COLLEGE OF NATURAL AND COMPUTATIONAL SCIENCE

DEPARTMENT OF INFORMATION SYSTEM

E-Learning Implementation Readiness at Selected General Secondary Schools in Addis Ababa

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Advisor: Solomon Teferra (PhD)

Addis Ababa University

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Declaration

Wondale Sisay the under signed, declare that this thesis entitled: “E-Learning Implementation Readiness at Selected General Secondary Schools is my original work. I have undertaken the research work independently with the guidance and support of the research supervisor. This study has not been submitted for any degree or diploma program in this or any other institutions and that all sources of materials used for the work will be duly acknowledged.

_____ _____ _____

Name of Student Signature Date

This is to certify that the thesis entitled "E-Learning Implementation Readiness at Selected General Secondary Schools in Addis Abaa" was submitted in partial fulfillment of the requirements for the degree of Masters of Information Science and Systems of the Postgraduate Studies, Addis Ababa University. The research was carried out by Wondale Sisay, ID No. GFE/8837/14, under my supervision. No part of the thesis was submitted for any other degree or diploma. The assistance and help received during the course of this investigation have been duly acknowledged. Therefore, I recommend it to be accepted as fulfilling the thesis requirements.

_____ _____ _____

Name of Supervisor Signature Date

Certificate of Approval

This is to certify that the thesis titled: E-Learning Implementation Readiness at Selected General Secondary Schools in Addis Ababa is prepared by Wondale Sisay, for the partial fulfillment of Master of information and systems from Addis Ababa University, School of Information Science. The Study was conducted and compiled with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signature of Board of Examiner`s

External examiner	Signature	Date
Internal examiner	Signature	Date
Dean, SGS	Signature	Date

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ABSTRACT

The aim of this study was to investigate E-Learning Implementation Readiness at selected general secondary schools in Addis Ababa. This research utilized a descriptive approach, employing a quantitative research design to effectively meet its objectives. A structured questionnaire was administered to collect responses on a five-point scale from 446 participants drawn from a total population of 2,574 students, teachers, and administrators at Selassie, Medahenialem, and Meskayezohan secondary schools in Addis Ababa. The sample respondents were selected using a simple random sampling technique. Data analysis was conducted utilizing statistical techniques, including descriptive statistics such as minimum, maximum, and mean values, through SPSS software. The study revealed that the findings on e-Learning implementation demonstrate a clear understanding of data distribution. The results indicated that general secondary schools exhibit a low status of e-learning implementation, as reflected in an average challenge score signifying significant hurdles to overcome. While support and resources for implementation were rated as average overall, they were notably lacking in secondary schools. Furthermore, the perception of e-learning was found to be generally low among teachers, administrators, and students across both general and secondary schools. Recommendations derived from the study include providing targeted interventions and resources for general schools to effectively address e-learning challenges; implementing strategic planning and proactive measures to navigate obstacles; allocating urgent resources for secondary schools to enhance effective e-learning implementation; educating school leaders on the benefits of e-learning and actively involving stakeholders for improved adoption; and conducting further research to customize interventions based on specific school needs and assess long-term impacts.
***Key terms**: e-learning, implementation, readiness*

ABBRIVIATIONS

HELIs: Higher Education Learning Institutions

ESSM: E-learning Systems Success Models

ICT: Information Communication Technology

IT- Information Technology

ISM- Information successes model

LMS- Learning Management System

NGOs-None Governmental Organizations

PCs: personal computers

SPSS: Statically Package for Social Science) Software

TAM: Technology Acceptance Model

TVET- Technical and Vocational Education and Training

UTAUT: Unified Theory of Acceptance and Use of Technology

WWW: - World Wide Web

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CHAPTER ONE

INTRODUCTION

1.1. Background of the study

E learning has been around for many years and is now a widely accepted form of learning in both educational institutions and organizations. It involves using technology to provide learning materials and has become a common way for organizations to train their employees on specific technologies. E-learning is not just a buzzword, but a proven method of delivering education and training.

According to Agbenyegah and Dlamini (2019), educational institutions to keep up with global standards are adopting E-learning technology, but its usage in Ethiopian institutions is limited and the lack of awareness among the teaching and learning community is a major issue. Educational institutions can use either commercial or open source models for E-learning solutions, each with its own advantages and disadvantages. Commercial applications are easier to implement but involve higher initial investment and maintenance costs. Open source applications have lower initial costs but require more investment in training professionals, developing customized content, and maintenance. Most universities have an ICT wing with 5 to 10 members working on developing customized E-learning systems using open source models. However, the cost of developing and maintaining these systems is still high. Therefore, it is important to adopt cost-effective methods of E-learning to reduce expenses in countries like Ethiopia where investing in education is crucial. Different studies were conducted that shows e-learning is important for students, (Govindasamy, T. 2002) in the context of e- learning, does not lie in its ability to train just anyone, anytime, anywhere, but in training the right people to gain the right skills or knowledge, at the right time. E-learning applications are in high demand in educational institutions and in corporations that use them to give training.

In the 1960s and 1970s, educational computing took place primarily in large universities, using mainframe computers, and was mainly restricted to reading and typing text. The development of the microcomputer in the late 1970s led to a rapid spread of computing in schools, businesses and homes. Interaction with computers became possible via text, graphics, and voice and pointing. The release of personal computers (PCs) in the early 1980s resulted in wide expansion of computer use in both business and industry. In the early 1990s, the creation of part of the

Internet known as the World Wide Web (WWW) or the Web, transformed the entire computing landscape. Therefore, the purpose of this study will be to investigate e-learning implementation readiness in selected general secondary schools.

The MOE suggest that, in case of Ethiopia the economic policy and strategy of the country requires technical and professional skills in broad and specific occupational fields. It is with this intention that the Ethiopian government has implemented a program to enhance the skills and knowledge of its workforce through TVET. This program focuses on providing technical and vocational education and training to individuals, aiming to develop their human resource potential and improve their employability in various sectors of the economy.

According to Yakubu et,.al, (2018)Recently, information technology is becoming a potential solution for education institutions in improving quality of education and reducing educational related costs. Furthermore, the continuous advancement of information technology is also making teaching and learning to be easily accessible giving rise to the birth of e-learning.

E-learning is a special form of information systems. It is defined as an innovative approach to educational delivery via electronic forms of information that enhances the learner‘s knowledge, skills and performance (Clark and Mayer, 2011). E-learning has various benefits, such as personalized learning, ease of access to learning, effective and efficient means to standardize and deliver content, on-demand content availability, interactivity, and self-pacing (Obeidat et al., 2015).

Studies indicate that developing nations could experience significant advantages from e-learning due to the scarcity of qualified educators and educational facilities (Mtebe and Raisamo, 2014; Khan et al., 2012). Many African higher education institutions receive financial support from developed countries for their e-learning initiatives. However, the utilization of e-learning in Ethiopian education institutions is currently limited, and the successful integration and sustained use of e-learning systems face obstacles related to user demographics, culture, technology, available infrastructure, and implementation costs, and perception of teachers and students, E-learning is a specialized type of information systems that requires careful consideration of these contextual factors (Tossy, 2017; Lwoga, 2014). This study aimed to investigate the readiness for implementing e-learning at selected general secondary schools in Addis Ababa.

1.1.1. Study motivation

The implementation of e-learning in secondary schools in Ethiopia has the potential to revolutionize the way students learn and educators teach. As the world becomes increasingly digitize, it is imperative for educational institutions to adapt and integrate technology into their teaching methods. However, the successful implementation of e-learning requires a thorough understanding of the readiness of schools to adopt and effectively utilize this technology.

This study aims to explore the readiness of selected general secondary schools in Addis Ababa to implement e-learning. By assessing the current infrastructure, technological capabilities, and attitudes towards e-learning, this research seeks to identify the potential challenges and opportunities for integrating e learning into the curriculum.

The motivation for this study stems from the recognition of the transformative impact that e-learning can have on education in Ethiopia. By understanding the readiness of schools to embrace this change, we can provide valuable insights and recommendations for policymakers, educators, and school administrators to effectively implement e-learning initiatives.

Furthermore, this study aims to contribute to the existing literature on e-learning implementation in developing countries, particularly in the context of secondary education. By shedding light on the specific challenges and opportunities in selected general secondary schools, this research can inform future strategies for integrating technology into the education system.

Generally, by evaluating current infrastructure, technological capabilities, and attitudes toward e-learning, the research aims to identify challenges and opportunities for effective integration into the curriculum.

1.2 Statement of the Problem

There have been studies conducted on e-learning systems, which are the main result of using new and advanced IT innovations in the education sector. These studies have shown that e-learning systems have encountered problems and failures. One study by Selim in 2007 highlighted these issues. Furthermore, other studies conducted by Sun et al. in 2008 have found that despite the significant potential benefits that e-learning systems offer to higher educational institutions, failures still exist. In summary, various studies have indicated that e-learning systems, despite their potential advantages, have faced challenges and failures according to research conducted by different scholars in the field.

Hong (2002), Piccoli et al. (2001) have identified six dimensions that could result in e-learning users 'satisfaction as: student, instructor, the type of course, the kind of technology used, the e-learning system design, and environmental dimensions. However, Sun et al. (2008) argue that the researchers 'suggestions are impractical due to the complex nature of e-learning. Moreover, the identified six dimensions reflect only one construct user satisfaction‖. Accordingly, they have recommended that studies that identify factors contributing to e-learning systems success and placing them in a holistic model are vital for theory and practice. Similarly; several other studies such as Eom & Ashill (2018), reported that there is lack of consensus towards an e-learning systems success model that could be adopted across all settings mainly because of the fact that e-learning systems success depends on user types, technology, culture and other contextual factors.

