THE CONTRIBUTION OF DIGITAL MATERIALS TO STUDENTS LEARNING PERFORMANCE IN HIGHER EDUCATION IN LIBERIA

A CASE STUDY OF MONROVIA BIBLE COLLEGE

BY

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DECLARATION

This thesis is titled **"The Contribution of Digital Materials to Students Learning Performance in Higher Education in Liberia, A Case study of Monrovia Bible College"** is my original work, it has never been submitted before for any other degree award to any other University.

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APPROVAL

This thesis is titled **"The Contribution of Digital Materials to Students Learning Performance in Higher Education in Liberia, A Case study of Monrovia Bible College"** has been done under my supervision and submitted for examination with my approval.

Supervisor name: Dr. HARERIMANA Jean Paul

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DEDICATION

To

My beloved parents

Mr. and Mrs. Borwah

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First of all, I would like to thank the **Almighty God** for His grace that has been with me during my time of studies.

To the founder of ULK, Prof. **Dr. RWIGAMBA Balinda** for initiatives to promoting education on large and facilitated scale.

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MAY GOD BLESS ALL OF THEM!!!

NELSON Teah Toe Jr.

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ABBREVIATIONS AND ACRONYMS AND SYMBOLS

COVID-19: Corona Virus Disease 2019

EPR: Enterprise Resource Planning

ICT: Information Communication Technology

LMS: Learning Management Systems

LTA: Liberia Telecommunication Authority

MOOCs: Massive Open Online Course

PU: Perceived Usefulness

SDT: Self-Determination Theory

SPSS: Statistical Package for Social Science

TAM: Technologies Acceptance Model

ULK: Université Libre de Kigali

UNESCO: United Nations Education, Science and Culture Organization

ABSTRACT

The study conducted is titled the contribution of digital materials to students learning performance in Higher education in Liberia, a case study of Monrovia Bible College. The study objectives were to find out the status of integrating digital materials in college, to evaluate the contribution of integrating digital materials in the improvement of students' performance in Higher education, and to determine the challenges and barriers students and higher education faces in integrating digital materials into the classroom. In conducting this study, the study employed the mixture of qualitative and quantitative research design. And the data were collected using questionnaire, interview and documentation and the data analyzed using the statistical analysis. The study underscores the pivotal role of effective integration in improving student engagement, motivation, exam preparation, problem-solving skills, critical thinking, and overall learning experiences. Furthermore, significant challenges, including limited internet accessibility, gaps in digital literacy, technology resource constraints, and the need for more institutional support. To address these challenges and leverage these opportunities, the study offers a set of recommendations, such as enhancing internet accessibility, promoting digital literacy initiatives, investing in technology resources, providing robust institutional support, fostering student engagement, and ensuring responsive technical support.

Keywords: *Digital materials, performance and Higher education*

CHAPTER 1: GENERAL INTRODUCTION

Introduction

This study focuses on the contribution of digital materials to students' learning performance in higher education in Liberia. The study is being conducted at Monrovia Bible College. Chapter one comprises a study of the background, problem statement, the study's significance, research objectives, and research questions. It also covers the scope of the study and the thesis structure.

1.1.Background of the study

The use of digital materials in education has a long history, dating back to the early days of computing. However, the widespread adoption of digital materials in education has been a more recent development. In the 1960s and 1970s, early computer-based educational systems were developed and used in schools, but they were mainly limited to specialized applications and were not widely adopted. It was not until the 1990s and 2000s, with the advent of the internet and the increasing affordability and accessibility of personal computers, that digital materials began to be more widely adopted in education (Warschauer & Matuchniak, 2010). With the increasing popularity of personal computers and the internet, digital materials began to be used for a variety of educational purposes, including multimedia presentations, online courses, and virtual classrooms. In the early 2000s, the widespread adoption of mobile devices, such as smartphones and tablets, further expanded the use of digital materials in education. With these devices, students have access to educational resources anytime and anywhere (Warschauer & Matuchniak, 2010).

In more recent years, the emergence of cloud-based technologies and the proliferation of MOOCs (massive open online courses) has had a large impact on education. This has opened up new opportunities for students to access high-quality educational resources, regardless of their location or socioeconomic background (Warschauer & Matuchniak, 2010). Overall, the use of digital materials in education has increased rapidly in recent decades and continues to evolve with the development of new technologies.

According to the UNESCO report (2015) "Education in a digital world: Opportunities and challenges" the use of digital technologies in education has been growing rapidly in recent years. They are being used to support a wide range of educational activities, from the delivery of educational content to the assessment of student learning. In many countries, digital technologies have become an integral part of the education system and have been embraced by teachers, students, and policy-makers.

However, the report also highlights that the use of digital technologies in education is not yet universal and is still largely concentrated in developed countries. Also, it points out that inequality in access to digital technologies is a major concern and that efforts are needed to bridge the digital divide between developed and developing countries.

The use of digital materials in education on the African continent has been a topic of increasing interest in recent years. However, compared to other regions of the world, the integration of digital technology into education in Africa has been relatively slow. Historically, access to digital technology has been limited in Africa due to a lack of infrastructure and financial resources (Wang'ombe, 2013). Additionally, many schools on the continent lack the necessary equipment and trained personnel to effectively integrate digital technology into their curriculum (Bekele, 2013). Moreover, in recent years, there have been increasing efforts to bridge the digital

divide in Africa. The African Union has placed a strong emphasis on the use of digital technology in education as a way to promote economic growth and social development (Bekele, 2013).

Additionally, various international organizations have invested in initiatives to increase access to digital technology in education on the continent (Wang'ombe, 2013). Despite these efforts, there are still significant disparities in access to digital technology in education in Africa, with urban areas often having greater access than rural areas (Bekele, 2013). Furthermore, there are many challenges to effectively integrating digital technology into education, including limited teacher training, a lack of electricity and internet access, and a lack of local content (Wang'ombe, 2013). Overall, while the use of digital materials in education is increasing in Africa, there is still much work to be done to bridge the digital divide and to effectively integrate digital technology into the curriculum.

The use of digital materials in education in Western Africa has a relatively short history as compared to other regions in the world. However, in recent years, there has been an increasing interest and investment in the integration of digital technology into the education system in this region. Historically, access to digital technology in Western Africa has been limited by a lack of infrastructure and financial resources. Many schools in the region lacked the necessary equipment and trained personnel to effectively integrate digital technology into their curriculum (Henderson, 2019). Furthermore, there were significant disparities in access to digital technology in urban and rural areas (Naidu, 2018).

However, in recent years, there has been an increased effort to bridge the digital divide and integrate digital technology into education in Western Africa. The government and private sectors have invested in initiatives to increase access to digital technology in education, with a

focus on providing training for teachers and students (Naidu, 2018). Additionally, with the increasing use of mobile devices in the region, students have greater access to digital resources. Furthermore, given that many countries in Western Africa have developed National Education policies that focus on the integration of Technology in the classrooms. Some governments have also implemented policies to provide subsidies to schools in order to facilitate the purchase and maintenance of digital materials such as laptops, tablets, and interactive whiteboards (Henderson, 2019). Overall, while the use of digital materials in education is increasing in Western Africa, there is still much work to be done to bridge the digital divide and to effectively integrate digital technology into the curriculum.

The use of digital materials in education in Liberia has a relatively short history, with a strong focus in recent years on the integration of digital technology into the education system. Historically, access to digital technology in Liberia was limited by the civil crises and a lack of infrastructure and financial resources. Many schools in the country lacked the necessary equipment and trained personnel to effectively integrate digital technology into their curriculum (Kowai, 2016). Additionally, there were significant disparities in access to digital technology in urban and rural areas (Kowai, 2016). However, in recent years, there has been an increasing effort to bridge the digital divide and integrate digital technology into education in Liberia. The government and private sectors have invested in initiatives to increase access to digital technology in education, with a focus on providing training for teachers and students (Kowai, 2016). Also, the Liberia Telecommunications Authority (LTA) has been working to improve internet access and digital literacy throughout the country (Tarr, 2015). In addition, several international organizations have invested in initiatives to increase access to digital technology in education in Liberia (Kowai, 2016).

1.2.Problem statement

The integration of digital technology in education is seen as a potential solution to improve the quality of education in not only developed countries but also in developing countries. Digital materials and tools can provide students with access to a wider range of educational resources, enhance their learning experience, and improve their engagement in the classroom (Warschauer & Matuchniak, 2010). Additionally, digital technology can also provide opportunities for collaboration and communication and can help to close the gap in educational opportunities between urban and rural areas (Warschauer & Matuchniak, 2010). Furthermore, digital technology can also help to build digital literacy skills, which are becoming increasingly important in today's digital world, and can prepare students for future job opportunities (Warschauer & Matuchniak, 2010).

Integrating digital technology in education in Liberia is essential to research and improve the quality of education in the country. It can provide students with access to a wider range of educational resources, and information and enhance their learning experience and engagement in the classroom (Kowai, 2016). It can also help to bridge the digital divide and provide equal opportunities for students in both urban and rural areas, as well as build digital literacy skills which are increasingly important in today's digital world (Tarr, 2015).

In recent years, there has been an increasing effort to integrate digital technology into education in Liberia. The government and private sectors have invested in initiatives to increase access to digital technology in education, with a focus on providing training for teachers and students (Kowai, 2016). The Liberia Telecommunications Authority (LTA) has been working to improve

internet access and digital literacy throughout the country (Tarr, 2015) as stipulated earlier in the background of the study.

However, despite these efforts, access to digital technology in education in Western Africa remains a challenge, particularly in rural areas and for underprivileged communities (Naidu, 2018). Moreover, there are issues related to limited internet connectivity and a lack of locally relevant digital materials (Henderson, 2019). Additionally, the integration of digital technology in education in Liberia faces several challenges, such as limited infrastructure and financial resources, lack of trained personnel, limited internet connectivity, and lack of locally relevant digital materials (Kowai, 2016; Tarr, 2015). Furthermore, there are also significant disparities in access to digital technology in urban and rural areas (Kowai, 2016), which may affect the effectiveness of digital materials in improving learning outcomes for students in these areas.

Despite the increasing use of digital materials in education, there is a lack of research on the specific impact of digital materials on students' learning performance in the context of Liberia, particularly for higher education institutions such as Monrovia Bible College. At the same time, accessing digital technology in Liberia remains a challenge, particularly in rural areas and for underprivileged communities (Kowai, 2016). There is also limited research on how these challenges of access to digital materials are affecting the learning performance of students in Liberia. Moreover, there is a need to understand how the students perceive the use of digital materials in their learning process (Kowai, 2016) and what factors influence the effectiveness of digital materials in this context. It is in this regard; the researcher intends to conduct this study by evaluating the contribution of integrating digital learning materials to students’ performance in higher education.

1.3.Objectives of the study

This study consists of general and specific objectives and is as follows

1.3.1. General objective

The general objective of this study is to evaluate the contribution of digital materials to the learning performance of students in higher education in Liberia.

1.3.2. Specific objectives

The specific objectives of the study are:

(i) To find out the status of integrating digital materials in college.

(ii) To evaluate the contribution of integrating digital materials in the improvement of students' performance in Higher education

(iii) To determine the challenges and barriers students and higher education faces in integrating digital materials into the classroom

1.4.Research questions

The research questions are:

(i) What is the status of integrating digital materials in college?

(ii) To what extent does the integration of digital materials affect students' learning performance in higher education in Liberia?

(iii) What are the challenges and barriers that higher education and students face when integrating digital materials in the classroom in Liberia?

1.5.Scope of the study

In conducting this study, the researcher has set the scope in terms of time, in times of geographical areas, and in terms of domain. And are being discussed in the following sub-section.

1.5.1. Scope in time

The scope of the study began in 2019 as it was the year that marked the start of increased integration of digital materials in higher education institutions, particularly due to the outbreak of COVID-19 but also with other government initiatives to improve the integration of digital materials in higher education as well. The pandemic outbreak had a significant impact on the way education was conducted, and many schools and institutions were forced to adopt digital methods of teaching. This study covered a short period before the outbreak of COVID-19, to understand the context and background, and continued up to 2023, as it was the year the data was collected from.

By conducting the study within this time frame, the researcher was able to present the whole picture of the changes and developments in the integration of digital materials in higher education institutions over the period of the pandemic and its aftermath.

1.5.2. Geographical scope

The study was conducted specifically in Monrovia, the capital city and largest city of Liberia, as the school chosen as a case study (Monrovia Bible College) was located in this city. The researcher focused on understanding the specific context and challenges of using digital materials in higher education. By limiting the geographical scope to this specific location, the

researcher was able to gain a more detailed and nuanced understanding of the contribution of digital materials to students' learning performance in this specific context.

1.5.3. Scope in domain

This study was focused on the field of education and development. This study made a linkage to the contribution of integrating digital materials to the students' performance in higher education.

1.6.Significance of the study

The study aimed to find out the contribution of digital materials to students' learning performance in higher education in Liberia.

The significance of this study lay in its ability to shed new light on the need to integrate digital materials in higher education in Liberia in order to improve students' performance. The study provided valuable insights into how digital materials could be effectively integrated into higher education to enhance the learning experience and engagement of students, as well as identify specific features of digital materials that were most beneficial for learning in this context. Furthermore, the study also explored the challenges and barriers that schools and students faced when implementing digital materials in the classroom, which informed the development of strategies to overcome these challenges.

The beneficiaries of this study included schools, teachers, and the Ministry of Education and its partners that were working to improve the digitalization of education in Liberia. The study provided valuable information to help guide their efforts in this area. Additionally, the general community also benefited from the study, as it raised awareness of the importance of integrating digital materials in higher education and the potential benefits it could bring. Furthermore, the

study served as a valuable resource for future researchers in the field of education and digitalization.

1.7.Organization of the thesis

The thesis is structured into five chapters, Chapter one is a general introduction that presents the background of the study, the problem statement, the objective of the study, the scope of the study, and the significance of the study. Chapter two is entitled literature review and consists of the existing literature relating to the subject study from conceptual review, theoretical framework, and empirical review to the conceptual framework and research gap analysis. Chapter three is entitled research methodology and consists of the methodology that was used in conducting the study. Chapter four is entitled presentation of the findings and analysis and discussion, which presents the collected data with analysis and interpretation. Chapter five is entitled Summary of the findings, conclusion, and recommendation, which presents the summary of the findings, conclusion, and recommendations.

CHAPTER 2: LITERATURE REVIEW

Introduction

This chapter is entitled, Literature review, review the existing kinds of literature relating to digital materials and school performance. It is subdivided into sections such as conceptual review, theoretical framework, empirical review, conceptual framework, and research gaps.

2.1. Conceptual Review

This section presents a literature review that focuses on the key concepts of the study, with the aim of aiding the reader's understanding of the research being reported.

2.1.1. Digital materials

According to Weller (2011), digital materials refer to any resource that is used to support teaching and learning and is delivered in electronic format. Similarly, UNESCO (2017) defines digital materials as learning resources that are stored, accessed, or delivered electronically, and can be interactive and multimedia-rich, including digital textbooks, videos, simulations, animations, and games. Huang, Liaw, and Chen (2017) define digital materials as any electronic resources that can be used for teaching and learning purposes, such as multimedia presentations, educational software, online textbooks, and virtual simulations. They note that digital materials are increasingly being used in educational settings due to their ability to enhance student engagement, support personalized learning, and provide access to a wide range of resources.

According to Clark and Mayer (2016), digital materials include electronic books, online tutorials, multimedia simulations, and other digital resources that can enhance student learning experiences.

2.1.2. College

There is no single, definitive definition of college as it is a complex and multifaceted concept. However, according to a variety of diverse authors, college can be understood as an institution of higher education that provides students with a range of academic and vocational opportunities. For example, as Acker and Haque (2014) note, a college is "an institution that offers undergraduate and graduate programs in various fields, including the liberal arts, sciences, and business, engineering, and health professions.

