspects of education. However, this pandemic brought about many problems that caused students to stay home. However, this investigation utilized the structural equation model (SEM) to analyze data from a student university in Mogadishu-Somalia that used video conferencing during the COVID-19 period.

COVID-19 influenced instructional technologies, which made improvements to the technology more vital to use during the pandemic time and also brought about conditions where, without technology, the educational system would not be able to maintain face-to-face studies. Technology seems to be radically changing how it was used before and making the learning system better.

The first hypothesis explains that the relationship between student readiness and use of videoconferencing has positive and statistically significant effects on videoconferencing during COVID-19 impact, which can be compared with the result discovered by Park (2009). The research study results show that some parts of the technology acceptance model directly affected the students' decision to use LMS in college.

Secondly, the hypothesis in our research shows that the quality of service and user experience has been negatively affected and has significant statistics. However, the quality of service given by LMS is more critical than expected for the user to be allowed to know the actual quality level application. However, this study compared the research outcome by (Almaiah and almulhem 2019). The result shows that the quality of service will negative and positive effects. The top quality of service element describes the expected and received high service value from the structure and apps and the structure supplier. QoS might add to the achievement of system fostering amongst possible users. High positive relationships exist between information quality and user satisfaction, as well as between user contentment and perceived utility, and perceived ease of use (Başaran, ,2021).

According to the third hypothesis, it has a positive effect between user experience and use of videoconferencing, and the other side shows insignificant variables, so there is no relationship. Concerning occupation college teachers' features, there were significant differences in the ease with which technical training courses were used, the subjective standard used, and the practical complexity of the courses between instructors who provided technical training courses and those who provided non-technical training courses for non-technical teachers. Practical trainers did not believe that the LMS was straightforward and fundamental; instead, they believed that their management and fellow teachers supported them in using it. (Unal and Uzun 2021) stated that ease of use significantly impacts overall satisfaction. In addition to the behavioral intention, it develops room for positive sensations such as pleasure and achievement.

The fourth hypothesis in this survey is that Compatibility has a positive effect on user experience and an insignificant relationship between both. Within the PCI structure, Compatibility is defined as the level to which consumers view innovations as permanently with their required worth, past experiences, and regimens.

5.3 The implication of the study

The implication of this study is based on the model and obtains relationship between constructs that are influenced by behavioral intention to use videoconferencing learning systems due to the COVID-19 period. More specifically, the learning management system's ease of use and utility when used with video conferencing affected behavioral intention to use the system positively. Learners should be taught several advantages of using LMS video conferencing tools. They should be given the course content or achieve other goals to communicate in the learning system.

CHAPTER 6

This section gives a summary of the research that led to the study's findings and makes suggestions for the future.

6.1 Conclusion

The literature review of this study shows the impacts of covid19 on education, which resulted in the migration from the traditional ways of teaching (face to face) to online teachings. This closure of universities and schools has impacted more than 90% of the world's students. Even though this impact led to many changes in ways of learning and teaching because students and teachers had to stay within their homes. Institutions started adopting online platforms to continue with education.

This research focuses on Mogadishu-Somalia universities and their impacts on education. The data used in this research were collected from universities in Mogadishu-Somalia and were analyzed by the Structural equation model (SEM). The theoretical concept utilized in this study is TAM and DOI.

- Result finding with TAM model indicated that all constructed direct effect and had signed on the behavioral intention of learners that use videoconferencing due to the pandemic period, except the quality-of-service impact on user experience to utilize VC learning system, however as generally, QOS plays a vital role to use VC that shows the system is reliable to use student and their instructor without any problem during the online class. If learners possess a direct positive effect on the behavioral intention of videoconferencing tools, they are frequently likely to adapt to changes and accept the videoconferencing learning system.
- Results obtained from the DOI model indicated factors' effect on Use of Videoconferencing factor, according to the hypothesis results acquired from this survey the DOI model does not support as a statically significant; however, the existing system requires Compatibility of videoconferencing that enables students to use online classes.

6.2 Recommendation

It is significant to follow below recommendations to reach future investigations.

- The first recommendation is that the main aim is to make a more extensive survey sample size and that it should have comprehensive geography to get more reliable data and opinions.
- Second recommendation is to conduct more investigations focused on these following factors, namely, compatibility, trialability, observability, and complexity of ease of use.
- Awareness programs should also be implemented at universities where students are encouraged to use videoconferencing technology for their studies, such as through seminars or workshops. As a result, computer lessons should be required for all degrees because this is what makes the LMS work.

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APPENDICES

APPENDIX A

ETHICAL APPROVAL LETTER:

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

14.05.2020

Dear Kowther Abdikarim Hussein

Your application titled **"Investigating the impacts of COVID-19 on the adoption of instructional technology ineducation"** with the application number YDÜ/FB/2020/93 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

Assoc. Prof. Dr. Direnç Kanol

Rapporteur of theScientificResearchEthicsCommittee

Direnc Kanol

Note: If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.

APPENDIX B

THE QUESTIONNAIRE:

INVESTIGATING THE IMPACT OF COVID-19ON THE ADOPTION OF INSTRUCTIONAL TECHNOLOGIES IN EDUCATION

Dear participance

I am Kowther AbdiKarim Hussein MSC of computer information system (CIS) at Near East University North Cyprus. At the moment I'm collecting data on Higher Education system that has impacted covid-19 caused it to move to the online environment, educational technology that using learning management system (LMS) has played important role during this pandemic covid-19. Beside this research will only gathering data from higher educations throughout investigation process.