Many secondary schools in African countries, including Ethiopia, have invested in various aspects of e-learning to ensure successful implementation. This includes developing and updating e-learning content, paying staff involved in e-learning initiatives, and establishing necessary infrastructure like dedicated labs, studios, software, and data centers (Yakubu et al., 2018). However; these studies emphasized that despite the investments made, e-learning systems in most of the African universities is characterized by various failure factors in an effort to mimic e-learning studies and models developed for institutions of developed countries.

According to Hariri (2013), LMS is defined as a platform that aids virtual learning environment possible through the application of e-learning software to manage e-learning contents, make collaboration easy, course delivery, run online exams, track students 'learning progress and make knowledge sharing easy among faculties and students to support teaching and learning process in Higher Education Learning Institutions (HELIs) irrespective of time and distance. Beyene (2010; 2006) argues that there are growing interests and awareness to integrate e- learning in the teaching and learning process of EHEIs. However, the problems are not only massive but are also not well conceived from the perspectives of multiple e-learning stakeholders which resulted in lack of sustainably utilizing the benefits of e-learning systems (or LMS used in EHEIs). Furthermore, EHEIs adopting e-learning faces generic challenges and problems in terms of cost of technology (i.e. Ethiopia has only one Telecom operator making the cost to be high to be afforded and access to internet and advancement of IT to be more complicated), the type of ICT policy, culture, existence of complex network of actors and low-level of IT diffusion as compared to higher education institutions of developed nations. According to Beyene, (2010)

emphasized that although some of the challenges of e-learning implementations in developing countries are similar; some are unique to particular countries. To this end, most research stressed that e-learning success models need to be developed in line with the human and contextual factors of any country by asserting that developing countries are alike which makes factors affecting e-learning systems success to vary across different countries. Hagos & Negash (2014) also pointed out that the adoption rate of e-learning systems in Ethiopian higher level education is so promising in that EHEIs need to effectively utilize its potential benefits in supporting their teaching and learning process.

E-learning systems success depends on a complex of socio-technical network of actors which requires thorough investigation to come-up with a holistic e-learning systems success model. Furthermore; different groups of e-learning stakeholders (i.e. instructors, students, IT staff, and e-learning developers) deal with e-learning systems (Selim, 2007). However, these e-learning systems stakeholders reveal significant differences and often conflicting viewpoints exist (Ozkan et al., 2009).

The specific problem that the researcher aims to study is the lack of preparedness among selected general secondary schools in Addis Ababa for the effective implementation of e-learning. This includes examining the existing infrastructure, technological capabilities, and the attitudes of students, teachers, and administrators toward e-learning. The study sought to identify the barriers that hindered the adoption of e-learning practices and to assess how these challenges could be addressed to facilitate the successful integration of technology into the educational framework. Accordingly, the researcher attempted to investigate e-learning implementation readiness in selected secondary schools, especially at Holy Trinity, Meskaye Hezunane, and Raguile General Secondary Schools, based on different perspectives of e-learning.

1.3. Objectives of The study

1.3.1. General Objective:

The general objective of this study was the Assessment of e-Learning implementation readiness at Selected General Secondary Schools.

1.3.2. Specific objectives

In an attempt to achieve the general objective of the research, it also has the following specific objectives:

1. To assess the current status of e-learning implementation readiness in selected three General Secondary Schools.
2. To identify the challenges of e-learning implementation in three selected three General Secondary Schools.
3. To evaluate the level of support and resources available for e-learning implementation in three selected three General Secondary Schools.
4. To know the perceptions of e-learning implementation of students and teachers in three selected General Secondary Schools.

1.4. Research questions

1. What is the current state of e-learning implementation readiness in selected three general secondary schools?
2. What are the challenges of e-learning implementation in selected secondary schools?
3. What is the level of support and resources available for e-learning implementation in selected secondary schools?
4. What is the perception of students on e-learning implementation in three selected secondary schools?

1.5. Significant of the study

The investigation of e-learning implementation readiness in selected secondary schools holds significant value in today's digital age. As technology continues to advance, e-learning has emerged as a promising tool for education, offering flexible learning opportunities and enhancing student engagement. However, successful implementation of e-learning requires careful consideration of various factors, including infrastructure, resources, and teacher attitudes.

By conducting this research, valuable insights can be gained regarding the current state of e-learning implementation readiness in selected three general secondary schools. Understanding the readiness levels will help educators, policymakers, and stakeholders identify areas that need improvement and develop strategies to overcome the challenges associated with e-learning implementation.

Additionally, this research will shed light on the challenges and barriers faced by schools when integrating e-learning into their education systems. Identifying these obstacles will allow for targeted interventions and support for schools to overcome these hurdles.

Furthermore, the evaluation of the level of support and resources available for e-learning implementation will provide a comprehensive understanding of the existing infrastructure and resources in selected secondary schools. This information will be crucial for decision-makers to allocate necessary resources and support to ensure effective e-learning integration.

Examining the perceptions of teachers towards e-learning implementation will offer valuable insights into their beliefs, concerns, and motivations. Understanding these factors will aid in designing appropriate professional development programs to address any reservations or gaps in knowledge that teachers may have. Finally, the development of recommendations for improving e-learning implementation readiness in school will provide practical and actionable steps to enhance the overall readiness levels. These recommendations can guide policymakers, school administrators, and educators in implementing effective strategies to overcome challenges and maximize the benefits of e-learning in secondary education.

In summary, investigating e-learning implementation readiness in selected schools is significant as it will provide valuable insights, inform decision-making, and guide the development of strategies to enhance e-learning integration. This research has the potential to transform the educational landscape, making it more adaptable to the evolving digital world.

1.6. Scope of the study

This research had three scopes: geographical scopes: the research was conducted in Holy Trinity Cathedral General Secondary School, Meskaye Hezunane Medahiniyalem, and Raguile General secondary schools. Methodological scope: the study was delimited to quantitative research approach conceptual scope this study delimited to study only e-learning implementation readiness in selected secondary schools. The study was delimited to a controllable size of students from grade 9-12 secondary school students taken as the focus of this study admin, and teachers.

1.7. Limitations of the Study

The study had the following limitations:

- The study may not encompass all potential factors influencing e-learning implementation readiness, such as socio-economic conditions, cultural attitudes toward technology, and the varying levels of digital literacy among students and educators.
- The study focused on only three specific selected secondary schools and may not have been generalizable to other schools in Addis Ababa or in different regions

1.8 Organization of the Study

This thesis is consisted of five chapters: chapter one or the introductory part contains back ground of the study, statement of the problem, research question, general and specific objectives, significance of the study, scope and limitations of the study. In chapter two reviews of related literatures that related to the thesis topic are discussed. The third chapter deals with the research methodology which is used to select the sample, to collect the data and to analyze and presented the data. In addition, chapter four results, discussion, and chapter five include summary conclusion and recommendation of the study.

1.9. Operational definition of key words

Admins: it refer to the administrative personnel responsible for managing and overseeing the operations of selected schools

E- Learning: short for electronic learning, refers to the use of electronic technologies to access educational curriculum outside of a traditional classroom

Students: pupils who learning in selected three secondary schools at the year of 2024

Teachers: professionals responsible for facilitating the learning of students within selected secondary schools

CHAPTER TWO

REVIEW OF RELATED LITRATURES

2.1. Introduction

The advancements in information systems have played a crucial role in facilitating the widespread and rapid sharing of knowledge across the globe. One significant recent development in the field of information systems is the emergence of e-learning systems. These systems are reshaping higher education institutions, creating a digital space where education is accessible at any time and from any location. This transformation has led to various benefits, including cost reduction in physical infrastructure, addressing the shortage of skilled manpower, and mitigating the need to recruit large numbers of skilled teachers and faculty members. As a result, the effectiveness, efficiency, and overall quality of education have been significantly enhanced. However, despite the potential advantages offered by e-learning systems, many higher education institutions have not fully capitalized on these benefits. This is primarily due to the complex interplay of various factors that influence the sustained usage of e-learning systems.

2.2. Overview of e- learning

The concept of e Learning encompasses the use of technology to provide online access to learning resources with the goal of improving the learning experience. The term "e-Learning" is often used interchangeably with various other terms such as web-based learning, online education, computer-assisted instruction, and multimedia learning.

Compared to the history of paper-based distance education, the emergence of e learning is relatively recent. E learning, in its essence, refers to any form of electronic-mediated learning, but its significance increased with the advent of the World Wide Web (WWW) (Kirkwood, 2009; Lin, 2007). Web technology integrates text, audio, and video information, offering e-learning services through synchronous and asynchronous interaction modes (Mason, 1998). Before delving into the factors that determine the success of e-learning systems, it is essential to simplify the operational definitions of e-learning and e-learning systems.

The concept of e-learning can be challenging to grasp because authors use the term in varying ways based on their professional perspectives and interests. This diversity of interpretations has led to a lack of consensus on the factors that contribute to the success of e-learning (Sangra et al., 2012).