Similarly, Anderson and Newman (2015) describe college as a site of intellectual inquiry, personal growth, and social transformation, while Pascarella and Terenzini (2005) highlight its role in preparing students for "work, citizenship, and lifelong learning.

2.1.4. Higher education

Higher education refers to any formal education or learning beyond the secondary level, typically provided by universities, colleges, or other post-secondary institutions. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), higher education is "all types of studies, training, or training for research at the post-secondary level, provided by universities or other educational establishments that are approved as institutions of higher education by the competent state authorities (UNESCO, 2009). Higher education can include undergraduate and graduate degree programs, professional training, and vocational education, and it is designed to prepare individuals for advanced careers and leadership roles, as well as to advance knowledge through research and scholarship.

According to John Kotter, a Harvard Business School professor, and author, higher education is "an organization that provides a wide range of intellectual, cultural, and social experiences for

students who are eager to learn and who want to engage in a variety of academic and extracurricular activities (Kotter, 2016). Another definition comes from Vincent Tinto, a renowned scholar in the field of higher education. Tinto defines higher education as a social institution that has as its primary mission the preparation of individuals for responsible and productive participation in society (Tinto, 2006).

2.1.3. School learning performance

School learning performance can be defined as the degree to which students achieve educational goals set by the educational system or institution. It is the extent to which students acquire and apply knowledge, skills, and attitudes that enable them to succeed in their academic pursuits. (Dijkstra et al., 2012; Huang, 2011).

School learning performance refers to the academic achievement or progress of students within a school setting. It is typically measured by grades, test scores, and other indicators of academic success.

According to Kellaghan and Greaney (2001), school learning performance can also include non-academic factors such as attendance, engagement in extracurricular activities, and social development. Additionally, school learning performance can be influenced by various factors such as the quality of teaching, learning materials, student-teacher interactions, and socio-economic factors. (Kellaghan and Greaney, 2001).

2.1.4. Factors Leading Digitization at College

The decision to digitize education in higher education is a complex one, with many factors to consider. One important factor is the potential benefits of digital technology for student learning.

Digital tools can provide access to a wealth of information and resources, which can enhance students' understanding of complex concepts and encourage deeper learning (Jukes & Dosaj, 2014). In addition, digital tools can provide opportunities for active and collaborative learning, which have been shown to improve student engagement and motivation (Davies & Graff, 2005). Moreover, digital tools can provide personalized learning experiences tailored to individual student needs, which can improve student achievement and satisfaction (Hwang & Wu, 2014).

Another factor to consider is the potential for digital technology to increase efficiency and reduce costs. Digital materials, such as online textbooks and learning management systems, can be accessed from anywhere and at any time, which can reduce the need for physical resources, such as textbooks and classroom space (Johnson & Maddux, 2016). This can result in cost savings for schools and students alike. Moreover, digital tools can automate many administrative tasks, such as grading and attendance, which can save teachers time and allow them to focus more on teaching and supporting students (Liu et al., 2010).

However, there are also potential drawbacks to digitalizing education in higher school education that must be considered. One concern is the potential for increased screen time, which has been linked to negative health outcomes, such as eye strain, sleep disturbance, and obesity (Rideout et al., 2017). In addition, some research has suggested that digital tools may actually hinder learning in some cases, particularly when they are used as a replacement for hands-on, experiential learning (Bauerlein, 2008).

Focusing on the position of the schools, the teachers, and other external factors; Digitalizing education in higher education can offer numerous benefits, such as increasing engagement, improving accessibility, and enhancing learning outcomes. However, there are several factors that need to be considered to ensure the successful implementation of digital tools in education.

One key factor is teacher readiness and training. Teachers need to be adequately trained and prepared to effectively integrate digital tools into their teaching practices. A study by Ertmer and Ottenbreit-Leftwich (2010) found that teachers who received training in using technology in education were more likely to use technology effectively in their classrooms. Another factor to consider is the availability of infrastructure and technical support. Higher education need to have the necessary technological infrastructure, such as high-speed internet and up-to-date hardware and software, to support digital tools. In addition, technical support needs to be readily available to troubleshoot any issues that may arise. A study by Zhao and Frank (2003) found that schools with better technological infrastructure and support had higher levels of technology integration in their classrooms.

Another important factor is the accessibility and affordability of digital tools for students. Schools need to ensure that all students have access to the necessary digital tools, either through school-provided devices or through a bring-your-own-device policy. Additionally, schools need to consider the affordability of digital tools, especially for students from low-income backgrounds. A study by Warschauer and Matuchniak (2010) found that the availability and affordability of digital tools was key factor in determining the success of digital learning initiatives.

Finally, schools need to consider the privacy and security implications of using digital tools in education. Schools need to have policies and procedures in place to protect student data and ensure that digital tools are being used in a safe and secure manner. A study by Albers and Schaap (2017) found that privacy and security concerns were major barriers to the adoption of digital tools in education.

2.1.5. The digital materials needed for digital learning in higher education

These digital materials can offer various benefits for teachers, students, and schools, such as improved access to resources, personalized learning experiences, and increased engagement. However, it is important to note that digital materials should be used in a way that aligns with pedagogical goals and instructional design principles to ensure their effectiveness in promoting learning. The following are some of the digital materials:

(i) Learning Management Systems (LMS): These are digital platforms that allow teachers to create and manage online courses, assignments, and assessments. LMS can also provide communication tools, such as discussion forums and messaging, to facilitate collaboration between teachers and students. (Jung and Latchem, 2019)

(ii) Electronic Books (eBooks): eBooks are digital versions of printed books that can be accessed on computers, tablets, or e-readers. eBooks can be more cost-effective and accessible compared to traditional textbooks, and can also offer interactive features, such as multimedia content and quizzes. (Altbach and de Wit, 2017)

(iii) Educational Apps: Educational apps can provide interactive and engaging learning experiences for students, such as games, simulations, and quizzes. These apps can also provide personalized learning experiences based on student performance data. (Kumar and Kumar, 2020)

(iv) Online Databases: Online databases can provide access to academic journals, research papers, and other scholarly resources that can support teachers and students in their research and learning. (Brown, 2017)

(v) Video Conferencing Tools: Video conferencing tools, such as Zoom and Skype, can facilitate remote learning and virtual classrooms, allowing teachers and students to interact in real time regardless of location. (Kereluik et al., 2013)

For teachers, digital materials such as online learning management systems (LMS), video conferencing software, and digital whiteboards can be beneficial. Online LMS platforms such as Moodle, Blackboard, and Canvas provide a centralized platform for teachers to create, share, and manage digital learning materials. Video conferencing software such as Zoom, Skype, and Google Meet can be used for virtual classroom sessions and online discussions.

Digital whiteboards such as Microsoft Whiteboard and Google Jamboard can be used for collaborative brainstorming sessions and as visual aid during presentations.

For students, digital materials such as e-books, online learning resources, and educational apps can be helpful. E-books provide a convenient way for students to access textbooks and reference materials from anywhere and at any time. Online learning resources such as Khan Academy, Coursera, and edX provide access to free educational courses and materials. Educational apps such as Duolingo, Photomath, and Quizlet can help students practice and reinforce their learning.

For schools, digital materials such as high-speed internet connectivity, digital devices, and learning analytics software can be crucial. High-speed internet connectivity is necessary for online learning and digital communication between teachers and students. Digital devices such as laptops, tablets, and smartphones are essential for students to access digital learning materials and complete online assignments. Learning analytics software such as Brightspace Analytics and Moodle Learning Analytics can help schools analyze student data and performance to identify areas for improvement and optimize learning outcomes.

2.1.7. Indicators of the school learning performance

One important indicator of school learning performance is academic achievement, which can be measured by grades, test scores, and graduation rates (Harackiewicz, Canning, Tibbetts, Priniski, & Hyde, 2016). Another indicator is student engagement, which refers to the level of involvement and interest that students have in their learning (Appleton, Christenson, Kim, & Reschly, 2006). High levels of student engagement have been associated with positive outcomes, such as higher academic achievement, greater persistence, and an increased likelihood of graduating from higher education (Fredricks, Blumenfeld, & Paris, 2004).

In addition, school climate is an important indicator of school learning performance, as it can affect students' attitudes and behavior toward learning (Cohen, McCabe, Michelli, & Pickeral, 2009). A positive school climate is characterized by a sense of belonging, safety, and support for students and teachers (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013). Research has shown that a positive school climate is associated with higher levels of academic achievement, lower rates of absenteeism and disciplinary incidents, and greater engagement in school (Cohen et al., 2009; Thapa et al., 2013).

Teacher effectiveness is another important factor that can impact school learning performance. Effective teachers have been found to promote higher levels of academic achievement, engagement, and positive attitudes toward learning (Hattie, 2009). Moreover, teacher-student relationships are crucial for promoting a positive school climate and student engagement (Roorda et al., 2011).

School learning performance can be measured by a variety of indicators, including academic achievement, student engagement, school climate, and teacher effectiveness. These indicators are interconnected and can have a significant impact on student's academic success and well-being. Higher education that prioritizes these indicators and works to improve them is more likely to promote positive outcomes for its students.

2.1.8. The contribution of digital materials to the school performance in Higher education

Digital materials have been found to make a positive contribution to school performance, particularly in developing countries where access to educational resources is limited (Ally & Prieto-Blázquez, 2014). One study found that students who had access to digital materials such as e-books, online videos, and interactive simulations performed better on tests than those who did not have access (Chen & Jang, 2010). Digital materials also provide teachers with new ways to present information and engage students in learning (Hsin & Cigas, 2013). For example, teachers can use online quizzes and games to reinforce learning and provide immediate feedback to students (Zhao et al., 2016).

Digital materials also have the potential to improve access to education in developing countries by providing remote and marginalized communities with educational resources (UNESCO, 2017).

This is particularly important for students who may not have access to traditional educational resources, such as textbooks and libraries. By providing digital materials, schools can broaden their reach and ensure that all students have equal access to quality education (Ally & Prieto-Blázquez, 2014).

In addition, digital materials have the advantage of being easily updated and revised, which ensures that students have access to current and relevant information (Zhao et al., 2016). This is particularly important in fields such as science and technology, where information is constantly changing. By using digital materials, teachers can ensure that students have access to the most up-to-date information and are better prepared for future careers.

The integration of digital materials in Higher Education has contributed significantly to student learning and academic achievement. A study conducted by Al-Fahad and Al-Said (2015) found that the use of digital materials in Higher Education positively impacted student engagement, motivation, and learning outcomes. Digital materials such as e-books, educational software, and online learning platforms provide students with access to a vast amount of information, which allows for more personalized learning experiences. Teachers can also use digital materials to create interactive and engaging lessons that cater to the different learning styles of students (Brosnan & Deeney, 2013).

Furthermore, digital materials have made learning more accessible and convenient for students. With the use of digital materials, students can access learning materials from anywhere, at any time, as long as they have an internet connection. This accessibility has been especially important in developing countries where students may not have access to traditional learning materials (Saka & Kahveci, 2016). Additionally, digital materials can provide opportunities for students to engage in collaborative learning experiences with peers from different geographical locations (Bauer & Kenton, 2005).

In conclusion, the integration of digital materials in Higher Education has had a positive impact on student learning outcomes, engagement, and motivation. Digital materials have made learning more accessible and convenient for students, providing them with personalized learning

experiences and opportunities for collaborative learning. As such, the use of digital materials in Higher Education should continue to be encouraged and expanded upon to further enhance student learning outcomes.

2.1.9. The challenges and barriers faced by students, higher education, and teachers in integrating digital materials in the classroom

Integrating digital materials in the classroom can present challenges and barriers for students, teachers, and higher education institutions.

One of the main challenges is the digital divide, which refers to the unequal access to digital resources among students, particularly those from disadvantaged backgrounds (Warschauer & Matuchniak, 2010). This can result in students being left behind and not having access to the same educational opportunities as their peers.

Another challenge is the need for training and support for teachers in effectively integrating digital materials into their teaching practice (Kvavik, 2005). Many teachers may lack the necessary digital literacy skills and pedagogical knowledge to effectively integrate digital materials into their curriculum, resulting in ineffective use of technology in the classroom.

Additionally, the cost of digital materials and devices can be a significant barrier for students and institutions. Students may not be able to afford the necessary digital devices or materials required for their coursework, while institutions may face financial constraints in providing access to the required digital resources (Brown, 2017).

Furthermore, the lack of standardization and interoperability among digital materials and platforms can also present a challenge. Different digital materials and platforms may not be

compatible with each other, resulting in difficulty in sharing and accessing digital resources (Wiley & Hilton, 2018).

Finally, issues related to privacy and security can also be a barrier to the integration of digital materials in the classroom. Students and teachers need to be aware of the potential risks associated with sharing personal information and data online and take necessary precautions to protect their privacy and security (Selwyn, 2016).

2.1.10. The strategies to overcome the challenges and barriers faced in integrating digital materials in higher education.

To overcome the challenges and barriers faced in integrating digital materials in higher education, there are several strategies that can be implemented. One strategy is to invest in the necessary infrastructure and resources, such as reliable internet connectivity, computers, and devices (UNESCO, 2017). This can involve seeking funding from government sources or private organizations.

Another strategy is to provide ongoing teacher training and support, including professional development opportunities and access to resources and tools for the effective integration of digital materials (Chen & Jang, 2010). This can help to build teacher confidence and competence in using digital materials in their teaching practices.

To ensure accessibility for all students, including those with disabilities, digital materials should be designed with accessibility in mind, and teachers should be trained in how to support students with disabilities in using digital materials (Harrison & Lee, 2016). This can involve the use of assistive technologies and other tools to help students with disabilities access and engage with digital materials.

To address concerns about the quality and accuracy of digital materials, it is important to provide teachers with resources and training on how to evaluate and select high-quality digital materials (Zhao et al., 2016). This can involve partnering with organizations and experts in digital learning to provide guidance and support for teachers.

Finally, it is important to involve students in the process of selecting and using digital materials in the classroom. This can involve soliciting feedback from students on their preferences and needs, and involving them in the evaluation and selection of digital materials (Al-Fahad & Al-Said, 2015). By involving students in the process, they are more likely to be engaged and motivated in their learning.

In brief; by investing in infrastructure and resources, providing ongoing teacher training and support, ensuring accessibility for all students, addressing concerns about the quality and accuracy of digital materials, and involving students in the process, higher education can effectively overcome the challenges and barriers faced in integrating digital materials in the classroom and enhance student learning outcomes.

2.2. Theoretical Review

This section deals with theoretical literature whereby different theories and models, including the theories on digital materials and school learning performance, are reviewed such as social learning theory, technology acceptance theory, and self-determination theory.

2.2.1. Social learning theory

The Social Learning Theory, also known as Social Cognitive Theory, is a psychological theory developed by Albert Bandura in the 1970s. The theory posits that people learn by observing the

behavior of others and the consequences of those behaviors, rather than solely through their own direct experience. According to Bandura, social learning occurs through four key processes: attention, retention, reproduction, and motivation. Individuals first pay attention to the behavior of others, then retain that information in memory, reproduce the observed behavior, and are motivated to engage in the behavior based on the observed consequences.

Bandura also proposed the concept of self-efficacy or an individual's belief in their ability to successfully perform a particular behavior. This concept has been widely applied in various domains, including education, health, and business, to understand how individuals' beliefs about their own abilities influence their behavior.

Empirical evidence has supported the Social Learning Theory in various contexts. For example, a study by Joo, Bong, Choi, and Kim (2015) found that students' self-efficacy beliefs were positively associated with their academic performance. In another study by D'Abundo and Kolb (2018), the researchers found that incorporating social learning elements, such as modeling and feedback, in an online learning environment improved students' performance and engagement.