Contact: If you have any questions or concerns, you can contact by email: (20194040@std.neu.edu.tr).

Thesis Supervisor: Assist Prof. Dr. Seren Basran (seren.basaran@neu.edu.tr).

Section I: Demographic information participance

1. Gender

○ Male ○ Female

2. Group of Age

- 17-22 ○ 23-27 ○ 28 above

3. Level of Study

○ Undergraduate ○ Master student ○ PHD student

4. Department type

○ STEM ○ Others

5. Which Learning Management System (LMS) is used at university during the pandemic?

- Moodle ○ blackboard

5. Which videoconferencing is used for online class meetings in the class that join during the pandemic?

○Google meet ○ Zoom

SECTION II: student readiness	**Strongly Disagree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
1.I intend to use the VC system in my academic performance					(Nguyen et al2021)
2.İ would utilize the VC system frequently					
3. I recommend VC tools to others student					
SECTIONIII: University support	**Strongly Disagree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
4. I fell that VC help me to improve my imagination by obtained information					(Nguyen et al2021)
5. I fell that VCT enjoyable no matter what the usage purpose are					

6. I fell that I can have difference experience without any reference					
7. I should have participation in VC activities according to other learners					
SECTION IV: **Quality Of Service**	**Strongly Disagree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
8. the quality of service I get from VC is high					(Nguyen et al2021)
9. I'm not afraid that something unexpected will happen to me when I use VC tool					
10. trust when I use VC with my laptop and etc					
11. I have no issue with quality of service of VCT					
12. I feel like comfortable with my quality of services					
13.Fore VC to be effective its significant for the					

content to be up to the minute					
14. I trust the ability of the university admiration to protect my privacy					
15. It's important that VC quality of service are personalized to understand my demand					
16. I fell VC service are always reliable					
SECTION V: Ease of use	**Strongly Disagree**	**Dis Agree**	**Neutral**	**Agree**	**Strongly Agree**
17. I find it easy to get VC to do what I want it to do					(Nguyen et al2021)
18. VC is easy to use for me					
19. İnteracting VCT does not required a lot of my mental effort					
20. My interaction with VCT is clear to understandable					
21. İ would likely to be easy for me to become skillful at utilizing VCT					
SECTION V I: Usefulness	**Strongly Dis agree**	**Dis Agree**	**Neutral**	**Agree**	**Strongly Agree**

22. VC enhance my learning performance					(Nguyen et al2021)
23. my productivity is elevated through utilization of VC in my study					
24. using VC enhances my learning effectiveness					
25. İ find VC to be useful in my learning					
26. I would likely complete learning task using VC because I think am cleaver to use my mobile and act.					
SECTION VII: **User Satisfaction**	**Strongly Dis agree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
27. İ am satisfied with the use of the VCT					Nikou, S. A. (2021).
28. İ am pleased with my experience of using VCT					
29. My decision to use the VC was a wise one					
SECTION III: **Relative Advantage**	**Strongly Dis agree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**

30. The use of VC learning improves students understanding					(Rauf, N., & Fauziah, U. 2021)
31. The use of VC learning in clarifying the material presented by the teacher					
32. The use of VC learning increasing the learner's independence in learning way					
SECTION IX: **Compatibility**	**Strongly Dis agree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
33. The image quality of learning VC presented by teacher					(Rauf, N., & Fauziah, U. 2021)
34. The audio quality of learning VC presented by the instructor					
35. The VC content of lesson presented by the teacher					
SECTION X: **Complexity**	**Strongly Dis agree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
36. There is no problem when using VC					(Rauf, N., & Fauziah, U. 2021)
37.The ability to watch learning VC in multiple place					

38.Preceptions of the ease of use of leaning VC					
SECTION XI: **Observability**	**Strongly Dis agree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
39. The effect of learning VC in improving students understanding in learning					(Rauf, N., & Fauziah, U. 2021)
40. The impact of learning VC in enhancing student skills in doing study problems					
41. The influence of learning VC in supporting the online learning process					
SECTION XII: **Trialability**	**Strongly Dis agree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
42. The student is accustomed to using learning VC					(Rauf, N., & Fauziah, U. 2021)
43. The ability to try learning VC repeatedly					
44.İam always the first one to attempt new technology between my friend's					

SECTION XIII: **Behavioral intention**	**Strongly Dis agree**	**Dis agree**	**Neutral**	**Agree**	**Strongly Agree**
45 I will use of VC regularly in the forthcoming time					(Nguyen et al2021)
46 I intend to make use of functions of VCT for providing assistance to my academic activities					
47.I will give out my recommendation to others to use VCT.					
48. I will use VCT on a regular basis in the future. 3					

APPENDIX C

SIMILARITY REPORT:

MASTER THESIS

ORIGINALITY REPORT

15%	13%	6%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.acarindex.com Internet Source	3%
2	www.tandfonline.com Internet Source	1%
3	Submitted to Korea National University of Transportation Student Paper	1%
4	Submitted to University of Mount Olive Student Paper	<1%
5	download.atlantis-press.com Internet Source	<1%
6	etd.aau.edu.et Internet Source	<1%
7	repository.smuc.edu.et Internet Source	<1%
8	www.slideshare.net Internet Source	<1%
9	www.researchgate.net Internet Source	<1%