Panda and Mishra (2007) define e-learning as a form of distance education that utilizes various technologies such as video tapes, television, radios, internet, and extranet to support the teaching and learning process within higher education institutions (HEI). This definition emphasizes the combination of learning as a cognitive process to acquire knowledge and technology as a facilitative tool. According to Aparicio (2016), **e-learning** encompasses the cognitive process of learning and the technology that facilitates it. Anderson (2008) and Keegan (2005) define e-learning as electronic learning utilizing electronic devices for teaching and learning purposes. In essence, e-learning encompasses a variety of perspectives, all emphasizing the integration of technology into the teaching and learning process to make education more accessible and convenient.

The use of e-learning systems involves employing online platforms that mimic traditional teaching methods through the use of e-learning technology and web browsers as the primary tools for interaction. According to Kirkwood (2009) e-learning systems serve as web-based platforms that facilitate the teaching and learning processes. To address the lack of agreement on the definition of e-learning, conducted an extensive literature review of publications from 2005 to 2012 and performed a Delphi survey. This led them to categorize definitions of e-learning into four major groupings, aiming to capture the wide range of perspectives on e-learning.

1. **Technology-Driven Definitions**: This category represents e learning as the use of technology for learning.
2. **Delivery-System-Oriented Definitions:** These groups define e learning as a way of accessing knowledge (through the teaching and learning process) emphasizing on ease of accessibility to educational resources.
3. **Communication-Oriented Definitions**: This category considers e learning to be a communication, interaction, and collaboration tool and assigns secondary roles to its other characteristics.
4. **Educational-Paradigm Oriented Definitions**: This category defines e learning as a new way of learning/ an improvement to the existing educational paradigm.

After reviewing these four different categories of e-learning definitions from extant literature and validating the definitions over e-learning experts (i.e. through Delphi technique), Sangra et al. (2012) proposed an inclusive definition to represent all these four categories as E-learning is an approach to teaching and learning, representing all or part of the educational model applied, that

is based on the use of electronic media and devices, as tools for improving access to training, communication and interaction and that facilitates the adoption of new ways of understanding and developing learning.

Types of e-Learning

There are two primary types of e-Learning:

- **Synchronous e-Learning**: This type requires all participants to be present during the online session at the same time.
- **Asynchronous e-Learning**: This is a flexible type of e-Learning facilitated by media such as email and discussion boards, allowing participants to engage at different times.

Role of Information Communication Technology (ICT) in e-Learning

Information communication technology (ICT) and e-Learning play crucial roles in modern educational institutions, with universities in both developed and developing countries leveraging new technologies to enhance teaching and learning processes.

Benefits of Implementing e-Learning in Higher Institutions

Implementing e-Learning in higher education has numerous benefits, including:

- Providing cost-effective education regardless of time or location
- Enhancing interaction between students, instructors, and learning content
- Encouraging active student participation and motivation
- Fostering independence and self-learning skills
- Improving collaboration among learners, educators, and administrators

Impact of COVID-19 on e-Learning

The COVID-19 pandemic has significantly increased the reliance on e-Learning for education, particularly for university students. Nearly 1.6 billion learners worldwide, including university students, were affected by the pandemic and necessitated a shift to e-Learning. In summary, e-Learning presents a valuable opportunity to revolutionize education by leveraging technology to enhance learning experiences, promote flexibility, and facilitate collaboration, particularly in the context of the global shift towards remote learning during the COVID-19 pandemic.

2.3. Learning Theories and Their Implications for E-Learning

According to Skinner (1974), the quest to understand learning has spanned over 2000 years. Since the time of the ancient Greek philosophers Socrates, Plato, and Aristotle, learning theorists have engaged in a continuous debate on how people learn. This ongoing discourse encompasses

various perspectives on the purposes of education and how to foster learning effectively. It is widely acknowledged that the most effective strategies for learning depend on the specific type of learning desired and its intended outcomes (Craik & Tulving, 1975). The nineteenth century saw the emergence of the scientific study of learning, influenced by Descartes, Kant, and particularly Charles Darwin. Psychologists began conducting objective tests to investigate how people learn and to ascertain the most effective teaching methods (Skinner, 1974). The 20th century witnessed a significant debate on how people learn, with a focus on behaviorist versus cognitive psychology (Folden, 2012). In the realm of e-learning, learning theories have a profound impact. Ertmer and Newby (1993) proposed three major categories of learning theories that have implications for the design and development of e-learning courses: behaviorism, cognitivist, and constructivism. Combining these learning theories can provide valuable insights for designing and developing e-learning courses (Alzaghoul, 2012).

2.3.1.1 Discussion of Learning Approaches

It's interesting to note the evolution of learning approaches from behaviorist to cognitive perspectives. The behaviorist approach, with its focus on observable behavior and external stimuli, certainly had a significant impact on early educational technologies. However, the shift to cognitive learning approaches acknowledges the importance of internal mental processes in learning. This shift reflects a deeper understanding of the complexities of human cognition and the recognition that learning involves more than just visible behavior.

2.3.1.2. Implications for E-Learning

The implications outlined for e-learning from the behaviorist school highlight the emphasis on clearly communicating learning outcomes to students, designing instructional sequences with branching options, conducting assessments to evaluate learning, and promoting frequent review and practice. These principles have undoubtedly influenced the design and implementation of e-learning courses. However, the move towards cognitive learning approaches suggests a broader consideration of learning that goes beyond just visible behavior. This shift could lead to the incorporation of more interactive and reflective learning experiences in e-learning environments.

E-Learning

E-learning**,** or electronic learning, is one of the earliest applications of web-based technology, defined as the delivery of education through the Internet and digital technologies. Initially

designed for working adults who could not pursue formal education full-time, e-learning has evolved to accommodate all types of students, including full-time, part-time, and distance learners in higher education institutions. Since 2012, Massive Open Online Courses (MOOCs) have emerged as a significant form of e-learning, providing access to millions of learners globally, with many universities and organizations offering these courses. MOOCs are recognized as a major advancement in higher education. In Malaysia**,** the implementation of e-learning began in the late 1990s, although it faced challenges such as a lack of trained lecturers, inadequate facilities, and student resistance to adopting e-learning tools. Despite these issues, the demand for e-learning has continued to grow due to its ability to reach global audiences and its inherent flexibility and accessibility (Adams, D., Sumintono, B., Mohamed, A., & Noor, N. S. M. 2018).

In the 21st century, technology is playing a crucial role in our daily lives and it calls professionals, educators, and learners reflect again over their basic beliefs in order to use technology for the re-design or re-engineering of education and training system. In addition, these technological devices play a significant role to help learners and teachers to get more advantages from it. However, the terms of electronic learning (e-learning), mobile learning (m-learning), and the digital learning (d-learning) are used indifferently or in a complementary way to mean technological learning. E-learning is the alternative of traditional education and it can also be a complementary to it. On the other hand, the m- learning is the complementary of both traditional learning as well as e-learning (Kumar Basak, S., Wotto, M., & Bélanger, P. 2018).

2.3.2 Cognitivist

The cognitivist school of taught (learning theory) argues that the ―black box‖ of the learner‘s mind should be opened and understood by emphasizing that learning is an internal process. The learner is conceptualized as an information processor (i.e just like a computer) implying that learning is dependent on the learners ‘processing capacity and efforts (Craik & Tulving, 1975).
Cognitive psychology claims that learning involves the use of memory, meta-cognition, thinking, motivation, and that reflection plays an important part in the learning process (learning). This learning theory sees learning as an internal process and argues that what someone learns depends on the processing capacity of the learner, the degree of efforts exerted in the learning process, and the depth of the processing (Craik & Tulving, 1975. It also argues the significance of

individual differences, and a diversity of learning strategies in online instruction to recognize those differences. Learning style is all about how a learner perceives, interacts with, and responds to the learning environment; overall, it is a measure of individual differences (Folden, 2012). In this view, knowledge is not just the learners acquire it from outside but through active process and creating their knowledge through the interpretation and process of the information that is acquired (Anderson, 2008).

Anderson & Elloumi (2004) and Hung (2001) as follows:

1. E-learning/online learning materials should include activities for the different learning and cognitive styles.
2. The instructor‘s teaching strategy should promote the learning process by facilitating all sensors, focusing the learner‘s attention by emphasizing relevant and critical information, reasoning each instruction, and matching the cognitive level of the learner.
3. The instructional designer need to tie up to new information with existing information from long-term memory using advanced organizers to activate exiting cognitive structures.

2.3.2.1. E-Learning and Critical Success Factors

According to Selim, H. M. (2007), information technology is increasingly seen as a solution to the challenges of cost and quality in higher education, leading to a shift towards e-learning. This approach utilizes electronic media for course delivery, challenging traditional educational models that view students as passive recipients of knowledge. E-learning encompasses various formats, including web-based and online learning. The concept of Critical Success Factors (CSFs) emerged in the 1980s to identify key elements that contribute to organizational success. In the context of e-learning, research has highlighted several CSFs essential for effective implementation, such as course suitability, content quality, and the technical competencies of both instructors and students. Studies have suggested frameworks for evaluating e-learning courses, focusing on learning outcomes and student performance, while identifying factors like technology usability, instructor engagement, and collaborative learning as pivotal for success.