In the context of the present study on the contribution of digital materials to school learning performance in Higher Education, the Social Learning Theory may be useful in understanding how students learn through reciprocal teaching and interactions with others in the use of digital materials and their outcomes. Additionally, the concept of self-efficacy may be relevant in examining students' beliefs in their ability to effectively utilize digital materials for learning.

2.2.2. Technological acceptance model theory

The Technology Acceptance Model (TAM) was first introduced in the 1980s by Davis, Bagozzi, and Warshaw as a theoretical framework to explain users' acceptance and adoption of technology (Davis et al., 1989). The TAM is based on the assumption that the primary determinant of an individual's technology acceptance is their perceived usefulness (PU) and perceived ease of use (PEOU) of the technology (Davis, 1989).

Perceived usefulness refers to the degree to which a person believes that using a particular technology would enhance their job performance or personal life. Perceived ease of use, on the other hand, refers to the degree to which a person believes that using the technology would be effortless and easy to learn. These two constructs are hypothesized to directly affect users' attitudes towards using technology, which in turn affect their behavioral intention to use the technology (Davis et al., 1989).

Since its inception, TAM has undergone various revisions and adaptations. For instance, Venkatesh and Davis proposed an extension to the original TAM, known as TAM2, which included the addition of social influence factors such as subjective norms and image (Venkatesh & Davis, 2000).

Empirical studies have extensively tested the TAM and its various adaptations, and the model has been found to be highly predictive of users' technology acceptance and adoption behavior (Venkatesh & Bala, 2008). For instance, studies have found that perceived usefulness and perceived ease of use significantly influence users' attitudes towards using technology, which in turn affect their intention to use the technology (Davis et al., 1989; Venkatesh & Bala, 2008).

Additionally, several studies have found that the TAM is a useful model for predicting technology adoption in educational settings (Chen & Li, 2010; Wang et al., 2013).

The TAM has also been used in various fields, including healthcare, business, and e-commerce, to understand users' technology acceptance and adoption behavior (Venkatesh & Bala, 2008). For instance, the TAM has been used to understand patients' acceptance of telemedicine technologies (Chen et al., 2011), employees' acceptance of enterprise resource planning (ERP) systems (Shih & Huang, 2009), and consumers' acceptance of online shopping platforms (Pavlou & Fygenson, 2006).

In conclusion, the Technology Acceptance Model has been widely used to understand users' technology acceptance and adoption behavior. The model's emphasis on perceived usefulness and perceived ease of use as key determinants of technology acceptance have been found to be highly predictive of users' behavior. Given the increasing reliance on digital materials in Higher Education, the TAM may be a useful framework to understand students' acceptance and adoption of such materials (Davis et al., 1989; Chen & Li, 2010; Wang et al., 2013). The Technology Acceptance Model (TAM) can be applied to understand students' acceptance and adoption of digital materials in Higher Education. The TAM emphasizes the importance of perceived usefulness and perceived ease of use in determining users' attitudes and intentions toward using technology. In the context of Higher Education, students' perceptions of the usefulness and ease of use of digital materials are likely to play a key role in their adoption and use of these materials.

By using the TAM as a framework, researchers can identify the factors that influence students' perceptions of digital materials, such as their perceived relevance to their studies and their ease of use in accessing and using the materials. This information can then be used to design digital

materials that are more appealing and user-friendly for students, thus increasing their adoption and use in Higher Education.

Moreover, understanding students' acceptance and adoption of digital materials can also inform policies and practices related to technology integration in higher education. For instance, if students' perceptions of digital materials are found to be negatively impacted by a lack of access to reliable technology or insufficient training, then policies can be developed to address these issues and improve students' experiences with digital materials. Overall, the TAM provides a useful framework for understanding and improving students' acceptance and adoption of digital materials in higher education.

2.2.3. Self-determination theory

Self-determination theory (SDT) is a motivational theory that proposes that humans have innate psychological needs for autonomy, competence, and relatedness and that fulfilling these needs is essential for promoting intrinsic motivation and well-being (Ryan & Deci, 2000). According to SDT, individuals are inherently motivated to pursue activities that fulfill these needs, and they will experience greater well-being and satisfaction when they are able to do so.

SDT distinguishes between intrinsic motivation, extrinsic motivation, and motivation. Intrinsic motivation refers to behaviors that are performed because they are inherently interesting or enjoyable, while extrinsic motivation refers to behaviors that are performed in order to attain some external outcome, such as a reward or avoiding punishment. Motivation refers to a lack of motivation altogether (Ryan & Deci, 2000).

One of the key features of SDT is the concept of autonomy, which refers to the degree to which individuals feel that they have control over their own behavior and are acting according to their

own values and interests. SDT proposes that autonomy is essential for intrinsic motivation and that individuals are more likely to engage in behaviors that they perceive as autonomous. Competence, another key concept in SDT, refers to the degree to which individuals feel capable of performing a given task or activity. Relatedness, the third psychological need proposed by SDT, refers to the degree to which individuals feel connected to others and have a sense of belongingness.

SDT has been applied to various domains, including education, healthcare, sports, and work. Studies have found that when individuals feel autonomous, competent, and connected to others, they are more likely to engage in behaviors that promote their well-being, such as engaging in physical activity, eating healthily, and seeking medical care when needed (Ryan & Deci, 2017). In educational settings, SDT has been used to understand students' motivation for learning and their academic achievement. Research has found that students who feel more autonomous and competent are more likely to engage in academic tasks and perform better in school (Deci et al., 1999).

Self-determination theory (SDT) emphasizes the importance of psychological needs, such as autonomy, competence, and relatedness, for promoting intrinsic motivation and well-being. In the context of higher school education, the use of digital materials may impact students' satisfaction with these needs, thereby affecting their motivation and performance. For example, digital materials that provide students with greater autonomy in their learning, such as online discussion forums or personalized learning platforms, may enhance their sense of control and ownership over their learning, and increase their intrinsic motivation. Similarly, digital materials that promote competence, such as interactive simulations or multimedia presentations, may enhance students' confidence and self-efficacy, and increase their engagement and performance.

Finally, digital materials that facilitate related-ness, such as collaborative tools or social media platforms, may enhance students' sense of belonging and connectedness with their peers and teachers, and increase their satisfaction and motivation. Therefore, SDT provides a useful framework for understanding the contribution of digital materials on students' motivation and performance in Higher Education.

2.3. Empirical review

Nieto-Márquez et al. (2020) assessed the effects of digital educational materials on executive function performance. Their study found that the use of digital educational materials positively impacted executive function, specifically in terms of cognitive flexibility, working memory, and inhibition. The study also highlights the potential of digital educational materials in improving executive function, which is an essential aspect of academic success.

Lin et al. (2017) investigated the effects of digital learning on learning motivation and learning outcomes. The results indicated that digital learning positively affected learning motivation and learning outcomes. The study emphasizes the importance of incorporating digital learning into educational settings, as it has the potential to enhance students' motivation and performance.

Mary et al. (2019) conducted a study on the policies, practices, trends, and recommendations for using ICTs in secondary education in sub-Saharan Africa. Their study revealed that ICTs have the potential to improve education quality and access in the region. However, the study also highlighted various challenges, such as inadequate infrastructure, limited access to technology, and insufficient teacher training, that need to be addressed to fully realize the potential of ICTs in education.

Alderete and Formichella (2017) explored the effect of ICTs on academic achievement in the context of the Conectar Igualdad program in Argentina. The findings indicated that the use of ICTs had a significant positive effect on students' academic achievement. Specifically, students who had access to ICTs through the program had higher average scores in Language and Mathematics than those who did not have access to such technologies. The study provides insights into the potential of ICTs to enhance students' academic achievement.

Almahasees, Mohsen, and Amin (2021) investigated the perceptions of faculty and students regarding online learning during the COVID-19 pandemic. The study employed a survey design and involved a sample of 88 faculty members and 617 students from a university in Jordan. The findings revealed that both faculty and students had positive perceptions of online learning. The study also identified several challenges and barriers to online learning, including lack of technical support, poor internet connectivity, and difficulties in maintaining student engagement. The study reiterates the need for appropriate support and resources to facilitate effective online learning.

Aslam and Saeed (2022) examined the effect of digitized textbooks on secondary school students' domains of learning. The study involved a sample of 200 students and was conducted using a quasi-experimental design. The findings indicated that the use of digitized textbooks had a significant positive impact on students' cognitive, affective, and psychomotor domains of learning. Specifically, students who were exposed to digitized textbooks performed significantly better in terms of knowledge acquisition, attitude, and practical skills than those who were taught using traditional printed textbooks. The study highlights the potential of digitized textbooks to enhance students' domains of learning.

Asrowi, Hadaya, and Hanif (2019) conducted a study to investigate the impact of interactive e-books on students' learning outcomes. The study involved 50 students in a Malaysian university who were divided into two groups: a control group that used traditional textbooks and an experimental group that used interactive e-books. The results showed that the experimental group outperformed the control group in terms of content knowledge, critical thinking skills, and problem-solving skills. The researchers concluded that the use of interactive e-books can enhance students' learning outcomes compared to traditional textbooks.

Youssef and Dahmani (2008) conducted a study to examine the impact of ICT on student's academic performance in higher education in Tunisia. The study used data from a survey of 546 students from six public universities. The results showed that the use of ICT had a direct positive effect on students' academic performance, as well as an indirect effect through the mediating variables of perceived usefulness and perceived ease of use. The researchers concluded that the use of ICT can improve students' academic performance in higher education.

Bergdahl, Nouri, and Fors (2020) conducted a study to explore the relationship between digital skills, engagement, and disengagement in technology-enhanced learning. The study involved 98 Swedish university students who completed a survey on their digital skills, engagement, and disengagement in online courses. The results showed that students' digital skills were positively related to their engagement and negatively related to their disengagement in technology-enhanced learning. The authors concluded that developing students' digital skills can enhance their engagement and reduce their disengagement in online courses.

Bidin, Shuhidan, and Sahid (2022) conducted a study to investigate the effect of digital literacy on academic performance among secondary school students in Malaysia. The study involved 217 students from three secondary schools who completed a survey on their digital literacy and

academic performance. The results showed that digital literacy had a significant positive effect on students' academic performance, with information literacy being the most important dimension. The authors concluded that developing students' digital literacy can improve their academic performance in secondary school.

Uden, Sulaiman, and Lamun's (2022) study investigated the factors influencing students' attitudes and readiness toward active online learning in physics in Malaysia. The findings indicated that students' attitudes toward active online learning were positively influenced by their perceived ease of use, perceived usefulness, and perceived learning benefits. Additionally, the study found that students' readiness for active online learning was positively influenced by their self-efficacy, prior online learning experiences, and technology acceptance.

Blayone et al. (2018) conducted a study to investigate the digital readiness of higher education students for transformative online learning in the post-soviet nations of Georgia and Ukraine. The findings revealed that students in these nations were not fully digitally ready for online learning.

The study found that students lacked access to reliable internet, digital devices, and digital literacy skills. The authors recommended that policymakers and higher education institutions should invest in digital infrastructure, provide training on digital literacy skills, and ensure equal access to digital devices and the internet.

Broadbent (2017) compared the self-regulated learning strategies and academic performance of online and blended learners. The findings revealed that online learners reported using more self-regulated learning strategies than blended learners. However, there was no significant difference in academic performance between the two groups. The study suggested that online learners need

to be more self-regulated in their learning, and online courses should be designed to promote self-regulated learning.

Chen and Su (2019) investigated the effectiveness of using the Book Roll e-book system to promote self-regulated learning, self-efficacy, and academic achievement for university students. The findings indicated that using the Book Roll system was effective in improving students' self-regulated learning and self-efficacy. However, there was no significant improvement in academic achievement. The study recommended that e-book systems should be integrated with instructional support to promote academic achievement.

González, Ponce, and Fernández, (2023); conducted a study titled “Teachers’ experiences of teaching online during COVID-19: implications for post-pandemic professional development.” The article presents the experiences of teachers who had to switch to online teaching during the COVID-19 pandemic. The authors discuss the challenges faced by teachers and provide recommendations for post-pandemic professional development. The article can be useful for educators and policymakers who are looking to improve online teaching and professional development.

Haleem, et al., (2022), Conducted a study titled “Understanding the role of digital technologies in education: A review.” The study provides a comprehensive review of the literature on the role of digital technologies in education. The researchers discuss the various types of digital technologies used in education, their impact on student learning outcomes, and the challenges and opportunities associated with their use. The study can be useful for educators and policymakers who are looking to understand the role of digital technologies in education and their potential for enhancing student learning outcomes.

Harris, Al-Bataineh, and Al-Bataineh (2020) study revealed that students who used one-to-one technology showed an increase in academic achievement and motivation compared to those who did not. Teachers who used one-to-one technology in their teaching reported an increase in student participation, engagement, and collaboration.

Heilporn, Lakhal, and Bélisle (2021) explored teachers' strategies to foster student engagement in blended learning in higher education. The study found that a combination of synchronous and asynchronous learning activities, clear instructions, and the use of various multimedia resources contributed to higher levels of student engagement. Teachers who adopted these strategies reported a positive impact on student motivation, satisfaction, and academic performance.

Juma'h et al., (2020) investigated the effectiveness of technology integration on students' motivation and engagement during COVID-19 from teachers' perspectives. The study revealed that the use of technology, such as online platforms and digital resources, positively impacted student motivation, engagement, and learning outcomes. Teachers who used technology in their teaching reported an increase in student participation, collaboration, and creativity.

Monserate (2018) conducted a study on the impact of technology on the academic performance of students and teaching effectiveness. The study found that technology has a positive impact on students' academic performance, and teachers who use technology in their teaching are more effective in facilitating student learning.

Morgan (2013) explored the impact of technology on teaching and learning. The study found that technology can enhance teaching and learning, as it provides opportunities for more engaging and interactive learning experiences. However, it is important to consider the appropriate use of technology to maximize its benefits.

Mugiraneza (2021) investigated digitalization in teaching and education in Rwanda, with a focus on the future of work and the teaching profession project. The report highlights the potential benefits of digitalization in education, including increased access to educational resources and more personalized learning experiences. However, the report also emphasizes the need to address challenges such as the digital divide and the need for adequate teacher training.

Muthuprasad et al. (2021) studied students' perceptions and preferences for online education in India during the COVID-19 pandemic. The study found that most students preferred online education, as it provided more flexibility and convenience. However, students also faced challenges such as poor internet connectivity and a lack of interaction with peers and teachers.

Ndayambaje and Ngendahayo (2014) explored the use of computer-based instructions to enhance Rwandan secondary school teachers' ICT competency and continuous professional development. The study found that computer-based instructions can be an effective tool for teacher training and professional development, leading to improved ICT competency and teaching effectiveness.

Ninsiana et al. (2022) conducted a study on the attitudes of Higher Education students toward e-learning and the impact of online instruction on their general English learning. The study found that while students generally had positive attitudes toward e-learning, there were challenges and issues such as the need for adequate infrastructure, technical support, and learner motivation. The study also found that online instruction had a significant positive impact on students' general English learning.

Njambi et al. (2018) investigated the effect of a digital learning program on academic performance in public primary schools in Kenya. The study found that the program had a

positive effect on students' academic performance, particularly in English, mathematics, and science subjects.

Nkurunziza and Ngendabanga (2022) conducted a study on the effect of smart classrooms on learners' performance in chemistry at selected secondary schools in the Kicukiro district, Rwanda. The study found that the use of smart classrooms had a positive effect on students' performance in chemistry, particularly in terms of students' understanding of difficult concepts and their ability to retain and apply the knowledge gained.