2.3.3 Constructivism

In the late 1990s, there was a shift towards the constructivist approach to teaching and learning theory. Some research affirms that this approach, which emphasizes knowledge construction based on the learner's prior experience, aligns with the fundamental nature of e learning by

promoting knowledge sharing among learners (Modritscher, 2006). The constructivist approach places greater emphasis on learning in a contextual manner. E-learning and online instruction should employ learning activities that enable learners to contextualize information (Anderson & Elloumi, 2004). In most pedagogy that utilize constructivism, the instructor's role is not only to observe and evaluate, but also to actively engage with learners as they complete activities and pose questions to enhance inductive reasoning According to Hung (2001), Modritscher (2006), and Alzaghoul (2012), the following statements imply the constructivist approach in e learning:

1. In order to capacitate learners constructing their own knowledge, e-learning instructors need to provide adequate and easy interactive online instructions.
2. Learners should be empowered with the learning process. Furthermore, there should be a form of guided discovery where learners can make their decision on learning goals, but can also use some guidance from the instructor.
3. E-learning Instructors should emphasize on interactive learning activities such as collaborative and cooperative learning in order to facilitate constructivist learning.
4. Learning should be aided by examples and use cases for theoretical information in a way that would enhance e-learning course quality.

2.5. E-learning Systems Success Models

E learning is a special form of information systems. To this end, information system success models and theories are commonly used in many studies that investigate e-learning systems success (Tossy et al., 2017) one of the e-learning studies employing the updated ISS model was developed by Holsapple and Lee-Post. The authors developed an e-learning success model in 2006 by adapting the updated D&M model so as to measure the success of e-learning systems comprising three components of e-learning development phases: Design, development, implementation and outcome of the system (see Figure 9). The study used action research to identify success factors in designing, developing, and delivering e-learning initiatives taking 330 traditional students and 39 online students across two semesters as a case study. The authors have recommended further research in order to validate the model in variety of contexts employing survey research methods.

The rapid development of Information and Communication Technology (ICT) has encouraged various institutions compete to use it in order to provide added value to the products or services offered while enhancing the competitiveness of organizations in a very competitive era. It is

eventually that an educational institution will be "forced" by a community, which demands to adopt ICT in its learning activities. This is because the process of learning is a major business process in educational institutions. It is proven that more than a thousand institutions in 50 countries used e learning to support their learning activities. Many studies have identified the advantages of implementing e learning, but in reality not all institutions that have used e-learning got the desired results.

2.5.1 The Study on the Technology Acceptance Model (TAM)

According The Technology Acceptance Model (TAM), developed by Davis in 1989, is utilized in this study to analyze computer user behavior and the factors influencing the adoption of technology. The model primarily focuses on two key beliefs: perceived usefulness (PU) and perceived ease of use (PEU). Perceived usefulness refers to the user's belief that using a system will enhance their performance, while perceived ease of use indicates the expectation that using the system will be free of effort

2.5.2 Trust in E-Learning Systems

The study also explores the role of **trust** in e-learning systems, which is defined as a fiduciary relationship where one party relies on another. Trust is influenced by system dependability, data privacy, and security. Research indicates that the trustworthiness of the internet significantly affects user trust, which in turn impacts customer satisfaction and the likelihood of purchasing.

2.5.3 Self-Efficacy in Online Learning

Another focus of the study is on **self-efficacy**, which is the belief in one's ability to succeed in specific situations. Factors affecting self-efficacy in online learning include prior experience, instructor skills, and feedback received.

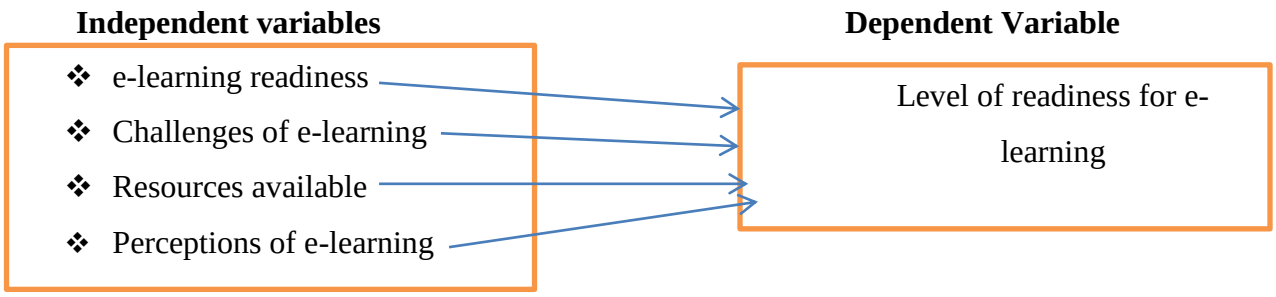
2.6 Theoretical Framework

According to Almulla, M. (2021), the theoretical framework for this study could be based on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These models are widely used in the field of technology adoption and can provide a solid foundation for understanding the relationship between the independent variables (status of e-learning implementation readiness, challenges of e-learning implementation, resources available for e-learning implementation, and perceptions of e-learning implementation) and the dependent variable (level of readiness for e-learning implementation).

The TAM posits that perceived ease of use and perceived usefulness are key determinants of an individual's intention to use a technology. In the context of e-learning implementation, this means that if stakeholders perceive e-learning as easy to use and beneficial, they are more likely to be ready for its implementation. Therefore, the status of e-learning implementation readiness and perceptions of e-learning implementation can be linked to the level of readiness for e-learning implementation.

Drawing from these models, it can be theorized that the status of e-learning implementation readiness, challenges of e-learning implementation, resources available for e-learning implementation, and perceptions of e-learning implementation collectively impact stakeholders' level of readiness for e-learning implementation. For example, if stakeholders perceive e learning as beneficial, have access to necessary resources, and face minimal challenges in its implementation, they are more likely to be ready for its adoption.

In summary, the theoretical framework for this study can be built on the TAM and UTAUT models, emphasizing the interplay between the independent variables and their influence on the dependent variable, which is the level of readiness for e-learning implementation.



CHAPTER THREE

METHODOLOGY OF THE STUDY

This chapter discusses the procedure that is adopted in this study. The chapter gives the description of the research design, area of the study, population of the study, sample and sampling technique, instrument for data collection, validation and reliability of the instrument, method of data collection and method of data analysis.

3.1. Description of the study area

From 206 general secondary schools in Addis Ababa (70 governments, 91 private and 45 church and other schools), this study was delimited to purposely Holy Trinity Cathedral General Secondary School, Meskaye medahenaiyalem and Raguile General Secondary school in Addis Ababa. The reason why the schools were selected, the researcher was familiar with the schools and school administrations of the schools, which helped to get reliable data as well as aims to study e-learning implementation readiness in secondary schools in Addis Ababa, Ethiopia, to facilitate the transition from traditional teaching to digital learning, assess technological infrastructure, inform policy development, evaluate teacher preparedness, and understand student engagement. This research will also prioritize resource allocation, explore cultural attitudes towards technology, prepare students for future digital demands, analyze the impact of COVID-19 on school adaptations, and provide a comparative framework for understanding e-learning in various contexts.

3.2. Research Approach

The research approach of this study was quantitative research method used with a grounded principle, which allowed the researcher to explore the readiness of E-Learning implementation in the selected three general secondary schools. Using quantitative research methods allowed researchers to gather a more comprehensive and well-rounded understanding of a topic or issue. Quantitative research provided numerical data and statistical analysis, allowing for generalizability and the ability to identify patterns and trends.

3.3. Research design

Research design is the overall plan or blueprint that creates a logical structure for empirical data in order to answer the research questions (Bhattacherjee, 2012; Muijs, 2004). Similarly, Yin (2003) defines research design as a logical plan for moving from "here" to "there," where "here"

represents the initial set of research questions to be answered, and "there" signifies the conclusions (answers) derived from these questions. Between "here" and "there," several major steps can be identified, including the collection and analysis of relevant data. In this context, the researcher aims to utilize a descriptive research design.

According to Manjunatha N. (2019), descriptive research design offers several significant advantages, including diverse data collection methods such as survey techniques. These methods collectively provide comprehensive information that can inform future research and hypothesis development. The approach captures quantitative data, leading to a holistic understanding of the research topic and allowing for the unexpected collection of varied and thorough information. Conducted in the respondents' natural environments, descriptive research ensures the gathering of high-quality and honest data.

Additionally, it is typically quick and cost-effective due to its large sample sizes, making it accessible for researchers. Finally, the robust nature of the data collected enables informed decision-making based on statistical analysis that accurately represents a larger population.

3.4. Population and sampling

The population of this study consisted of regular students from the 2023/2024 academic year across four grade levels, namely Grade 9th to 12th, in three selected schools. Additionally, teachers, principals, and administrators were included. The total number of students obtained from the record office at the selected schools was 2675, along with 19 administrators and 101 teachers. In general, the population of the study was presented in Table 1 below.

Table 1 Population of the study

Population	Schools								
	Holy Trinity			Raguile			Meskaye Hezunan		
Grade levels	M	F	T	M	F	T	M	F	T
9th	161	179	340	77	79	156	180	56	236
10th	108	135	243	59	120	179	90	54	144
11th	105	133	238	60	150	210	78	156	234
12th	91	114	205	70	130	200	69	120	189
G 9-12	465	561	1026	266	479	745	417	386	803
Admin	5	1	6	8	0	8	4	1	5
Teachers	34	2	36	26	12	38	19	8	27
Grand Total of Students									2,574
Grand Total of Teachers									101
Total admin									**19**

Source: - The three Selected Schools Record Office (2023/24)

3.5. Sample size and sampling techniques

It was very expensive in terms of money and time to collect data from all these students, so the researcher had to determine a sample that was representative of the total population. Yamane (1967) provided a simplified formula to calculate sample sizes for finite populations, which was used to determine the sample size for this study. A 95% confidence level was assumed for this formula to determine the sample size, with e=0.05.

The sample size is determined by the following formula.

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

Where n is the required sample size, N is the population size and e is the level of precision (the quality of being exact).

Appling the above formula, n $=\frac{2574}{1+2574(0.05)2}=$ 346.20 samples 346=rounding to the nearest integer (154 males and 192 female). Out of the 2574 students, (1148 males and 1426 females) 346 samples was chosen using the above formula. And 101 teachers (79 males and 22 females) were selected randomly from the total number of teachers, with 63 males and 17 females included in the sample. Additionally, all 19 administrators (17 male and 2 female) from the selected schools were included. Hence, the sample size of the research will be 466 (288 males and 178 females) were randomly chosen from the total students, and those 466 samples were selected from the total population, which consisted of 1244 males and 1450 females. Each person remaining in the population had an equal probability of being selected for the sample using the lottery method. The reason why the researcher selected random sampling was that it was the easiest to understand and gave all members of the population an equal chance of being selected as a sample (Frerichs, 2008).

3.6. Methods of Data Collection and Instruments

Primary data collection instrument, in the study of E-Learning Implementation Readiness at Selected General Secondary Schools in Addis Ababa, the primary data collection instrument utilized was a structured questionnaire. This instrument was designed to gather quantitative data from participants, which included students, teachers, and administrators. Here are the key features and components of the primary data collection instrument.

3.7. Validation

To ensure the validity of the study's questionnaire, the researcher used expert opinion from experienced both Amharic and English language teachers. Then, the first draft Amharic version was evaluated and commented on by the research advisor and other relevant with a master's degree in Amharic language, and in English language. Then, a pilot test was conducted in Catholic Cathedral Secondary School on 35 respondents with the purpose of improving the clarity, relevance, and feasibility of the questionnaire. According to the results of the pretest, some corrections and changes were made through discussion with the advisor. For assessing the reliability of the instrument, Cronbach's Alpha Coefficient test was done.

3.8. Procedures of Data Collection

In this study, a questionnaire was administered to 335 students and 13 teachers, making a total of 348 participants by the researcher himself. Instructions were given to the participants prior to their completion of the questionnaire about how to fill it. The questionnaire was administered to the participants in their regular classrooms and in teachers' staff rooms. In addition to this, the objectives of the study were made clear to them. Of the administered 348 students (155 Males and 193 females) and 13 teachers, all questionnaires were returned; hence, 348 questionnaires were properly filled. The entire 348 questionnaires were taken for the final analysis of this study.

3.6.1. Independent Variable

- e-learning readiness
- Challenges of e-learning
- Resources available
- Perceptions of e-learning

3.6.2. Dependent Variable

- level of readiness for e-learning

3.6.3. Control variable

- Age
- Sex
- Grade levels
- Educational status

3.1. Pilot Study

A pilot study was carried out on 29 respondents (13 males and 12 females) and 4 teachers to determine the specificity, relevance, and clarity of the questionnaire. The participants were randomly selected from Catholic General Secondary School. The participants were selected from all four grade levels (i.e., grades 9 to 12), and modifications were made.

Based on the responses of the pilot group, the psychometric properties of the questionnaire were computed using Cronbach’s alpha. The results of the Cronbach’s Alpha coefficient test indicated that the questionnaire was reliable and acceptable for use as a scale since the Cronbach's Alpha result was above 0.7.

Table 2 Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.754	50

3.1. Method of Data Analysis

The response obtained from the students, teachers and students the quantitative data collected from the questionnaire was analyzed using SPSS program (statically package for social science) software, version 26. Percentage used both to see the extent of e-learning implementation reediness of three selected general secondary schools. In order to show demographic variables of respondent use percentage and to see general characteristics of the data descriptive statistical values such as the mean, maximum, and minimum scores were obtained.

3.9. Ethical Consideration

In this study, participants took part in the research with their own informed consent. Taking into account APA (2017), the ethical principles of psychologist researchers and the code of conduct stated that in all actions concerning informed consent of research respondents, (a) when obtaining informed consent as required in Standard Informed Consent, the researcher informed participants about (1) the purpose of the research, expected duration, and procedures; (2) their right to decline to participate and to withdraw from the research once participation had begun**;** (3) whom to contact for questions about the research and research participants' rights. Thus, in this study, participants were asked for their consent to participate. Students who were selected randomly were asked for their consent after the consent was read to them. All respondents of this study demonstrated their own free will and true promises to give their consent. After students were gathered into a meeting hall, they were informed about the purpose of the research, duration of the study, number of participants expected, and how confidentiality and privacy would be ensured**.**

CHAPTER FOUR

RESULT AND DISCUSSION

This section deals with the presentation, investigation and explanation of raw data. The numerical statistics are existed in table form and the findings from addressing the specific objectives were examined using the related expressive tools. Description of numerical findings was complete within the context of the research and previous research studied in chapter two. 466 questionnaires were circulated and 466 were filled and returned. The data gathered from the respondents were analyzed using SPSS-26. Descriptive statistics were done on the demographic characteristics, independent and dependent variables.

4.1. Demographic variables of respondent

This section presents demographic profile of the respondents. The personal profiles of the teachers and admins respondents were analyzed as per their gender, educational background, and job position, while a student's personal profile includes, grade level, age, and gender.

Table 3 demographic Variables of teachers and admins respondents

			Frequency	Percent
Demographic Variables	Sex	Females	19	15.8
		Males	101	84.2
		Total	120	100.0
	Educational Background	Diploma	5	4.2
		Degree	62	51.7
		Masters'	49	40.8
		PhD	4	3.3
		Total	120	100.0
	Position	Admin	19	15.8
		Teacher	101	84.2
		Total	120	100.0

Source: Primary Data, 2024

The data in the table illustrates the gender distribution, educational attainment, and occupation distribution within a specific demographic. In terms of gender, females account for 15.8% (19 out of 120) of the sample, while males make up the majority at 84.2% (101 out of 120). Moving

on to educational levels, diploma holders represent 4.2% (5 out of 120) of the sample, while degree holders make up the largest portion at 51.7% (62 out of 120). Additionally, individuals with Master's degrees account for 40.8% (49 out of 120) of the sample, and those with a PhD comprise 3.3% (4 out of 120). Furthermore, the occupation distribution reveals that admin staff constitutes 15.8% (19 out of 120) of the sample, with teachers making up the remaining 84.2% (101 out of 120). Overall, this comprehensive table provides a clear overview of the gender distribution, educational attainment, and occupation distribution within the given demographic.

Table 4 demographic Variables students

			Frequency	Percent
Demographic Variables of Students	Sex	Females	154	44.5
		Males	192	55.5
		Total	346	100.0
	Grade Levels	9-10	162	46.8
		11-12	184	53.2
		Total	346	100.0
	Age	14-16	176	50.9
		17-19	151	43.6
		20 And Above	19	5.5
		Total	346	100.0

Source: Primary Data, 2024

The table presents demographic information about a group of students, encompassing their sex, grade levels, and age. Notably, out of 346 students, 44.5% are females and 55.5% are males. Additionally, 46.8% of the students are in grades 9-10, while 53.2% are in grades 11-12. Moreover, the age distribution reveals that 50.9% of the students are aged 14-16, 43.6% fall in the age range 17-19, and only 5.5% are 20 years old and above.

These demographic variables offer valuable insights into the composition of the student population, bearing significance for scientific and educational analyses. They can aid in designing targeted educational programs, understanding gender-based learning differences, and tailoring teaching methods to different age groups. Moreover, the data can be utilized for statistical analysis, such as calculating proportions, conducting hypothesis testing, and exploring correlations between demographic variables and academic performance.

4.1.1. The Status of E-Learning Implementation Readiness of Admin and teachers

Table 5 E-Learning Implementation Readiness

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Dv.
E-Learning Implementation	120	13	45	27.47	6.086
Valid N (listwise)	120				

Source: Primary Data, 2024

The descriptive statistics for E-Learning Implementation offer valuable insights into the distribution and central tendency of the data. With a sample size of 120, the dataset represents a relatively large sample, providing robust insights into E-Learning Implementation. The observed range from a minimum of 13 to a maximum of 45 offers a clear understanding of the spread of the data. The mean of 27.47 serves as a central tendency, while the standard deviation of 6.086 gives insight into the dispersion of the data around the mean. These statistics have practical implications, particularly in educational research, where they can assess the effectiveness and variability of e-learning implementation strategies, informing decisions about resource allocation and program improvement. Overall, the descriptive statistics for E-Learning Implementation provide a scientific basis for further analysis and decision-making.