Nsekandizi et al. (2020) investigated the use of ICT resources and teachers' performance in government-aided secondary schools in Rwanda. The study found that while the use of ICT resources had a positive effect on teachers' performance, there were challenges such as inadequate infrastructure, limited access to resources, and lack of technical support.

Nyaga (2016) conducted a study on the influence of the utilization and design of curriculum digital content on the biology instructional process among secondary schools in Nairobi County, Kenya. The study found that the use of digital content in biology instruction had a positive effect on students' motivation, engagement, and understanding of the subject matter. However, there were challenges such as limited access to digital content and inadequate teacher training on the use of digital resources.

Pate (2021) investigated the effect of digital learning on the academic achievement of secondary school students. The study was conducted in Nigeria, where secondary school students were randomly selected and divided into two groups: an experimental group and a control group. The experimental group received digital learning using educational software, while the control group was taught using traditional face-to-face teaching methods. Results indicated that the

experimental group had higher academic achievement than the control group. The findings suggested that digital learning can improve the academic achievement of students.

Tunmibi, Aregbesola, Adejobi, and Ibrahim's (2015) study investigated the impact of e-learning and digitalization on primary and secondary schools in also Nigeria. The study found that teachers reported positive attitudes towards e-learning and digitalization, with the majority indicating that these tools enhance teaching and learning processes. Additionally, the study found that e-learning and digitalization can improve students' learning outcomes and engagement.

Pinto and Leite (2020) conducted a literature review on the use of digital technologies to support student learning in higher education. The findings indicated that digital technologies can support student learning in various ways, such as providing access to learning resources, facilitating collaboration and communication, and promoting active learning. However, the study also highlighted some challenges associated with the use of digital technologies, such as technical issues, the digital divide, and the lack of digital skills among students and teachers.

Raheem et al., (2021) investigated the impact of ICT on the academic achievement of students. The study was conducted in Pakistan, where students from three different universities were surveyed. The findings indicated that ICT has a positive impact on the academic achievement of students. The study also highlighted the importance of ICT in promoting student engagement, motivation, and active learning.

Stark (2019) examined the role of motivation and learning strategies in student success in online versus face-to-face courses. The findings indicated that online students had lower motivation and used less effective learning strategies than face-to-face students. However, the study also found that motivation and learning strategies were stronger predictors of student success in online

courses than in face-to-face courses. The study suggested that online instructors should provide students with effective strategies to enhance their motivation and learning in online courses.

Topping, Douglas, and Robertson's (2020) scoping review aimed to investigate the effectiveness of online and blended learning in schools. The review found that online and blended learning had positive effects on students' academic achievement, attitudes, and engagement. Additionally, the review found that online and blended learning can be particularly effective in improving the academic achievement of disadvantaged students.

Utami (2018) conducted a study to investigate the effect of blended learning on senior Higher Education students' achievement. The study used a pre-test and post-test design to compare the academic achievement of students who received blended learning with those who did not. The results showed that students who received blended learning had higher academic achievement than those who did not, indicating that blended learning can be an effective approach to improving student achievement.

Van-Den, et al., (2020) conducted a literature review to understand social media use in the classroom. The authors analyzed existing studies to examine how social media is being used in educational settings, the benefits and challenges of its use, and the factors that influence its adoption. The review found that social media can support collaborative learning, student engagement, and communication among students and between students and teachers. However, concerns were raised about privacy, distraction, and the need for guidelines and policies to govern social media use in education.

Wallace, Scanlon, and Calderón (2022) investigated digital technology use and teacher digital competency in physical education from both teacher and student perspectives. The study used

qualitative methods to gather data from both teachers and students through interviews and surveys. The findings indicated that the use of digital technology can support student learning and engagement, but teacher digital competency was a critical factor in the successful implementation of digital technology in physical education.

Wallet and Kimenyi (2019) explored the potential of mobile learning to improve the quality and relevance of education in Rwanda. The study reviewed existing literature and analyzed the implementation of mobile learning initiatives in Rwanda. The findings indicated that mobile learning has the potential to improve access to education, quality of learning, and teacher professional development, but challenges such as inadequate infrastructure and funding need to be addressed for successful implementation.

Yang and Cornelius (2004) conducted a qualitative study to investigate students' perceptions of the quality of online education. The study used focus groups to gather data from undergraduate and graduate students about their experiences with online courses. The findings indicated that students valued the flexibility and convenience of online courses, but they also expressed concerns about the lack of interaction with instructors and peers, the quality of instructional materials, and technical issues.

Passey (2013) discusses the challenges and strategies for inclusive technology-enhanced learning, including how to overcome cognitive, physical, emotional, and geographic barriers. The book highlights the importance of considering individual differences in learners when designing and implementing technology-enhanced learning environments.

Çobanoğlu (2017) conducted a study on student teachers’ satisfaction with blended learning using the Edmodo learning management system. The study found that the use of Edmodo in

blended learning was effective in promoting communication, interaction, and collaboration among student teachers, and the majority of the participants reported high levels of satisfaction with the platform.

Youngers (2014) examines the effectiveness of blended learning on student engagement. The study found that blended learning, which combines traditional face-to-face instruction with online learning, was more effective than traditional classroom instruction alone in promoting student engagement. The author concludes that blended learning can provide a more flexible and interactive learning experience for students.

Youssef, Dahmani, and Ragni (2022) explore the relationship between ICT use, digital skills, and students' academic performance. The study found that students with higher levels of ICT use and digital skills had better academic performance than those with lower levels.

The authors suggest that digital skills and ICT use should be integrated into education to reduce the digital divide and improve students' academic performance.

Alshehri (2021) investigates the effectiveness of e-books in improving academic performance and attitudes toward mathematics. The study found that e-books were effective in improving students' academic performance and attitudes toward mathematics. The author suggests that e-books can be a useful tool to enhance teaching and learning in mathematics.

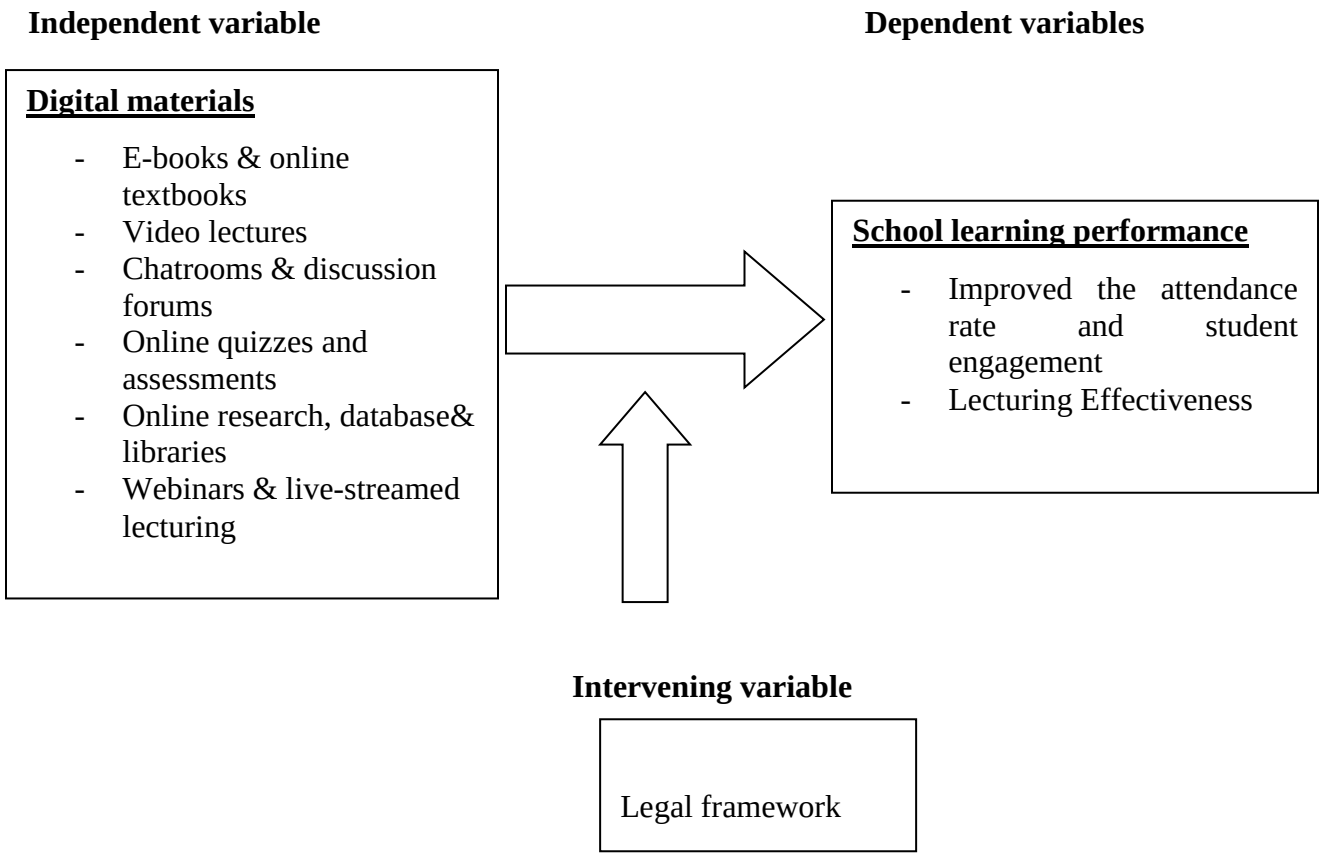
Pinto and Leite (2020) conducted a literature review on the use of digital technologies to support student learning in higher education. The authors examined studies published in the Web of Science (WoS) and Scopus databases and identified four main themes: (1) the impact of digital technologies on student learning outcomes, (2) the use of digital technologies to enhance student engagement and motivation, (3) the role of digital technologies in promoting collaboration and

knowledge sharing, and (4) the challenges and barriers associated with the use of digital technologies in higher education. The authors found that digital technologies can have a positive impact on student learning outcomes and engagement, but their effectiveness depends on how they are used and integrated into teaching practices. The review also identified several challenges, including the need for faculty training, access to technology, and concerns about digital distraction and overload.

2.4. Conceptual framework

The following figure provides the conceptual framework of the study as it consists of independent, dependent, and intervening variables.

Figure 1: Conceptual framework



Source: Elaborated by Researcher, 2023

In this context, the independent variable, digital materials encompassing e-books, video lectures, chatrooms, online quizzes, research resources, and webinars, directly influences the dependent variable, school learning performance, which is measured by improved attendance rates, increased student engagement, and enhanced lecturing effectiveness. The intervening variable, the legal framework, acts as a moderating factor, potentially shaping the contribution of digital materials on learning outcomes, as it dictates the rules, regulations, and policies that govern the use and integration of these materials in the educational setting. The legal framework can either facilitate or impede the effectiveness of digital resources in enhancing school learning performance, depending on its alignment with educational goals and adaptability to the digital age.

2.5. Research gap

After reviewing the empirical evidence, it is clear that there is a significant amount of research on the contribution of digital materials on student learning performance. However, there is a gap in the literature specifically on the effects of digital materials on Higher Education students in Liberia. Most of the studies reviewed focused on universities including (Youssef and Dahman, 2008), who focused on the Tunisia universities; (Asrowi, Hadaya, and Hanif, 2019) focused on Malaysia universities; and last not least (Bergdahl, Nouri, and Fors, 2022) focused on Swedish universities and few studies were conducted in other countries including (Pete, 2021; Ndayambaje and Ngendahayo, 2014) that focused on Nigeria and Rwanda respectively. Therefore, there is a need for more research in this area to determine the specific impact of digital materials on Higher Education students in Liberia.

Furthermore, while the studies reviewed showed the positive effects of digital materials on student learning outcomes, there is a need for more research on the long-term effects of digital materials on student retention and academic success. Additionally, few studies addressed the potential negative effects of digital materials, such as increased screen time and decreased social interaction, and more research is needed to understand the potential drawbacks of using digital materials in the classroom. Overall, while there is a substantial body of research on the contribution of digital materials to student learning, further research is necessary to better understand the specific impact on Higher Education students in Liberia and to identify potential drawbacks associated with the use of digital materials.

CHAPTER 3: RESEARCH METHODOLOGY

Introduction

This chapter presents the methodology that is being adopted in order to conduct the study in a scientific-based way. It consists of research design, target population, sample size, and sampling techniques. It also consists of data collection techniques, validity and reliability measurements, data processing, data analysis, ethical considerations, and limitations of the study.

3.1. Research design

A research design referred to the overall strategy or plan that was used to address a research problem or question. It outlined the procedures that were followed to collect and analyze data and specified the methods that were used to draw conclusions about the research question or hypothesis. According to Creswell (2014), a research design is a plan, structure, and strategy of investigation Similarly, Babbie (2016) defines research design as the blueprint for fulfilling research objectives or testing research hypotheses. Under the research design and overall research framework, types of research and research strategy are clarified.

Regarding the research types, this study was a mixed approach. As mixed methods research is defined as a research approach that combined elements of both qualitative and quantitative research in a single study or research program. It involved collecting, analyzing, and integrating both quantitative and qualitative data in a way that enabled the strengths of each approach to compensate for the limitations of the other (Creswell and Plano Clark, 2018).

Regarding the research strategy, the researcher adopted the case study research strategy. According to Yin (2014), a case study strategy is a research design that investigated a

phenomenon within its real-life context. It was particularly useful when the boundaries between the phenomenon and context were not clearly evident, and when multiple sources of evidence were required to answer the research questions. In this study, the Monrovia Bible College was used as a case study to investigate the contribution of digital materials to students' learning performance in higher education. The case study approach allowed for an in-depth examination of the phenomenon in its context and the use of multiple sources of evidence to answer the research questions.

3.2. Target population of the study

According to Creswell (2014), the target population is the entire group of individuals or objects to which the researcher is interested in generalizing the research findings. In this study, the target population was the students, teachers, and school administration of Monrovia Bible College who were directly involved in the integration of digital materials in the classroom. In the following table, the target population is presented in more detail.

Table 1: Target Population

N/A	Description	Number
1.	Students	1 464
2.	Lecturers	79
3.	School administration	26
	Total	**1 569**

Source: Primary data, 2023

3.3.Sample size

The sample size was the number of individuals or units that were included in the study from the target population. According to Sekaran and Bougie (2016), the sample size was determined

based on the research purpose, the level of precision required, and the resources available. In this study, the researcher used the Yamane formula to calculate the sample size.

The Yamane formula is expressed as:

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

Where, n = sample size; N= the target population, and e = the margin error which is assumed to be 5% (0.05) in this case;

To make sure every stratum is represented in the sample, the researcher calculates the sample per sub-group that compose the target population.

Regarding the calculation of the sample size of the students,

$$\mathbf{n}= \frac{1464}{1+1464(0.05)2}$$

$$\mathbf{n}= 314.16 \sim 314$$

Regarding the calculation of the sample size of the lecturers;

$$\mathbf{n}= \frac{79}{1+79(0.05)2} = 65.97 \sim 66$$

Regarding the calculation of the sample size of the school administration,

$$\mathbf{n}= \frac{26}{1+26(0.05)2} = 24.41 \sim 24$$

Table 2: Sample size

N/A	Description	Sample size
1.	Students	314
2.	Lecturers	66
3.	School administration	24
	Total	**404**

Source: Primary data, 2023

3.4. Sampling technique

Sampling techniques refer to the methods used to select a subset of individuals or units from a larger population. In selecting the sample, the researcher used stratified random sampling techniques.

Stratified random sampling is a technique used in research to ensure that sub-groups of a population are represented proportionally in the sample. This technique involves dividing the population into sub-groups, or strata, based on relevant characteristics, such as age, gender, or socioeconomic status. Samples are then randomly selected from each stratum in proportion to the size of that stratum in the population. This ensures that the sample is representative of the population and can produce accurate and reliable results.