4.1.2. Challenges of E-Learning Implementation

Table 6 Challenges of E-Learning Implementation

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Challenges Of E-Learning Implementation	120	21	47	37.37	4.840
Valid N (listwise)	120				

Source: Primary Data, 2024

The descriptive statistics table for the challenges of e-learning implementation reveals some interesting insights. With a sample size of 120, the minimum challenge score was 21, while the maximum challenge score was 47, indicating a wide range of experiences among the participants. The mean challenge score of 37.37 suggests that, on average, the e-learning

implementation posed a significant degree of difficulty for the participants. Additionally, the standard deviation of 4.840 indicates that the challenge scores varied moderately around the mean. Overall, these statistics highlight the diverse and sometimes demanding nature of e-learning implementation challenges. Understanding these statistics can help in identifying the specific areas of concern and formulating targeted strategies to address them effectively. With a valid sample size of 120, these findings provide valuable insights into the complexities of e-learning implementation and emphasize the need for tailored solutions to mitigate these challenges.

4.1.3. Level of Support and Resources for E-Learning Implementation

Table 7 Support and Resources for E-Learning Implementation

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
support and resources available for e-learning implementation	120	13	42	26.98	7.872
Valid N (listwise)	120				

Source: Primary Data, 2024

The descriptive statistics table provides a comprehensive overview of the variable "support and resources available for e-learning implementation" based on a sample size of 120. The mean value of 26.98 denotes the average level of support, resources, while the minimum and maximum values of 13 and 42, respectively, and illustrate the range of the data. Furthermore, the standard deviation of approximately 7.872 gives insight into the variability or dispersion around the mean, providing valuable information about the distribution and characteristics of support and resources available for e-learning implementation within the sampled population. Generally, the support and resources available for e-learning implementation in selected secondary school is too much low, almost none with the mean of 26.98.

4.1.4. Perceptions of E-Learning Implementation

Table 8 Perceptions of E-Learning Implementation of Admin and teachers

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Teachers Perception Of E-Learning Implementation teachers and admins	120	17	53	28.97	11.839
Valid N (listwise)	120				

Source primary data (2024)

The table presents descriptive statistics for the perception of e-learning implementation among teachers and administrators, derived from a sample size of 120. It includes the following key metrics: N (Sample Size) of 120, Minimum perception score of 17, Maximum perception score of 53, Mean perception score of approximately 28.97 which means there is very low perception of admins and teachers towards e-learning implementation and a Standard Deviation of approximately 11.839. These statistics offer valuable insights into the central tendency, variability, and the range of perceptions concerning e-learning implementation. Understanding the overall sentiment and variability in perceptions is crucial for making informed decisions and improvements in e-learning strategies and implementations, making this data highly significant for stakeholders in the education sector.

4.1.5. Perceptions of E-Learning Implementation

Table 9 Perceptions of E-Learning Implementation of students

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Students Perception to e learning implementation	346	18	50	33.57	6.827
Valid N (listwise)	346				

As the table presents descriptive statistics for the variable "Students' Perception of e-learning implementation" based on a sample size of 346. These statistics offer valuable insights into the distribution and central tendency of the students' perceptions regarding e-learning

implementation. The mean of 33.57 indicates the average perception score of the students is very low in selected general secondary schools, while the standard deviation of 6.827 reflects the spread or dispersion of the perceptions around the mean.

4.2. Discussion of Results

In this section, the main results of the study are discussed based on the following research questions.

1. What is the current state of e-learning implementation readiness in selected three general secondary schools?
2. What are the challenges of e-learning implementation in selected secondary schools?
3. What is the level of support and resources available for e-learning implementation in selected secondary schools?
4. What is the perception of e-learning implementation in selected secondary schools?

4.3. Discussion

4.4.1. Current Status of E-Learning Implementation Readiness

The descriptive statistics for E-Learning Implementation show an observed range from a minimum of 13 to a maximum of 45, offering a clear understanding of the spread of the data. The mean of 27.47 serves as a central tendency, while the standard deviation of 6.086 indicates that the selected general schools have a very low status of e-learning implementation.

Similarly, to this study, the evidence indicates that faculty and administrative staff in Ethiopia have limited awareness of the benefits of e learning in the classroom. Additionally, the use of e learning in higher education is still in its early stages across most Ethiopian universities (Anberbir, 2015). The outbreak of COVID-19 posed significant challenges, especially for developing countries like Ethiopia. In response, the Ethiopian government and Ministry of Education mandated the closure of all teaching and learning activities for approximately eight months, from March 16 to October 19, 2020, creating a substantial crisis at the national level. This closure also affected the University of Gondar as its learning management system (LMS) primarily relied on face-to-face interaction and lacked an organized and effective online learning system. In collaboration with the Master card Foundation, is now planning to implement e learning to address challenges in teaching and learning activities, in addition to the traditional in-person approach. However, the research team strongly advocates for an exploration of the challenges, opportunities, and preparedness in Ethiopia's higher education context, particularly at

before implementing the e-Learning platform system. Understanding the knowledge and perceptions of e learning among students, instructors, and administrators is crucial, as it will significantly influence the successful implementation of e Learning. The findings of this study will also provide valuable insights for the Ministry of Higher Education of Ethiopia and the managers of educational institutions using e-Learning systems, helping them better understand the challenges they may encounter and reduce the likelihood of implementation failures.

4.4.2. The Challenges of E-Learning Implementation for teachers

The descriptive statistics table pertaining to the challenges of e-learning implementation unveils intriguing insights. With a sample size of 120, the lowest challenge score recorded was 21, while the highest was 47, signifying a broad spectrum of experiences among the participants. The mean challenge score of 37.37 implies that, on average, the e-learning implementation presented a substantial level of difficulty for the participants.

According to Bakkar, I. B., & Ziden, A. A. (2023) the exploration of e learning highlights various challenges that are critical to address for its effective implementation. The digital divide is a significant issue, manifesting as unequal access to necessary technological resources and stable internet, affecting learners especially in remote and poor areas. The absence of personal interaction and practical experience in e- learning platforms is a notable concern, particularly for disciplines that rely heavily on hands- on skills. Such limitations raise questions about the ability of e learning to completely substitute for traditional classroom settings. Keeping students engaged and motivated in an online environment, which often lacks the structured atmosphere of a physical classroom and is prone to more distractions, is another challenge. Additionally, technical challenges like the reliability and ease of use of e-learning platforms can hinder the learning process. Adapting teaching methods and curriculum content for online formats also presents a complex challenge for educators.

4.4.3. Level of Support and Resources Available For E-Learning Implementation

The support and resources available for e-learning implementation in selected general schools indicate an average level of support and resources, with a mean value of 26.98. The minimum and maximum values, 13 and 42 respectively, illustrate the range of the data. In general, the support and resources available for e-learning implementation in selected secondary schools are significantly low, almost nonexistent, with a mean value of 26.98.

According to Dawit Hailemariyam (2013), the implementation of ICT in Ethiopian higher education faces various challenges. Limited infrastructure, user attitudes towards ICT, management support, and skilled human resources, along with policy issues, are all affecting the adoption of ICT. Additionally, the quality of learning poses a significant hurdle, as a notable percentage of 10-year-olds lack basic literacy skills, and only 33.1% of students' progress to secondary school. Furthermore, efforts to utilize ICT for e-learning programs in public schools are hindered by the government's limited capacity in terms of ICT funding, investment, and expertise. This limitation affects the delivery of ICT skills training and infrastructure to remote, overpopulated, and ill-resourced schools in rural and township areas. These challenges collectively present barriers to the effective implementation of ICT in Ethiopian higher education.

4.4.4. Perception of E-Learning Implementation

The statistics reveal a concerning perception of e-learning implementation among both teachers/administrators and students in the selected general secondary schools. The mean perception score of approximately 28.97 among teachers and administrators indicates a very low perception, while students exhibited a similarly low perception with a mean score of 33.57. These findings offer valuable insights into the central tendency, variability, and range of perceptions surrounding the e-learning implementation, suggesting a need for further examination and improvement of the e-learning system to address the issues and concerns raised by these key stakeholders.

Similarly, Ethiopia has initiated a Digital Education Strategy aimed at enhancing access, equity, and quality in education through technology integration from 2023 to 2028. This strategy reflects a commitment to addressing long-standing educational challenges and leveraging technology to improve learning outcomes. Research indicates that many Ethiopian educators, particularly English as a Foreign Language (EFL) teachers, have a positive perception of e-learning tools, especially smartphone applications that can enhance speaking skills. However, there is a notable gap between these positive perceptions and actual classroom practices, which often reveal weaknesses in the effective use of these technologies. Despite the enthusiasm for e-learning, several challenges hinder its effective implementation. Many regions in Ethiopia suffer from inadequate internet connectivity and unreliable electricity, significantly impacting the ability to engage in e-learning. Additionally, there is a lack of training for both students and teachers on

how to effectively utilize e-learning platforms, leading to the underutilization of available resources. Moreover, traditional educational practices are deeply rooted, resulting in resistance to adopting new methods. Students' engagement with e-learning platforms varies widely; while some express satisfaction with the flexibility and accessibility that e-learning provides, others report challenges related to motivation and interaction with peers and instructors. The effectiveness of e-learning is often perceived as lower compared to traditional face-to-face learning, particularly in rural areas where resources are limited. In conclusion, the perception of e-learning implementation in Ethiopia is characterized by a mix of optimism and significant challenges. While there is a clear recognition of the potential benefits of e-learning, such as increased access to educational resources and flexibility in learning, the reality of implementation reveals critical barriers that need to be addressed. Continuous efforts to improve infrastructure, provide training, and foster a culture of digital learning are essential for enhancing the effectiveness of e-learning in Ethiopia (Moe2022).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In the previous section, the main findings of the study were presented briefly. From these findings, one may show at the following conclusions.