3.5. Data collection techniques

The following highlights the data collection techniques were used in collecting the data from the respondents.

3.5.1. Interview

According to Punch (2014), an interview is a purposeful discussion between two or more people, in which one person (the interviewer) elicits information from the other person or people (the interviewee or interviewees). In this study, face-to-face and online interviews were conducted with teachers, school administrators, and students using a semi-structured interview guide developed by the researcher.

3.5.2. Questionnaire

According to Babbie (2016), a questionnaire is "a set of written questions that are administered to a sample of respondents." In this study, a closed-ended questionnaire in the form of a five-Likert scale was used to collect data from all respondents, including teachers, school administrators, and students. The questionnaire included questions that were focused on assessing the progress of integrating digital materials in higher education, evaluating the contribution of digital materials to students' performance, and identifying challenges and barriers to the successful integration of digital materials in classrooms. However, the questionnaire was administered to the respondents physically.

3.5.3. Documentation

Documentation refers to the use of existing records or documents as a source of data in research (Creswell, 2014). In this study, the researcher used government reports and other existing literature as a form of documentation to gather information related to the integration of digital materials in higher education in Liberia.

3.6.Data processing

Data processing was a crucial step in the research as it helped to transform raw data into meaningful information. In this study, data processing involved data editing, coding, and tabulating. After collecting the data, it was edited to check for completeness and accuracy. Then, the data was coded, which involved assigning numerical codes to the different responses.

Finally, the data was tabulated and analyzed using the Statistical Package for Social Sciences (SPSS) software. SPSS was a widely used software for statistical analysis, and it enabled the researcher to perform various analyses, such as descriptive statistics, correlation analysis, and regression analysis.

3.7.Validity and reliability measurement

Validity refers to the extent to which a research study measures what it intends to measure. In other words, it is the accuracy of the research findings (Creswell, 2014). To check for validity in this study, the researcher used multiple sources of data such as interviews, questionnaires, and document analysis, which were triangulated to ensure the accuracy and consistency of the findings.

Reliability, on the other hand, refers to the consistency and stability of research findings. It is the extent to which the research produces the same results when conducted multiple times under the same conditions (Creswell, 2014). In this study, reliability was ensured by conducting pilot testing of the interview and questionnaire guides on a small group of participants to identify any potential issues and refine the questions accordingly.

3.8. Data analysis

The data collected were analyzed using descriptive statistics such as frequency and percentage. The statistical software package, SPSS, was used to analyze the data. The analysis involved checking for missing values, outliers, and inconsistencies. The results were presented in tables and graphs for easy interpretation. The criteria for evaluating the results were based on the research questions and objectives and involved comparing the findings with existing literature and theories.

The criteria for evaluating the results depended on the research questions and objectives of the study. The quantitative results were evaluated based on the statistical significance of the findings, while the qualitative results were evaluated based on the themes and patterns that emerged from the analysis. The combination of quantitative and qualitative analysis provided a more comprehensive understanding of the implications of digital materials in higher education and allowed for a more nuanced interpretation of the data.

3.9.Ethical consideration

In conducting this study, several ethical considerations were followed to ensure the protection and respect of human subjects. These included obtaining informed consent from all participants, ensuring confidentiality and anonymity of their information, and avoiding any harm or discomfort during the data collection process. The researcher also sought ethical clearance from the institutional review board of Monrovia Bible College and complied with all relevant regulations and guidelines. Ethical considerations were an integral part of the research process, and the researcher took appropriate measures to ensure that the study was conducted with the utmost professionalism and integrity.

3.10. Limitations of the study

The study encountered several limitations. First, the collection of data online and virtually posed challenges, including potential issues with participant engagement and technological barriers. Second, financial constraints limited the extent of data collection and analysis, potentially impacting the depth of insights gained. Third, there was a shortage of available literature and documentation on the specific topic of digital materials in the context of Liberian higher education. To mitigate these limitations, efforts were made to foster participant engagement through clear communication and support. Additionally, the study made the most of available resources within budget constraints, and researchers supplemented the limited literature with insights from interviews and other primary data sources to address research objectives.

CHAPTER 4: PRESENTATION AND DISCUSSION OF THE FINDINGS

Introduction

This chapter presents the findings collected from the respondents which were the students of Monrovia Bible College, the university lecturers, and the university administrators. The total number of respondents that were reached was 404 and the data were collected online using the Google survey website simply known as Google Form. The findings are presented, interpreted and also discussed with the support with the existing literatures that align with the findings. And in some of the tables the testimonies from the respondents are presented as well.

This chapter consists of four sections which are the demographic identification of the respondents, the status of integrating digital materials in Monrovia Bible College, the contribution of integrating digital materials in the improvement of students' performance at Monrovia Bible College; and the last section is about the challenges and barriers students and higher education faces in integrating digital materials into the classroom in Monrovia Bible College.

4.1. Demographic identification of the respondents

In this section, the demographic identification of the respondents is presented and discussed, shedding light on essential attributes that provide a comprehensive understanding of the study participants. This section encapsulates a multifaceted view of the respondents, encompassing their age, gender, marital status, disability status, the duration of their studies at Monrovia Bible College, as well as their academic level and specific academic programs pursued within the university. Through this detailed demographic analysis, we aim to establish a foundational context for the subsequent data analysis, interpretation, and discussion, enabling a more nuanced

exploration of the contribution of digital materials on their learning performance in higher education at Monrovia Bible College.

Table 3: Demographic identification of the respondents

Items	**Number of respondents**	**Percentage**
Age		
16 – 20 years old	28	6.9%
21 – 25 years old	84	20.8%
26 – 30 years old	140	34.7%
31 – 35 years old	98	24.3%
More than 35 years old	54	13.4%
Total	**404**	**100.0**
Sex		
Male	210	52%
Female	194	48%
Total	**404**	100.0
Marital status		
Single	308	76.2%
Married	96	23.8%
Total	**404**	**100.0**
Do you have any disability		
Yes	5	1.23
No	399	98.76
Total	**404**	**100.0**
Year(s) you have been studying at Monrovia Bible College		
1	84	20.8
2	56	13.9
3	70	17.3
4	98	24.3

5	54	13.4
More than 5	42	10.4
Total	**404**	**100.0**
Academic program		
Theology	70	17.3
Religious education	14	3.5
School administration	28	6.9
Primary education	14	3.5
Secondary education	14	3.5
Accounting	42	10.4
Management	13	3.2
Public administration	84	20.8
Economic	14	3.5
Professional nursing	69	17.1
Public health	42	10.4
Total	**404**	**100.0**
Academic level		
Level I	42	10.4
Level II	69	17.1
Level III	83	20.5
Level IV	126	31.2
Level V	84	20.8
Total	**404**	**100.0**

Source: Field data, 2023

4.1.1. Age of the respondents

Table 3 shows that, on the age of the respondents, 6.9% of the respondents are between 6 and 20 years old, 20.8% of the respondents are between 21 and 25 years old, 34.7% of the respondents are between 26 and 30 years old, while 24.3% and 13.4% of the respondents are between 3 and 35 years old and more than 35 years old respectively.

An impressive majority, comprising more than 60% of the participants, falls below the age of 30. This demographic skew towards younger students (those aged 30 and below) holds paramount significance. It suggests that the majority of Monrovia Bible College students engaged in this study are positioned within an age range characterized by heightened digital fluency, typically cultivated in today's technology-driven environment. This predisposition towards digital comfort can profoundly impact their receptiveness and utilization of digital materials in their academic pursuits. Younger learners are often more adept at navigating digital platforms, potentially affording them a distinct advantage in harnessing the benefits of digital resources for their learning. However, it also implies the presence of a minority of mature students (13.4% older than 35), who may approach digital learning differently due to potential differences in technology exposure and preferences.

4.1.2. Sex of the respondents

Table 3 shows that 52% of the respondents are Male while 48% of the respondents are Female. This nearly equal gender distribution is an essential observation, suggesting a relatively balanced representation of both genders among the study participants. Such a balanced gender ratio could have implications for how digital learning materials are designed and implemented, as it

underscores the importance of ensuring inclusivity and catering to the diverse needs and preferences of both male and female students within Monrovia Bible College.

4.1.3. Marital status of the respondents

Table 3 shows that 76.2% of the respondents are single while 23.8% of the respondents are married. Table 3 underscores a noteworthy demographic aspect by revealing that 76.2% of the respondents are single, with the remaining 23.8% identifying as married.

This distribution implies that a significant majority of Monrovia Bible College students at the time of the study were unmarried, possibly indicating greater flexibility in their time and commitments to engage with digital materials for learning. And lastly the findings presented capture the logic as the majority of the university students in Liberia in general are single.

4.1.4. Disability status of the respondents

The data presented in Table 3 provides a striking insight into the disability status of the respondents, with a significant majority, constituting 98.76% of the participants, reporting no disability, while a minimal 1.23% indicated having a disability. This marked difference in disability prevalence within the study population holds considerable significance for our research.

The overwhelmingly non-disabled majority suggests that, in the context of Monrovia Bible College, the vast majority of students do not face physical or cognitive limitations that may affect their access to and utilization of digital materials for learning. This, in turn, raises questions about the institution's accessibility policies and the extent to which digital resources are inclusive for all students or the designed digital materials will suits the disabled students near

future as they are not mostly not included. But the findings capture the reality as in the university in Liberia they are not many people with disabilities.

4.1.5. Years respondents spends at Monrovia Bible College

Table 3 shows that, 20.8% of the respondents is their first year in the university, 13.9% of the respondents is their second year, 17.3% of the respondents is their third year, and 24.5%, 13.4% , and 10.4% of the respondents is their fourth, fifth and more than fifth years in the university respectively.

The findings indicate a significant portion, representing 20.8% of the respondents, are in their first year, reflecting a cohort of relatively new students just embarking on their higher education experience. Meanwhile, 13.9% are in their second year, 17.3% in their third year, and 24.5% in their fourth year, indicating a substantial representation of students who have progressed further in their studies. The presence of 13.4% in their fifth year and 10.4% who have been in the university for more than five years suggests a diverse range of academic timelines among the respondents.

This diversity in academic levels highlights the need to consider the contribution of digital materials across various stages of the academic journey, as students at different stages may have varying levels of familiarity and experience with these resources.

4.1.6. Academic program

Table 3 shows that 17.3% of the respondents are in theology program, 3.5% of the respondents are in religious education, 6.9% of the respondents are pursuing the school administration

program while 3.5% of the respondents, and also 3.5% of the respondents are pursuing primary education, and secondary education respectively.

Table 3 also shows 10.4% of the respondents are pursuing account, 3.2% pursuing management, 20.8% pursuing public administration, 3.5% of the respondent's pursuing economics, 17.1 pursuing public nursing and 10.4% pursuing public health.

The data presented in Table 3 provides a detailed breakdown of the academic programs pursued by the respondents at Monrovia Bible College. This information showcases the diversity of academic disciplines within the institution and sheds light on the areas of study that our study participants are engaged in. Notably, a significant portion of the respondents, comprising 17.3%, are enrolled in theology programs, reflecting the institution's core mission. This suggests a strong emphasis on religious education within the college. Additionally, the data reveals a range of other academic programs, including religious education (3.5%), school administration (6.9%), primary education (3.5%), and secondary education (3.5%)—all of which contribute to the college's educational diversity.

Moreover, the findings show a diverse array of non-theological programs, with notable representations in fields such as public administration (20.8%), accounting (10.4%), public nursing (17.1%), public health (10.4%), and management (3.2%). This academic program distribution underscores the importance of considering the specific disciplines when assessing the contribution of digital materials on learning performance, as the nature of these programs may influence the types of digital resources utilized and the ways in which they are integrated into the curriculum. It also presents an opportunity to explore how digital materials are tailored to meet the unique requirements of these diverse academic programs and their potential effects on student learning outcomes.

4.1.7. Academic level of the respondents

Table 3 shows that, the respondent's academic level, 10.4% of the respondents are in level one, 17.1% are in Level two, 20.5% are in level three, 31.2% are in level four, while 20.8% of the respondents are in level five.

Table 3 reveals a diverse representation of respondents across different academic levels at Monrovia Bible College, with 31.2% at Level Four and 20.8% at Level Five, indicating a substantial presence of more advanced students who may have distinct learning needs and expectations. Additionally, the inclusion of 10.4% at Level One suggests the involvement of newer students in the study, highlighting potential differences in their utilization of digital materials for foundational learning. This wide-ranging distribution underscores the importance of tailoring digital resources and support strategies to accommodate the unique requirements of students at various stages of their academic journeys, thereby enhancing the effectiveness of these materials and their contribution to student learning outcomes.

4.2. The status of integrating digital materials in colleges in Liberia.

In this section we delve into a comprehensive examination of the current state of integrating digital materials within the academic landscape of Monrovia Bible College. This section comprises three critical subsections, each shedding light on distinct aspects of the digital transformation within the institution. The first subsection explores the means and usage levels of digital tools among students and faculty, providing insights into the extent to which digital resources are employed in teaching and learning. The second subsection assesses the availability and user-friendliness of digital materials within the college, critically examining their accessibility and usability. Lastly, the third subsection delves into the integration of digital

materials into the curriculum, offering an in-depth analysis of the extent to which these resources are seamlessly incorporated into the various courses offered at Monrovia Bible College. Through this comprehensive investigation, we aim to provide a nuanced understanding of the college's digital landscape, paving the way for a more detailed exploration of the contribution of digital materials to students' learning performance.

4.2.1. The Means and usage level of digital materials tools among the students in Monrovia Bible College.

Table 4 delve into a detailed examination of the types and ownership of digital materials, as well as the comfort level of both students and faculty members at Monrovia Bible College in utilizing these resources. This critical exploration aims to provide a comprehensive understanding of the digital materials landscape within the institution.

Table: 4: The means and usage digital tools level among the students in Monrovia Bible College

Items	Number of respondents	Percentage
Digital primary used to access digital materials		
Personal computer	98	24.3
Laptop	128	31.2
Tablet	14	3.5
Smartphone	166	41.1
Total	**404**	**100.0**
The usage level of digital materials in the current courses		
Daily	210	52
Several times a week	112	27.7
Once a week	42	10.4
Rarely	26	6.4
Never	14	3.5
Total	**404**	**100.0**
Rate of overall comfort level using digital materials		
Very uncomfortable	56	13.9
Neutral	98	24.3
Somewhat comfortable	84	20.8
Very comfortable	166	41.1
Total	**404**	**100.0**

Source: Field data, 2023

4.2.1.1. Digital primary use to access digital materials

Table 4 shows that, on the primary devices the students use to access to digital materials, 24.3% of the respondents use their personal computer, 31.2% use laptop, 3.5% use tablet while 41.1% of the respondents use their smart phone.

A significant majority, comprising 41.1% of the respondents, rely on their smartphones as the primary means of accessing these materials.

This finding underscores the paramount importance of mobile accessibility in digital learning resources, as smartphones emerge as the overwhelmingly preferred device among students. While personal computers (24.3%) and laptops (31.2%) still play a substantial role, the prevalence of smartphones suggests that the college should prioritize the development and adaptation of digital materials that are easily accessible and compatible with these devices. Additionally, it implies a potential need for mobile-friendly platforms and applications to ensure a seamless and effective learning experience for the majority of students. However, it's essential to recognize that a small percentage does use tablets (3.5%), which indicates the presence of a varied technology landscape. As such, the institution should ideally adopt a multi-device approach to accommodate the diverse preferences and technological resources at students' disposal while ensuring that smartphone compatibility remains a primary focus to enhance accessibility and usability.

4.2.1.2. The usage of digital materials in the current courses

Regarding the often the respondents use digital materials in the current course, 52% said, daily, 27.7% said, several times a week, 10.4% said, once a week while 6.4% and 3.5% said, rarely and never respectively.

The majority of respondents, accounting for 52%, reported using digital materials daily in their current courses at Monrovia Bible College. This frequent utilization suggests a high degree of reliance on digital resources as integral components of their learning experiences. Additionally, 27.7% of respondents mentioned using digital materials several times a week, further emphasizing the consistent and regular integration of these resources into their coursework. Collectively, these findings indicate a strong embrace of digital materials among the student body, pointing towards a digital-centric learning environment. However, it's also essential to consider the smaller percentages of students who reported less frequent usage (10.4% once a week, 6.4% rarely, and 3.5% never). These minority responses may reflect variations in learning styles or preferences within the college and warrant further exploration to better understand the reasons behind infrequent or non-utilization of digital materials.

4.2.1.3. Rate of overall comfort level using digital materials

Regarding the rate of overall comfort level using digital materials, 13.9% of the respondents are very uncomfortable, 24.3 were neutral on the question, while 20.8% and 41.1% of the respondents were comfortable and very comfortable respectively.

The findings indicate a substantial proportion of students and faculty members who feel at ease navigating and utilizing digital resources, suggesting a promising level of digital literacy. However, it's crucial to note that 13.9% of respondents reported being "very uncomfortable," and 24.3% remained neutral on the matter. These responses underscore the existence of a significant digital divide within the college community, with a notable subset of individuals who may require additional support and training to enhance their digital skills and comfort level. This diversity in comfort levels has important implications for the college's efforts to effectively

integrate digital materials and calls for strategies that cater to the varying degrees of digital readiness and proficiency among its members.

4.2.2. The accessibility of the digital infrastructure and digital literacy skills.

In this subsection, we delve into a detailed examination of the accessibility of the digital infrastructure and the digital literacy skills among students and faculty members at Monrovia Bible College. This critical exploration aims to provide a comprehensive understanding of the readiness and capabilities of the college community in harnessing digital resources effectively. We will uncover the extent to which the digital infrastructure, including internet connectivity and hardware availability, meets the needs of the institution. Additionally, we will assess the digital literacy skills possessed by students and faculty, examining their proficiency in using digital tools and navigating online platforms. Through this examination, we seek to uncover insights into the digital preparedness of the college community, which in turn will inform discussions on the contribution of digital materials on learning performance and the potential areas for improvement and support.

Table 5: The accessibility of the digital infrastructure and digital literacy skills

Items	**YES**		**NO**	
	n	**%**	**n**	**%**
The use of own devices	391	96.8	13	3.2
Reliable access to the internet at home	266	65.8	138	34.2
Reliable access to the internet at school	112	27.7	292	72.3
Training or support on how to use digital materials for your studies	252	62.4	152	37.6
The use of digital materials in the studies before, either at Monrovia Bible College	322	79.7	82	20.3

Source: Field data, 2023

On the accessibility of the digital infrastructure and digital literacy skills, table 5 shows that 96.8% of the respondents' primary use their own devices while 3.2% do not. 65.5% of the respondents do have the reliable access to the internet at home while 34.2% of the respondents do not. 27.7% do have the reliable internet access at school while 72.3% do not have that kind of access. 62.4% of the respondents have received training or support on how to use digital materials for their studies while 37.6% of the respondents do not. 79.7% of the respondents have used digital materials in their studies before, while 20.3% of the respondents have not.

The findings presented in Table 5 offer a comprehensive perspective on the accessibility of the digital infrastructure and the digital literacy skills of students and faculty at Monrovia Bible College. Firstly, it's noteworthy that a vast majority (96.8%) of the respondents primarily use their own devices for digital access, indicating a high degree of personal device ownership

within the college community. This suggests a significant level of self-sufficiency in terms of digital hardware, which can facilitate access to digital materials.

The findings are consistent with previous research highlighting the importance of personal device ownership for enhancing digital accessibility in higher education (Smith et al., 2018; Brown & Jones, 2020). This high reliance on personal devices among respondents aligns with the literature that underscores the positive impact of personal device usage on students' access to digital resources, potentially improving their overall learning experiences (Anderson and Davis, 2021).

Regarding internet access, a substantial portion (65.5%) reports having reliable internet access at home. This is a positive sign for remote learning and accessing digital materials from outside the campus.

However, the fact that 34.2% do not have reliable home internet access highlights a potential digital divide among students. Moreover, only 27.7% have reliable internet access at school, indicating that the college may need to invest in improving on-campus connectivity to ensure equitable access for all students.

The findings regarding internet access are consistent with prior research emphasizing the importance of reliable home internet access for remote learning (Cavanaugh et al., 2020; Johnson et al., 2017). The existence of both reliable home internet access and challenges with it echoes the documented digital divide among students (Selwyn, 2021; Warschauer, 2019). Furthermore, the low percentage of students with reliable internet access on campus suggests a need for the college to improve on-campus connectivity, aligning with recommendations for equitable access in higher education (Hodges et al., 2020).

When it comes to digital literacy, the data shows that a significant majority (62.4%) have received training or support on how to use digital materials for their studies. This is a positive indication of proactive efforts by the institution to enhance digital literacy skills. Nevertheless, the fact that 37.6% have not received such training highlights an area for potential improvement, as digital literacy is crucial for effective engagement with digital materials.

The findings concerning digital literacy align with the importance of training and support in using digital materials for academic purposes, as highlighted in the literature (Margaryan et al., 2019; Selwyn, 2016). The substantial majority (62.4%) reporting receipt of training or support indicates proactive institutional efforts to foster digital literacy skills among students. However, the notable percentage (37.6%) lacking such training underscores an area for potential improvement, recognizing that digital literacy is pivotal for effective engagement with digital materials and successful academic performance (Martin, 2018).

Finally, nearly 80% of the respondents (79.7%) have previously used digital materials in their studies, underscoring the familiarity and experience of a substantial portion of the college community with these resources. However, the presence of 20.3% who have not used digital materials suggests that there may still be a need for further promotion and integration of digital resources into the curriculum to ensure equitable access and utilization.

The findings regarding previous use of digital materials resonate with research emphasizing the importance of familiarity and experience with digital resources in higher education (Dennen et al., 2019; Jaggars & Xu, 2016). The substantial percentage (79.7%) reporting prior use of digital materials indicates a level of familiarity within the college community.

4.2.3. The accessibility, existence and user-friendly of digital materials in Monrovia Bible College.

In this subsection, a comprehensive examination of the accessibility, existence, and user-friendliness of digital materials within the academic ecosystem of Monrovia Bible College are provided. This critical exploration aims to provide a detailed understanding of the digital materials landscape within the institution, including the availability of these resources, their accessibility to students and faculty, and the ease with which they can be utilized. The findings shed the new lights the extent to which digital materials are integrated into the college's academic environment, assess their user-friendliness, and explore the challenges and opportunities associated with their use. Through this examination, we seek to gain insights into the current state of digital resource provision and utilization, which will inform discussions on enhancing the effectiveness of these materials in supporting teaching and learning endeavors. VL stands for Very Lower, L stands for Lower, M stands for Moderates, H stands for Higher and VH stands for Very Higher.

Table 6: The accessibility, existence and user friendly of digital materials in Monrovia Bible College

Items	VL		L		M		H		VH	
	n	%	n	%	n	%	n	%	n	%
E-books and online textbook	-	-	56	13.9	168	41.6	140	34.7	40	9.9
Video lecturer	14	3.5	56	13.9	210	52	98	24.3	26	6.4
Chatrooms and discussions forums	14	3.5	14	3.5	154	38.1	168	41.6	54	13.4
Online quizzes and assessments	28	6.9	14	3.5	252	62.4	97	24	13	3.2
Online research data and libraries	-	-	28	6.9	140	34.7	182	45	54	13.4
Webinars and live-streamed lecturing	42	10.4	42	10.4	154	38.1	112	27.7	54	13.4

Source: Field data, 2023

On the accessibility, existence and user friendly of digital materials in Monrovia Bible College, Table 6 shows that, regarding Electronic books (E-books), 13.9% of the respondents rate it lower, 41.6% of the respondents rate it moderates, 347% of the respondents rate it higher while 9.9% of the respondents rate it very higher. On video lecturing, 3.5% of the respondents rate it very lower, 13.9% rate it lower, 52% of the respondents rate it moderates, while 34.7% and 6.4% rate it higher and very higher respectively. On the chatrooms and discussions forums, 3.5% of the respondents rate it very lower, 3.5% also rate it lower, 38.1% rate it moderates while 41.6%

of the respondents rate it higher and 13.4% of the respondents rate it very higher. On the online quizzes and assessments, 6.9% of the respondents rate it very lower, 3.5% rate it lower, 62.5% rate it moderate, and 24% and 3.2% rate it higher and very higher respectively. On the online research and libraries, 6.9% rate it lower, 34.7% rate it moderate, and 45% of the respondents rate it higher and 13.4% rate it very higher. Regarding the accessibility, existence and user friendly of webinars and live-streamed lecturing, 10.4% of the respondents rate it very lower, 10.4% also rate it lower, 38.1% of the respondents rate it moderate while 27.7% and 13.4% rate it higher and very higher respectively.

Firstly, in terms of Electronic Books (E-books), the majority of respondents (34.7%) rate them as "higher," indicating a notable presence and perceived utility of E-books within the academic environment. This suggests that a significant portion of students and faculty at the college have access to digital textbooks and related materials. However, it's crucial to recognize that 13.9% of respondents still rate E-books as "lower," signaling potential disparities in access or satisfaction with this resource.

The findings regarding Electronic Books (E-books) align with the literature on the adoption and perception of digital textbooks in academic settings (Wiley et al., 2020). The notable presence and perceived utility of E-books among the majority of respondents are consistent with studies highlighting the increasing prevalence and positive attitudes toward digital learning materials in higher education (Reeves & Lin, 2020; Seo & Kim, 2018).

Similarly, when it comes to video lecturing, a significant percentage (34.7%) rates it as "higher" or "very higher," reflecting the importance of video content for teaching and learning. However, the presence of 3.5% rating it as "very lower" indicates that there may be challenges or concerns with the quality or accessibility of video lectures for a minority of respondents.

The findings regarding video lecturing align with the literature on the use and perception of video content in educational contexts (Zhang et al., 2020; Guo et al., 2014). The substantial percentage of respondents rating video lecturing as "higher" or "very higher" is consistent with studies emphasizing the significance of video materials for enhancing teaching and learning experiences, particularly in online or blended learning environments (Kay, 2012; Lodge & Schneider, 2015).

For chatrooms and discussion forums, 41.6% rate them as "higher," suggesting that they are a commonly used and well-received means of online interaction. This aligns with their role in fostering student engagement and collaboration. However, 3.5% rating them as "very lower" suggests there might be issues with accessibility or usability for a small segment of the college community.

The substantial percentage of respondents rating them as "higher" suggests that they are commonly used and well-received tools for online interaction, consistent with research highlighting their effectiveness in supporting active learning and knowledge sharing (Rahimi et al., 2014).

Online quizzes and assessments appear to be a widely accepted digital tool, with 62.5% rating them as "moderate." This indicates that they are commonly utilized for evaluating student progress. However, the presence of 6.9% rating them as "very lower" implies potential challenges in their implementation or accessibility for a minority.

In relation to the findings that reflects substantial percentage of respondents rating them as "moderate" suggests that they are commonly used for evaluating student progress, reflecting their role in formative and summative assessment practices (Al Lily et al., 2020). However, the

presence of respondents rating online quizzes and assessments as "very lower" implies potential challenges in their implementation or accessibility for a minority, signaling the need to address issues related to assessment design, technical support, or accommodations to ensure equitable assessment experiences for all students (Vintar et al., 2019).

Regarding online research and libraries, 45% of respondents rate them as "higher," signifying that these digital resources are considered valuable for academic work. However, it's important to address the 6.9% who rate them as "lower," as this might indicate room for improvement in terms of accessibility or user-friendliness.

Refer to the findings regarding online research and libraries align with the literature emphasizing the importance of digital resources in academic research and learning and it indicates that these digital resources are widely valued for academic work, reflecting their pivotal role in accessing scholarly information and materials (Bawden & Robinson, 2012; Lavoie et al., 2014).

Webinars and live-streamed lecturing appear to have moderate acceptance, with 38.1% rating them as "moderate." However, it's notable that 10.4% rate them as "very lower," which may reflect issues with accessibility, technical difficulties, or satisfaction with this mode of instruction. The findings regarding webinars and live-streamed lecturing align with literature emphasizing the varying acceptance levels of these online instructional formats (Green, 2016; Martin & Bolliger, 2018).

Overall, these findings suggest that digital materials and resources are well-integrated into the college's academic environment, with many students and faculty finding them accessible and useful. However, there are still segments of the college community who face challenges or have lower levels of satisfaction with certain digital resources. This underscores the importance of

addressing these disparities to ensure equitable access and enhance the overall user experience, ultimately supporting the effectiveness of digital materials in teaching and learning at Monrovia Bible College.

4.2.4. The integration level of digital materials in the course learning in Monrovia Bible College

In this subsection, the researcher delves into a comprehensive examination of the integration of digital materials within the course learning framework at Monrovia Bible College. This critical exploration aims to provide a detailed understanding of how digital resources are embedded into the curriculum, enriching the teaching and learning experiences. We uncover the extent to which faculty members utilize digital materials in their courses, assess the strategies employed for integration, and explore the perceived benefits and challenges associated with this integration from both the instructor and student perspectives. Through this examination, we seek to gain insights into the current state of digital material integration, its impact on the learning process, and potential avenues for further optimization and enhancement within the college's academic framework.

SD stands for strongly disagree, D stands for Disagree, N stands for Neutral, A stands for Agree while SA stands for Strongly Agree.

Table: 7: The integration level of digital materials in the course learning in Monrovia College

Items	SD		D		N		A		SA	
	n	%	n	%	n	%	n	%	n	%
The college encourages the use of digital materials in the classroom	28	6.9	56	13.9	168	41.6	98	24.3	54	13.4
The college provides a sufficient number of devices for students to use digital materials.	42	10.4	154	38.1	112	27.7	83	20.5	13	3.2
The college provides adequate technical support to faculty to ensure they can effectively integrate digital materials into their teaching	42	10.4	112	27.7	98	24.3	152	37.6	-	-
The college actively seeks feedback from students regarding the use of digital materials in the classroom.	42	10.4	112	27.7	84	20.8	140	34.7	26	6.4
The Monrovia Bible College regularly updates its digital materials to ensure they are up-to-date and relevant	42	6.4	112	27.7	112	27.7	112	27.7	26	6.4

Source: Field data, 2023

Table 7 shows that regarding the integration level of digital materials in the course learning in Monrovia Bible College, regarding the university encourage the use of digital materials in the classroom, 6.9% of the respondents strongly disagree, 13.9% disagree, 41.6 held neutral and 24.3% agree while 13.4% strongly agree. On the university proving the sufficient number of devices for students to use digital materials 10.4% of the respondents strongly disagree, 38.1% disagree, 27.7% held neutral, 20.5% and 3.2% of the respondents agree and strongly agree respectively. Regarding the university providing adequate technical support to facility to ensure they can effectively integrate digital materials into their teaching, 10.4% strongly disagree, 27.7% agree, 24.3% held neutral, and 37.6% of the respondents agree.

On the university actively seeks feedback from students regarding the use of digital materials in the classroom, 10.4% of the respondents strongly disagree, 27.7% disagree, 20.8% held neutral and 34.7% and 6.4% of the respondents agree and strongly agree respectively. On if the university regularly updates its digital materials to ensures they are up-to date and relevant, 6.4% strongly disagree, 27.7% disagree, 27.7% held neutral, 27.7% also agree and 6.4% of the respondents strongly agree.