5.1. Summary

The studies revealed that, majority of the participants 346(77.6%) are students. Related to educational background, majority 62 (51.7%) have BA degree.

The e-Learning Implementation analysis reveals several key findings:

The data indicates a mean of 27.47 for e-Learning Implementation, with a low standard deviation of 6.086, suggesting a widespread understanding. However, the selected general schools show a very low status in e-learning implementation.

Challenges in e-learning implementation are significant, with an average challenge score of 37.37, indicating a high level of obstacles.

Support and resources for e-learning implementation are only average, with a mean value of 26.98. However, in selected secondary schools, support and resources are notably lacking, almost nonexistent.

Perception of e-learning implementation among teachers, administrators, and students is very low, with mean scores of approximately 28.97 and 33.57 respectively, suggesting a need for improvement in perceptions across all stakeholders.

5.2. Conclusion

The purpose of this study was to investigate the E-Learning Implementation Readiness at Selected General Secondary Schools. To operationalize it, the study applied a descriptive explanatory research design with quantitative approach. With the methodology followed, the detailed conclusions of the study are made based on the findings above.

- The e-Learning Implementation result shows a clear understanding of the spread of the data. The mean of 27.47 serves as a central tendency, while the standard deviation of 6.086 indicates that the selected general schools have a very low status of e-learning implementation.
- The challenges of e-learning implementation unveil intriguing insights. The mean challenge score of 37.37 implies that, on average, the e-learning implementation is very high challenges.
- The support and resources available for e-learning implementation indicate an average level of support and resources, with a mean value of 26.98. The support and resources available for e-learning implementation in selected secondary schools are significantly low, almost nonexistent, with a mean value of 26.98.
- The perception of e-learning implementation among teachers, administrators and students in the selected general secondary schools with mean scores of approximately 28.97 it indicates a very low perception, and students exhibited a similarly low perception with a mean score of 33.57.

5.3. Recommendations

Based on the comprehensive analysis of the e-Learning Implementation findings, several deep recommendations emerge:

- Targeted Intervention for General Schools: Given the clear understanding of the spread of data and the low status of e-learning implementation in selected general schools, it's imperative to implement targeted interventions. These interventions should focus on providing specific resources, training programs, and support systems tailored to the unique needs and challenges faced by general schools. This could involve government initiatives, partnerships with educational organizations, or community-based programs aimed at bridging the gap in e-learning implementation.
- Mitigating Challenges through Strategic Planning: The high level of challenges identified in e-learning implementation calls for strategic planning and proactive measures. Educational institutions and stakeholders should conduct a thorough assessment of the challenges and prioritize them based on severity and impact. Solutions may include investing in infrastructure, addressing connectivity issues, enhancing technical support, and providing ongoing professional development for educators to navigate the complexities of e-learning effectively.
- Urgent Resource Allocation for Secondary Schools: The stark contrast in support and resources between general and secondary schools underscores the urgent need for resource allocation in secondary educational settings. Policymakers, education boards, and relevant authorities should allocate adequate funding, technology, and human resources to secondary schools to facilitate e-learning implementation effectively. Additionally, collaborative efforts with private sector partners, NGOs, and community organizations can help supplement resources and ensure equitable access to e-learning tools and opportunities for all students.
- Educational leaders should actively communicate the benefits and potential of e-learning, address misconceptions, and solicit feedback from stakeholders to foster a more positive perception. Engaging in dialogue, showcasing success stories, and involving stakeholders in decision-making processes can help build trust, enthusiasm, and confidence in e-learning initiatives, ultimately driving greater adoption and participation.

References

Adams, D., Sumintono, B., Mohamed, A., & Noor, N. S. M. (2018). E-learning readiness among students of diverse backgrounds in a leading Malaysian higher education institution. *Malaysian Journal of Learning and Instruction*, *15*(2), 227-256.

Agbenyegah, A. T., & Dlamini, B. I. (2019). Investigating the challenges of E-learning in a developing institution of higher learning: A hypothetical approach. Journal of Applied Business Research, 35(3).

Akkar, I. B., & Ziden, A. A. (2023). Analysis of Perceptions and Insights of E-Learning Implementation in Educational Institutions by Educators, Students, and Parents. International Journal of Academic Research in Progressive Education and Development, 12(4).

Almaiah, M. A., Jalil, M. A., & Man, M. S. (2020). "Factors Influencing E-Learning System Adoption in Higher Education: A Review." Education and Information Technologies, 25(3), 1961-1980.

Almulla, M. (2021). Technology Acceptance Model (TAM) and e-learning system use for education sustainability. Academy of Strategic Management Journal, 20(4), 1-13.

Almulla, M. A. (2021). Investigating Students' Intention to Use M-Learning: The Mediating Role of Mobile Usefulness and Intention to Use. International Journal of Information and Communication Technology Education (IJICTE), 20(1), 1-26.

Alzaghoul, A. F. (2012). The implication of the learning theories on implementing e-learning courses. The Research Bulletin of Jordan ACM, 11(11), 27-30.

Alzaghoul, A. F. (2012). The implication of the learning theories on implementing e-learning courses. The Research Bulletin of Jordan ACM, 11(11), 27-30.

Anberbir, T. (2015). Survey of the use e-Learning in higher education in Ethiopia. In E-learning conference 2015.

Anderson, T. (2008). The theory and practice of online learning. Athabasca University

Anderson, T., & Elloumi, F. (2004). Theory and Practice of Online Learning (Ebook). and Hung (2001)

Baker, J. (2015). "E-Learning Readiness: A Study of the Factors Influencing E-Learning Adoption in Higher Education." International Journal of Educational Management, 29(4), 430-447.

Bakkar, I. B., & Ziden, A. A. (2023). Analysis of Perceptions and Insights of E-Learning Implementation in Educational Institutions by Educators, Students, and Parents. Online Submission, 12(4), 1393-1431.

Bates, A. W. (2015). "Teaching in a Digital Age: Guidelines for Designing Teaching and Learning. Tony Bates Associates Ltd.

Beyene, F., & Muche, M. (2010). Determinants of food security among rural households of Central Ethiopia: An empirical analysis. Quarterly Journal of International Agriculture, 49(4), 299-318.

Clark, R. C., & Mayer, R. E. (2011). E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning. john Wiley & sons.

Craik, F. I., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. Journal of experimental Psychology: general, 104(3), 268.

Eom, S. B., & Ashill, N. J. (2018). A system's view of e-learning success model. Decision Sciences Journal of Innovative Education, 16(1), 42-76.

Ertmer, P. A., & Newby, T. J. (1993). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. Performance improvement quarterly, 6(4), 50-72.

Folden, R. W. (2012). General perspective in learning management systems. In *Higher education institutions and learning management systems: Adoption and Standardization* (pp. 1-27). IGI Global.

Frerichs, S. (2009). The legal constitution of market society: Probing the economic sociology of law. *economic sociology_the european electronic newsletter*, *10*(3), 20-25.

Govindasamy, T. (2002). Critical success factors of successful Indian entrepreneurs in the Tshwane metropolitan area. University of Pretoria (South Africa).

Hagos, Y., & Negash, S. (2014). The adoption of e-learning systems in low income countries: The case of Ethiopia.

Hailemaraim, D. (2013). Design and Implementation of a Web Based E-learning Support System (For Technical and Vocational Education and Training (TVET)) (Doctoral dissertation, Addis Ababa University).

HAILEMARIAM, T. (2013). The Importance of Actuarial Practice in Ethiopia (Doctoral dissertation, ST. MARY'S UNIVERSITY).

Hariri, F., & Ottaviani, M. (2013). A flux-coordinate independent field-aligned approach to plasma turbulence simulations. Computer Physics Communications, 184(11), 2419-2429.

Hwang, G. J., & Chang, H. F. (2011). "A Framework for E-Learning Readiness Assessment." Educational Technology & Society, 14(4), 85-97.

Keegan, D. (2005, October). The incorporation of mobile learning into mainstream education and training. In World Conference on Mobile Learning, Cape Town (Vol. 11, pp. 1-17).

Kumar, V., & Kumar, U. (2019). "E-Learning Readiness in Higher Education Institutions: A Comprehensive Review." Journal of Computing in Higher Education, 31(1), 1-27.

Kumar Basak, S., Wotto, M., & Bélanger, P. (2018). E-learning, M-learning and D-learning: Conceptual definition and comparative analysis. *E-learning and Digital Media*, *15*(4), 191-216.

Lin, H. F. (2007). Knowledge sharing and firm innovation capability: an empirical study. International Journal of manpower, 28(3/4), 315-332.

Lwoga, E. (2014). Critical success factors for adoption of web-based learning management systems in Tanzania. International Journal of Education and Development using ICT, 10(1).

Manjunatha.N (2019). Descriptive Research: Library Assitant, SRI SIDDHATHA FIRST GRADE COLLEGE..

Masa'deh, R. E., Obeidat, B. Y., & Tarhini, A. (2016). A Jordanian empirical study of the associations among transformational leadership, transactional leadership, knowledge sharing, job performance, and firm performance: A structural equation modelling approach. Journal of management development, 35(5), 681-705.

Mason, R. (1998). The economics of conspicuous consumption. *Books*.

Mekonnen, G., Alemu, G. (2016). Effectiveness of E-learning in Select Ethiopian Universities. International Journal of Education and Research, 4(8), 461-476. doi:10.14662/ijerph.v4i8.147

Mödritscher, F. (2006). E-learning theories in practice: A comparison of three methods. Journal of Universal Science and Technology of Learning, 28(1), 3-18.