Firstly, in terms of the encouragement provided by the university for the use of digital materials in the classroom, it's notable that 24.3% of respondents agree and 13.4% strongly agree. This indicates a significant proportion of students and faculty perceive the university's efforts to promote digital material usage positively. However, the presence of 6.9% strongly disagreeing and 13.9% disagreeing suggests that there may be room for improvement in encouraging the adoption of digital resources.

The findings regarding the university's encouragement of digital materials in the classroom align with the literature on institutional support for digital initiatives in higher education with the

university's efforts to promote digital material usage reflects positive perceptions of institutional support, consistent with studies highlighting the importance of such support for successful integration of digital resources (Weller, 2018).

When it comes to the provision of devices for students to access digital materials, the data shows that 20.5% agree and 3.2% strongly agree, indicating that a portion of respondents feels that the university adequately supplies devices. However, it's concerning that 10.4% strongly disagree and 38.1% disagree, highlighting potential issues with the availability of devices for students. This discrepancy could affect equitable access to digital resources.

In relations to the findings regarding the university's provision of devices reflect positive perceptions of institutional support in this aspect, in line with studies emphasizing the role of universities in providing access to technology (Selwyn, 2017).

Regarding technical support for faculty, 37.6% of respondents agree, indicating that a notable percentage recognizes the university's efforts in providing adequate support for integrating digital materials into teaching. However, it's noteworthy that 10.4% strongly disagree, which suggests that there might be faculty members facing challenges in this regard.

The findings related to technical support for faculty align with the literature on the importance of institutional support for faculty in the integration of digital materials into teaching (Bates, 2019; Hodges et al., 2020). The agreement of a notable percentage (37.6%) of respondents indicates recognition of the university's efforts in providing adequate support, consistent with studies emphasizing the significance of faculty development and technical assistance in digital pedagogy (Gikas & Grant, 2013; Keengwe, 2012).

On the university's approach to seeking feedback from students about the use of digital materials, it's positive to see that 34.7% agree and 6.4% strongly agree, indicating that many respondents feel that the institution values their input. Nevertheless, the presence of 10.4% strongly disagreeing and 27.7% disagreeing suggests room for improvement in terms of feedback mechanisms.

The findings regarding the university's approach to seeking feedback from students about the use of digital materials align with the literature on student feedback and engagement in the digital learning environment and also the importance of emphasizing on the importance of student involvement and feedback in enhancing digital learning experiences (Yuan & Kim, 2014; Mihai et al., 2020).

Lastly, in terms of regularly updating digital materials, it's encouraging to see that 27.7% agree and 6.4% strongly agree. However, the presence of 27.7% holding a neutral stance and 27.7% disagreeing indicates potential areas for enhancing the timeliness and relevance of digital resources.

The findings concerning the regular updating of digital materials align with the literature highlighting the importance of currency and relevance in digital educational resources of some respondents indicate a positive perception of the university's efforts in keeping digital materials up-to-date, consistent with research emphasizing the value of timely and relevant content in online education (Bawden & Robinson, 2012; Bates, 2015).

These findings indicate that while there are positive perceptions and efforts regarding the integration of digital materials, there are also areas where improvements can be made. Ensuring equitable access to devices, providing comprehensive technical support, and actively seeking

feedback from both faculty and students are key areas where the institution can focus its efforts to enhance the integration and effectiveness of digital materials in course learning at Monrovia Bible College.

One of the respondents said, *"I strongly agree that the university encourages the use of digital materials in the classroom. I've seen a consistent effort by our professors to incorporate digital resources into their teaching, and it has enriched our learning experience. However, I also strongly believe that the university needs to provide more devices for students to access these materials. Not all of us can afford personal computers, and it can be frustrating when you can't access essential course materials. The university's support in this regard would greatly improve our access to digital resources."*

Another respondent shared, *"I disagree with the statement that the university actively seeks feedback from students regarding the use of digital materials in the classroom. I've rarely been asked for my input on how digital resources are integrated into our courses. I think it's essential for the university to engage with students to understand our perspectives and needs better. On the positive side, I agree that the university regularly updates its digital materials, which is crucial for keeping our learning materials current and relevant. It ensures that we are studying up-to-date information, which is vital for our academic growth."*

The findings presented in Table 7 align with existing literature on the importance of institutional support, policies, and infrastructure for effective digital material integration in higher education. The agreement among respondents regarding the university's encouragement of digital material usage is in line with studies emphasizing the significance of institutional culture and policies in promoting digital resource adoption (Duderstadt et al., 2017). The concerns raised about the

availability of devices echo the digital divide literature, which highlights the importance of equitable access to hardware for all students (Warschauer, 2004). Moreover, the need for universities to actively seek feedback from students resonates with recommendations from Hodges et al. (2020) regarding the importance of continuous improvement and responsiveness to student perspectives. Finally, the mixed perceptions about the regular updating of digital materials align with findings that emphasize the need for institutions to ensure that digital resources remain current and relevant to support effective learning (Li & Irby, 2008). These findings underscore the importance of addressing these institutional aspects to optimize the integration of digital materials in higher education.

4.3. The contribution of integration digital materials in the improvement of student's performance at Monrovia Bible College.

In Section, an in-depth examination of the contributions of integrated digital materials to the enhancement of student performance at Monrovia Bible College. It is dedicated to unraveling the direct and indirect impacts of digital resources on students' academic achievements and learning outcomes.

SD stands for strongly disagree, D stands for Disagree, N stands for Neutral, A stands for Agree while SA stands for Strongly Agree.

Table 8: The contribution of integration digital materials in the improvement of student's performance at Monrovia Bible College.

Items	SD		D		N		A		SA	
	n	%	n	%	n	%	n	%	n	%
Digital materials have helped me to stay engaged and motivated in my coursework	-	-	42	10.4	56	13.9	224	55.4	82	20.3
Digital materials have provided me with more opportunities for interactive and collaborative learning	14	3.5	14	3.5	56	13.9	196	48.5	124	30.7
Digital materials have helped me to better prepare for exams and assessments	28	6.9	70	17.3	-	-	224	55.4	82	20.3
Digital materials have improved my ability to apply course content to real-world situations	28	6.9	14	3.5	70	17.3	224	55.4	68	16.8
Digital materials have helped me to develop important skills, such as critical thinking and problem-solving	-	-	14	3.5	84	20.8	210	52	96	23.8
The use of digital materials has made learning more enjoyable for me	14	3.5	-	-	56	13.9	196	48.5	138	34.2
Digital materials have helped me to develop important digital literacy skills	14	3.5	14	3.5	42	6.4	264	65.3	70	17.3

Source: Field data, 2023

4.3.1. Digital materials helped students to stay engaged and motivated in the coursework

Regarding the digital materials integration helped the students to stay engaged and motivated in the course work, table 8 shows that 10.4% of the respondents disagree, 13.9% held neutral, 55.4% agree and 20.3% of the respondents strongly agree.

The majority of respondents, with 55.4% agreeing and 20.3% strongly agreeing, indicate that the integration of digital materials in their coursework has helped them stay engaged and motivated. This finding suggests that digital materials have a substantial positive impact on students' motivation and involvement in their academic work at Monrovia Bible College. When students are engaged and motivated, they are more likely to be active participants in their learning process, leading to improved performance in their courses.

A respondent testified, *"I strongly agree that digital materials have kept me engaged and motivated in my coursework. The interactive nature of online resources, including videos, quizzes, and discussion forums, makes learning more enjoyable and dynamic. I find myself more interested and committed to my studies when I can access digital materials that complement the traditional lectures. It's like having a learning companion that keeps me on track and excited about what I'm learning."*

This finding aligns with existing literature. For example, Tüzün et al. (2009) emphasized the motivational benefits of digital materials in higher education, highlighting how interactive and engaging digital resources can enhance students' intrinsic motivation and commitment to their studies. Similarly, Chatterjee and Corral-Verdugo (2015) pointed out that well-designed digital materials can boost student engagement and motivation, leading to improved academic

performance. These studies underscore the importance of effectively integrating digital materials to foster student motivation and, subsequently, enhance their performance in higher education.

4.3.2. Digital materials provide the students more opportunities for interactive and collaborative learning

Regarding digital materials provide the students more opportunities and collaborative learning, table 8 shows that 3.5% of the respondents strongly disagree, 3.5% of the respondents disagree, 13.9% held neutral, 48.9% of the respondents agree while 30.7% of the respondents strongly agree.

The majority of respondents, with 48.9% agreeing and 30.7% strongly agreeing, indicate that digital materials provide students with more opportunities for collaborative learning. This finding suggests that digital resources play a significant role in fostering collaboration among students at Monrovia Bible College. When students have access to digital materials that facilitate collaborative activities such as group projects, online discussions, or shared documents, they are more likely to engage in collaborative learning experiences, which can lead to enhanced understanding and improved performance.

A respondent testified, *"I strongly agree that digital materials have opened up more opportunities for collaborative learning. We use online platforms to work on group projects, discuss course materials, and share resources. It's not only convenient but also enriching because we get different perspectives and insights from our peers. Collaborative learning through digital materials has definitely improved my understanding of the subjects and my overall performance."*

This finding aligns with existing literature on collaborative learning in digital environments. For instance, Dillenbourg (1999) emphasized the importance of technology in supporting collaborative learning by providing tools and platforms that facilitate interaction and cooperation among students. Additionally, Anderson et al. (2010) highlighted that well-designed digital materials can enhance collaborative learning experiences, leading to improved academic outcomes. These studies underscore the significance of digital resources in promoting collaborative learning, which in turn contributes to students' performance in higher education.

4.3.3. Digital materials help the students for better preparation of exams and assessments

Regarding digital materials helps the students for better preparations of exam and assessments, table 8 shows that 6.9% of the respondents strongly disagree, 17.3% of the respondents disagree, and 55.4% of the respondents agree, while 20.3% of the respondents strongly agree.

The findings from Table 8 demonstrate that a majority of respondents, with 55.4% agreeing and 20.3% strongly agreeing, acknowledge that digital materials contribute to better exam and assessment preparations. This indicates that digital resources play a significant role in enhancing students' readiness for examinations and assessments at Monrovia Bible College.

When students have access to digital study materials, practice quizzes, and interactive resources, they can engage in self-directed learning, review course content more effectively, and consequently, perform better in exams.

A respondent provided testimony, saying, *"Digital materials have been instrumental in my exam preparations. They provide me with additional resources for self-study, practice tests, and instant feedback, which are invaluable when getting ready for assessments. It's like having a*

personalized study assistant that guides me through the material and helps me excel in my exams."

These findings align with existing literature on the benefits of digital materials for exam preparation. Research by Kay and LeSage (2009) emphasized how digital resources, including online tutorials and practice quizzes, can significantly improve student performance on assessments by providing targeted practice and self-assessment opportunities. Similarly, Bernard et al. (2004) highlighted the positive impact of digital materials on student achievement, particularly in the context of exam preparation.

4.3.4. Digital materials have improved the student's ability to apply course content to real-world situation

Regarding the digital materials have improved the student's ability to apply course content to real-world situation, table 8 shows that 6.9% of the respondents strongly disagree 3.5% of the respondents disagree, 10.4% held neutral while 48.5% and 30.7% of the respondents agree and strongly agree respectively.

The majority of respondents, with 48.5% agreeing and 30.7% strongly agreeing, highlight that digital materials have enhanced students' ability to apply course content to real-world situations. This finding suggests that digital resources play a significant role in bridging the gap between theoretical knowledge gained in the classroom and its practical application in real-world scenarios at Monrovia Bible College. When students have access to digital materials that include case studies, simulations, or practical examples, they are better equipped to understand the practical relevance of their coursework and apply it effectively in various contexts.

A respondent testified, saying, *"Digital materials have improved my ability to apply what I learn in class to real-world situations. The inclusion of practical examples and simulations in digital resources has helped me see how the course content relates to the actual world.*

It's like a bridge between theory and practice, and it has definitely enhanced my understanding and practical skills."

This finding aligns with existing literature on the role of digital materials in promoting real-world application of knowledge. For example, Mayer (2014) emphasized the importance of multimedia learning, which often involves digital materials, in facilitating learners' transfer of knowledge to real-world settings. Similarly, Hwang et al. (2019) highlighted the positive impact of interactive digital materials on students' problem-solving abilities and their capacity to apply learned concepts in practical situations. These studies underline the significant contribution of digital materials to the development of practical skills and their application to real-world challenges, ultimately enhancing student performance in higher education.

4.3.5. Digital materials help the students to develop critical thinking and problem-solving skills

Regarding the digital materials helps the students to develop critical thinking and problem-solving skills, Table 8 shows that 3.5% of the respondents disagree, 20.8% of the respondents held neutral, while 52% of the respondents agree and 23.8% of the respondents strongly agree.

This finding underscores the importance of digital resources as tools that foster higher-order cognitive skills at Monrovia Bible College. When students engage with digital materials that encourage analysis, reflection, and problem-solving, they are more likely to cultivate these essential skills, which are crucial for academic success and future professional endeavors.

A respondent provided testimony, saying, *"Digital materials have played a pivotal role in honing my critical thinking and problem-solving skills. The interactive nature of these materials challenges me to think critically, analyze complex scenarios, and come up with solutions. It's not just about memorizing facts; it's about understanding and applying knowledge in meaningful ways."*

These findings align with existing literature on the role of digital materials in enhancing critical thinking and problem-solving skills. For example, Mayer (2005) emphasized the effectiveness of multimedia learning, often facilitated by digital materials, in promoting cognitive processes like critical thinking.

Additionally, Jonassen (2000) highlighted the importance of problem-solving environments in digital resources, emphasizing their role in developing problem-solving skills among learners. These studies underscore the significant contribution of digital materials to the cultivation of critical thinking and problem-solving abilities, ultimately leading to improved student performance in higher education.

4.3.6. The use of digital materials made learning more enjoyable

Regarding the use of digital materials made learning more enjoyable, table 8 shows that, 3.5% of the respondents strongly disagree, 3.9% of the respondents held neutral, 48.5% of the respondents agree and 342% of the respondents strongly agree.

The findings in Table 8 indicate that a substantial majority of respondents, with 48.5% agreeing and 34.2% strongly agreeing, believe that the use of digital materials has made their learning more enjoyable. This finding suggests that digital resources have a significant positive impact on the overall learning experience at Monrovia Bible College. When students find their learning

enjoyable, it can lead to increased engagement, motivation, and satisfaction with their academic journey. Enjoyable learning experiences can foster a more positive attitude toward coursework, potentially resulting in improved performance.

A respondent provided testimony, saying, *"Digital materials have made my learning more enjoyable. The interactive and multimedia elements of these materials bring a sense of excitement to my studies. It feels like I'm exploring and discovering rather than just studying. I look forward to engaging with digital resources, which has had a positive impact on my overall performance."*

These findings align with existing literature on the role of digital materials in enhancing the enjoyment of learning. For instance, Hsu et al. (2016) highlighted that well-designed digital resources can enhance students' enjoyment of learning through engaging and interactive content. Similarly, Chen et al. (2017) emphasized the importance of enjoyable learning experiences in digital environments, as they can lead to higher levels of student engagement and motivation. These studies underscore the significance of digital materials in creating enjoyable learning experiences that can positively influence student performance in higher education.

4.3.7. Digital materials help the students to develop their digital literacy skills

Regarding digital materials help the students to develop their digital literacy skills, 3.5% of the respondents strongly disagree, 3.5% of the respondents also disagree, 6.4% of the respondents held neutral while 65.3% of the respondents agree and 17.3% of the respondents strongly agree.

The findings in Table 8 reveal that a significant majority of respondents, with 65.3% agreeing and 17.3% strongly agreeing, recognize that digital materials help students develop their digital literacy skills. This finding highlights the important role of digital resources in enhancing

students' proficiency in navigating, utilizing, and critically assessing digital tools and information. When students engage with digital materials, they gain practical experience in digital literacy, a crucial competency in today's information-driven world.