Mokhtar, A., & Zainuddin, N. (2018). "The Role of Institutional Factors in E-Learning Readiness: A Study of Malaysian Universities." Computers & Education, 127, 108-118.

Mtebe, J., & Raisamo, R. Open educational resources: Barriers and potential in Tanzania.

Obeidat, R. (2015). Decision-making preferences of Jordanian women diagnosed with breast cancer. Supportive care in cancer, 23, 2281-2285.

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

Panda, S., & Mishra, S. (2007). E-Learning in a Mega Open University: Faculty attitude, barriers and motivators. Educational media international, 44(4), 323-338.

Petter, S., DeLone, W., & McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. European journal of information systems, 17(3), 236-263.

Sangrà, A., Vlachopoulos, D., & Cabrera, N. (2012). Building an inclusive definition of e-learning: An approach to the conceptual framework. International Review of Research in Open and Distributed Learning, 13(2), 145-159.

Selim, H. M. (2007). "Critical Success Factors for E-Learning Acceptance: Confirmatory Factor Models." Computers & Education, 49(2), 396-413.

Skinner, Q. (1974). III. Some problems in the analysis of political thought and action. Political theory, 2(3), 277-303.

Sun, Y., Lin, L., Deng, H., Li, J., He, B., Sun, R., & Ouyang, P. (2008). Structural changes of bamboo cellulose in formic acid. BioResources, 3(2), 297-315.

Tesfaselassie, Y. H. (2019). E-learning systems success model: The case of Ethiopian higher education institutions. Unpublished doctoral dissertation). Addis Ababa University.

Tossy, T., & Brown, I. T. (2017). Cultivating recognition: A classic grounded theory of e-learning providers working in East Africa. In Information Technology Integration for Socio-Economic Development (pp. 193-259). IGI Global.

Yakubu, O., Babu, N., & Adjei, O. (2018). Electricity theft: Analysis of the underlying contributory factors in Ghana. Energy policy, 123, 611-618.

Yigezu, M. (2021). Digitalization in teaching and education in Ethiopia. International Labour Organization.

Appendix -1

ADDIS ABABA UNIVERSITY

SCHOOL OF NATURAL AND COMPUTATIONAL SCIENCE

DEPARTMENT OF INFORMATION SYSTEM

I am conducting a research on "E-Learning Implementation Readiness at Selected General Secondary Schools." This research is being conducted as part of the requirements for the degree of Masters in Information Systems. Participating in this study poses no risks. All responses will be kept confidential, and you are not required to provide your name. Participation in the survey is voluntary. If you have any questions regarding this study, please feel free to contact me at 0949-14-43-65.

Thank you for your participation

I. Personal information of respondent **(For Students only)**

The questions below related to you. Please indicate your response by (√) the appropriate in the box.

1. Sex: M= ◯ F= ◯
2. Grade level :9-10 ◯ 11-12 ◯
3. Age :- 14-16 ◯ 17-19 ◯ 21 and above ◯
4. School: Sellasie ◯ Raguile ◯ Meskerem ◯

II: Perceptions of e-learning implementation at your School

INSTRUCTION: Please describe your honest opinion about how you feel about the corresponding statements in the table below.

If you are unsure of an answer, make your best guess. There is no right or wrong answers; your opinion is all that matters. Use the following scale for your ratings and tick (✔) the appropriate description. The scale responses to each item are measured on a five-point scale with the labels provided by the author:

(5) =Strongly Agree, (4) = Agree (3) =Neutral (2) =Disagree (1) = Strongly Disagree.

No	Items	Levels of agreement				
		1	2	3	4	5
1	E-learning platforms are user-friendly and easy to navigate.					
2	E-learning has enhanced my understanding of the subjects taught in school.					
3	I feel motivated to engage with e-learning activities and assignments.					
4	E-learning has improved my communication skills through online discussions and forums.					
5	E-learning has provided me with flexibility in my learning schedule.					
6	E-learning has helped me develop self-discipline and time management skills.					
7	E-learning has increased my interest in exploring new technologies for learning.					
8	E-learning has made it easier for me to collaborate with classmates on group projects.					
9	E-learning has allowed me to access educational resources that are not available in traditional classrooms.					
10	Overall, I believe e-learning is a valuable tool for enhancing my education experience in secondary school.					

Appendix -2

ADDIS ABABA UNIVERSITY

SCHOOL OF NATURAL AND COMPUTATIONAL SCIENCE

DEPARTMENT OF INFORMATION SYSTEM

I am conducting a research on "E-Learning Implementation Readiness at Selected General Secondary Schools." This research is being conducted as part of the requirements for the degree of Masters in Information Systems. Participating in this study poses no risks. All responses will be kept confidential, and you are not required to provide your name. Participation in the survey is voluntary. If you have any questions regarding this study, please feel free to contact me at 0949-14-43-65.

Thank you for your participation.

II. Personal information for **(Teachers and admins)**

The questions below related to you. Please indicate your response by (√) the appropriate in the box.

5. Sex: M= ◯ F= ◯
6. Educational level : Diploma ◯ Degree ◯ MA ◯ PhD ◯
7. School: Sellasie ◯ Raguile ◯ Meskerem ◯

II: E-Learning Implementation Readiness at Selected General Secondary Schools,

INSTRUCTION: Please describe your honest opinion about how you feel about the corresponding statements in the table below.

If you are unsure of an answer, make your best guess. There is no right or wrong answers; your opinion is all that matters. Use the following scale for your ratings and tick (✔) the appropriate description. The scale responses to each item are measured on a five-point scale with the labels provided by the author:

(5) =Strongly Agree, (4) = Agree (3) =Neutral (2) =Disagree (1) = Strongly Disagree

No	Items	Levels of agreement				
		1	2	3	4	5
I	e-learning implementation					
1	The school has a clear vision and strategy for integrating e-learning into the curriculum					
2	The school has invested in infrastructure such as reliable internet connectivity and appropriate hardware to support e-learning initiatives.					
3	The school has provided adequate training and professional development opportunities for teachers to enhance their e-learning skills.					
4	The school has a dedicated team or individual responsible for overseeing e-learning implementation and support.					
5	The school has a budget allocated specifically for e-learning resources and technology maintenance.					
6	The school has assessed the technical requirements and constraints for effective e-learning implementation.					
7	The school has a clear understanding of the digital literacy levels of both teachers and students.					
8	The school has a policy in place to address issues related to data privacy and security in the context of e-learning.					
9	The school has actively involved stakeholders (parents, students, community) in the planning and execution of e-learning initiatives.					
10	The school has a systematic approach for evaluating the effectiveness and impact of e learning on student learning outcomes.					
II	challenges of e-learning implementation					
1	The use of technology in e learning is beneficial for students' academic growth.					

2	The availability of necessary infrastructure (computers, internet, etc.) is a major challenge in implementing e-learning in our school					
3	Teachers in our school feel adequately prepared and trained to effectively utilize e-learning platforms for teaching					
4	The school administration provides sufficient support and resources for the successful implementation of e-learning					
5	Students' engagement and participation in e-learning activities are hindered by technological challenges					
No	Items	Levels of agreement				
		1	2	3	4	5
6	The integration of e-learning has positively impacted the overall learning experience for students					
7	The school's e-learning platform is user-friendly and accessible to all students and teachers					
8	Lack of technical support and troubleshooting services is a significant obstacle in the implementation of e-learning					
9	The school's e-learning policy and guidelines are effectively communicated to all stakeholders (students, teachers, parents)					
10	The school has effectively addressed the digital divide among students in the implementation of e-learning					
III	support and resources available for e-learning implementation					
1	The school provides adequate funding for the procurement of e-learning resources and infrastructure					
2	Teachers in our school receive sufficient training and professional development opportunities for e-learning implementation					
3	The school has a dedicated support team or department to address technical issues related to e-learning platforms					
4	The school has established clear guidelines and policies to support the effective implementation of e-learning					
5	The school provides access to updated and relevant digital					

	learning materials and resources for both teachers and students					
6	The school administration actively seeks feedback from teachers and students regarding the adequacy of e-learning resources and support					
7	The school allocates sufficient time within the curriculum for e-learning activities and assignments					
8	The school collaborates with external organizations or partners to enhance e-learning resources and support					
9	The school ensures that students from all backgrounds have equal access to e-learning resources and support					

No	Items	Levels of agreement				
		1	2	3	4	5
IV	Perceptions of e-learning implementation					
1	I feel confident in my ability to effectively integrate e-learning tools and resources into my teaching practices					
2	I believe that e-learning enhances student engagement and participation in the learning process					
3	I perceive e-learning as a valuable supplement to traditional teaching methods in the classroom					
4	I receive adequate support from the school administration and staff in implementing e-learning initiatives					
5	I believe that e-learning has positively impacted the academic performance of students in my classes					
6	I am satisfied with the availability and quality of e-learning resources provided by the school					

7	I have observed an increase in student motivation and enthusiasm for learning as a result of e-learning activities					
8	I feel that my professional development needs related to e-learning are adequately addressed by the school					
9	I believe that the school's e-learning implementation aligns with the educational needs and goals of the students					
10	I am open to exploring new e-learning strategies and technologies to enhance my teaching practices					