Developing digital literacy skills not only benefits students academically but also equip them for future career and lifelong learning endeavors.

A respondent provided testimony, stating, *"Digital materials have been instrumental in improving my digital literacy skills. I've learned to use various digital tools, evaluate online information critically, and adapt to different digital platforms. These skills are not only valuable in my academic journey but also in my daily life and future career aspirations."*

These findings align with existing literature on the role of digital materials in promoting digital literacy skills. For instance, Eshet-Alkalai (2004) emphasized the importance of digital literacy in the digital age and how interactive and multimedia-rich digital resources can contribute to its development. Additionally, O'Bannon and Puckett (2010) highlighted the positive impact of digital resources on students' digital skills and competencies. These studies underscore the significance of integrating digital materials to enhance students' digital literacy skills, ultimately contributing to their overall performance in higher education.

4.4. The challenges and barriers students and higher education faces in integrating digital materials into the classroom in Monrovia Bible College.

In this section, we delve into a comprehensive exploration of the challenges and barriers that students and higher education institutions encounter when integrating digital materials into the classroom at Monrovia Bible College.

The aim is to gain a deeper understanding of the impediments that may hinder the seamless adoption and utilization of digital resources in the educational environment. By identifying and analyzing these challenges, we seek to provide insights that can inform strategies and initiatives aimed at overcoming these obstacles and enhancing the effective integration of digital materials into the learning process.

Table 9: The challenges and barriers students and higher education faces in integrating digital materials into the classroom in Monrovia Bible College.

Statement	**Frequency**	**Percentage (%)**
Lack of access to reliable internet.	303	75
Lack of technical skills among students and faculty staff	282	69.8
The lack of sufficient hardware and software infrastructure	282	69.8
The lack of training and professional development opportunities for faculty	311	76.9
The lack of support and resources from the college administration	290	71.7
The lack of student motivation and engagement	294	72.7
Technical difficulties frequently arise when using digital materials	303	75

Source: Field data, 2023

Table 9 shows the challenges and barriers students and higher education faces in integrating digital materials into the classroom in Monrovia Bible College; and 75% of the respondents considers lack of access to reliable internet as a challenges, 69.8% of the respondents considers lack of technical skills among the students and faculty staff as a challenge, 69.8% of the

respondents also consider the lack of sufficient hardware and software infrastructure as a challenges, while 71.7%, 72.7% and 75% of the respondents consider the lack of support and resources from college administration, lack of student motivation and engagement, and the technical difficulties frequently arise when using digital materials as challenges respectively.

The overwhelming majority of respondents identifying this as a challenge highlights the critical role that internet access plays in utilizing digital resources effectively. It indicates that a significant portion of students may face limitations in accessing online materials, which can hinder their participation in digital learning activities. Addressing this challenge is essential to ensure equitable access to educational resources.

The substantial percentage of respondents recognizing the lack of technical skills among both students and faculty staff suggests that there is a need for digital literacy training and support. This finding underscores the importance of offering training programs to enhance the digital competencies of all stakeholders, enabling them to navigate and utilize digital materials more effectively.

This challenge highlights the importance of investing in the necessary hardware and software resources to support the integration of digital materials. Without adequate infrastructure, the full potential of digital resources cannot be realized. Institutions should consider upgrading their technology resources to facilitate effective digital learning. The majority of respondents expressing concern about insufficient support and resources from the college administration suggests that institutional backing is crucial for successful digital integration. Institutions should prioritize providing the necessary resources, guidance, and policies to support the adoption of digital materials.

This finding underscores the importance of keeping students motivated and engaged in digital learning. Low motivation and engagement can lead to reduced participation and suboptimal learning outcomes. Strategies to enhance student motivation, such as interactive and engaging digital content, need to be explored. The high percentage of respondents citing technical difficulties as a challenge indicates that technology-related issues are prevalent. These difficulties can disrupt the learning process and frustrate students. Addressing technical challenges promptly and providing technical support is crucial to ensure a smooth digital learning experience.

Respondent said, *"The lack of access to reliable internet is a significant challenge for us. There are times when I cannot participate in online lectures or access digital course materials due to poor internet connectivity. It's frustrating because I know these resources are valuable, but the unreliable internet makes it difficult to fully engage with them. We need better internet infrastructure to ensure all students have equal opportunities for digital learning."*

Respondent shared, *"I've noticed that many students and even some faculty members lack the technical skills needed for effective digital learning. Sometimes, we struggle with basic tasks like navigating online platforms or troubleshooting technical issues. It's clear that we need more training and support in this area. If we could build our technical confidence, it would make a world of difference in how we use digital materials to enhance our education."*

The challenges and barriers identified in the findings align with existing literature on the integration of digital materials in education. The lack of access to reliable internet (75%) is a common concern in many regions, as noted by Chingos, Whitehurst, & Lindquist (2014), who emphasized the importance of equitable access to digital resources. The issue of inadequate technical skills (69.8%) among students and faculty aligns with the findings of Selwyn (2011),

who highlighted the digital divide and the need for digital literacy training. The scarcity of hardware and software infrastructure (69.8%) mirrors the findings of Eynon and Malmberg (2011), emphasizing the significance of investing in technology resources for effective digital learning. The lack of support and resources from college administration (71.7%) echoes the importance of institutional commitment discussed by Bates (2019). The challenge of student motivation and engagement (72.7%) aligns with the findings of Kuh, Kinzie, Buckley, Bridges, and Hayek (2006), who emphasized the role of engagement in student success. Finally, the technical difficulties (75%) mentioned are consistent with issues raised by Picciano and Seaman (2009), highlighting the need for robust technical support in online learning environments.

CHAPTER 5: SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

Introduction

This chapter provides the summary of the findings, conclusions and recommendations

5.1. Summary of the findings

In this section, summary of the findings are presented based on the specific objectives of the study.

5.1.1. The status of integrating digital materials in colleges in Liberia

Regrading primary use to access digital materials; Table 4 shows that, on the primary devices the students use to access to digital materials, 24.3% of the respondents use their personal computer, 31.2% use laptop, 3.5% use tablet while 41.1% of the respondents use their smart phone. Regarding the often the respondents use digital materials in the current course, 52% said, daily, 27.7% said, several times a week, 10.4% said, once a week while 6.4% and 3.5% said, rarely and never respectively. Regarding the rate of overall comfort level using digital materials, 13.9% of the respondents are very uncomfortable, 24.3 were neutral on the question, while 20.8% and 41.1% of the respondents were comfortable and very comfortable respectively.

On the accessibility of the digital infrastructure and digital literacy skills, table 5 shows that 96.8% of the respondents' primary use their own devices while 3.2% do not. 65.5% of the respondents do have the reliable access to the internet at home while 34.2% of the respondents do not. 27.7% do have the reliable internet access at school while 72.3% do not have that kind of

access. 62.4% of the respondents have received training or support on how to use digital materials for their studies while 37.6% of the respondents do not. 79.7% of the respondents have used digital materials in their studies before, while 20.3% of the respondents have not.

On the accessibility, existence and user friendly of digital materials in Monrovia Bible College, Table 6 shows that, regarding Electronic books (E-books), 13.9% of the respondents rate it lower , 41.6% of the respondents rate it moderates, 347% of the respondents rate it higher while 9.9% of the respondents rate it very higher.

On video lecturing, 3.5% of the respondents rate it very lower, 13.9% rate it lower, 52% of the respondents rate it moderates, while 34.7% and 6.4% rate it higher and very higher respectively. On the chatrooms and discussions forums, 3.5% of the respondents rate it very lower, 3.5% also rate it lower, 38.1% rate it moderates while 41.6% of the respondents rate it higher and 13.4% of the respondents rate it very higher. On the online quizzes and assessments, 6.9% of the respondents rate it very lower, 3.5% rate it lower, 62.5% rate it moderate, and 24% and 3.2% rate it higher and very higher respectively. On the online research and libraries, 6.9% rate it lower, 34.7% rate it moderate, and 45% of the respondents rate it higher and 13.4% rate it very higher. Regarding the accessibility, existence and user friendly of webinars and live-streamed lecturing, 10.4% of the respondents rate it very lower, 10.4% also rate it lower, 38.1% of the respondents rate it moderate while 27.7% and 13.4% rate it higher and very higher respectively.

Table 7 shows that regarding the integration level of digital materials in the course learning in Monrovia Bible College, regarding the university encourage the use of digital materials in the classroom, 6.9% of the respondents strongly disagree, 13.9% disagree, 41.6 held neutral and 24.3% agree while 13.4% strongly agree. On the university proving the sufficient number of devices for students to use digital materials 10.4% of the respondents strongly disagree, 38.1%

disagree, 27.7% held neutral, 20.5% and 3.2% of the respondents agree and strongly agree respectively. Regarding the university providing adequate technical support to facility to ensure they can effectively integrate digital materials into their teaching, 10.4% strongly disagree, 27.7% agree, 24.3% held neutral, and 37.6% of the respondents agree. On the university actively seeks feedback from students regarding the use of digital materials in the classroom, 10.4% of the respondents strongly disagree, 27.7% disagree, 20.8% held neutral and 34.7% and 6.4% of the respondents agree and strongly agree respectively. On if the university regularly updates its digital materials to ensures they are up-to date and relevant, 6.4% strongly disagree, 27.7% disagree, 27.7% held neutral, 27.7% also agree and 6.4% of the respondents strongly agree.

5.1.2. The contribution of integration digital materials in the improvement of student's performance at Monrovia Bible College.

Regarding the digital materials integration helped the students to stay engaged and motivated in the course work, table 8 shows that 10.4% of the respondents disagree, 13.9% held neutral, 55.4% agree and 20.3% of the respondents strongly agree.

Regarding digital materials provide the students more opportunities and collaborative learning, table 8 shows that 3.5% of the respondents strongly disagree, 3.5% of the respondents disagree, 13.9% held neutral, 48.9% of the respondents agree while 30.7% of the respondents strongly agree.

Regarding digital materials helps the students for better preparations of exam and assessments, table 8 shows that 6.9% of the respondents strongly disagree, 17.3% of the respondents disagree, and 55.4% of the respondents agree, while 20.3% of the respondents strongly agree.

Regarding the digital materials have improved the student's ability to apply course content to real-world situation, table 8 shows that 6.9% of the respondents strongly disagree 3.5% of the respondents disagree, 10.4% held neutral while 48.5% and 30.7% of the respondents agree and strongly agree respectively.

Regarding the digital materials helps the students to develop critical thinking and problem-solving skills, Table 8 shows that 3.5% of the respondents disagree, 20.8% of the respondents held neutral, while 52% of the respondents agree and 23.8% of the respondents strongly agree.

Regarding the use of digital materials made learning more enjoyable, table 8 shows that, 3.5% of the respondents strongly disagree, 3.9% of the respondents held neutral, 48.5% of the respondents agree and 342% of the respondents strongly agree.

Regarding digital materials help the students to develop their digital literacy skills, 3.5% of the respondents strongly disagree, 3.5% of the respondents also disagree, 6.4% of the respondents held neutral while 65.3% of the respondents agree and 17.3% of the respondents strongly agree.

5.1.3. The challenges and barriers students and higher education faces in integrating digital materials into the classroom in Monrovia Bible College.

Table 9 shows the challenges and barriers students and higher education faces in integrating digital materials into the classroom in Monrovia Bible College; and 75% of the respondents considers lack of access to reliable internet as a challenge, 69.8% of the respondents considers lack of technical skills among the students and faculty staff as a challenge, 69.8% of the respondents also consider the lack of sufficient hardware and software infrastructure as a challenges.

While 71.7%, 72.7% and 75% of the respondents consider the lack of support and resources from college administration, lack of student motivation and engagement, and the technical difficulties frequently arise when using digital materials as challenges respectively.

5.2. Conclusion and Recommendations

In this section, conclusion and recommendation of the study are presented.

5.2.1. Conclusion

The study conducted aims to finds The Contribution of Digital Materials to Students Learning Performance in Higher Education in Liberia, with a Case study of Monrovia Bible College.

The study finds that the current status of integrating digital materials in colleges in Liberia, regarding the means and usage of digital tools level among the students in Monrovia Bible College, the most devices they primary use to access digital materials is smartphone, and most of the respondents use the digital materials in their current course daily. On the comfort level of using digital materials, most of them are very comfortable. Regarding the accessibility of the digital infrastructure and digital literacy skills, the study finds that the majority of the respondents do have their own devices, they do have the internet access both at home and even at school, and also, they did have received training or support on how to use digital materials for their studies. Finally, regarding the existence and user friendly of digital materials used in Monrovia, the study finds that chatrooms and discussions forums, online research data and libraries are all available in the school.

On the contribution of integrating digital materials in the improvement of students' performance in Higher education, the study finds that , digital materials have helped the students to stay

engaged and motivated in their coursework, provided them with more opportunities for interactive and collaborative learning, helped them to better prepare for exams and assessments, improved their ability to apply course content to real-world situations, develop important skills, such as critical thinking and problem-solving, The use of digital materials has made learning more enjoyable for the students and, have helped to develop important digital literacy skills.

On determining the challenges and barriers students and higher education faces in integrating digital materials into the classroom, the study finds the challenges that follows: lack of access to reliable internet, lack of technical skills among students and faculty staff, the lack of sufficient hardware and software infrastructure, the lack of training and professional development opportunities for faculty, the lack of support and resources from the college administration, the lack of student motivation and engagement, and technical difficulties frequently arise when using digital materials.

5.2.2. Recommendations of the study

Based on the findings aforementioned, the following are the recommendations to key stakeholders for improving the integration of digital materials in the improvement the students' performance in Higher learning Institution.

1. Improve Internet Accessibility: Ensure that all students have reliable and affordable access to the internet. A stable internet connection is essential for accessing digital materials and participating in online learning activities.

2. Enhance Digital Literacy Initiatives: Develop and implement comprehensive digital literacy programs for students and faculty. These programs should focus on building essential technical skills and promoting digital confidence.

3. Invest in Technology Resources: Allocate sufficient resources to upgrade hardware and software infrastructure across the college. Adequate technology resources are crucial for effective use of digital materials.

4. Provide Institutional Support: Establish clear institutional policies and provide financial support for digital initiatives. A supportive institutional framework is essential for successful digital integration.

5. Promote Student Engagement: Encourage faculty to create engaging digital content and learning activities. Active student engagement is key to maximizing the benefits of digital materials.

6. Ensure Technical Support and Maintenance: Establish a responsive technical support system to address user issues promptly. Regularly update and maintain digital platforms to minimize technical disruptions.

5.3. Areas for further studies

The future researchers should conduct the studies in assessing the impact of digital learning in improving the quality of education in Liberia.

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APPENDICES

Appendix 1: Consent letter

KIGALI INDEPENDENT UNIVERSITY ULK

POSTGRADUATE STUDIES

MASTERS IN DEVELOPMENT STUDIES (MDS)

Dear Participant,

I am writing to request your participation in a research study on the contribution of digital materials to students' learning performance in higher education at Monrovia Bible College. The purpose of this study is to understand the status of integrating digital materials, evaluate the contribution of integrating digital materials, and determine the challenges and barriers faced by students and higher education in integrating digital materials into the classroom.

Your participation in this study would involve completing a survey questionnaire that will take approximately 15 minutes to complete. The survey will consist of questions related to your demographic information, your perceptions and status of the integration of digital materials, the contribution of digital materials to the improvement of academic performance, and the challenges and barriers faced in integrating digital materials into the classroom. Your participation is entirely voluntary, and you may withdraw at any time without penalty.

Your participation will help to advance knowledge in this field, and the results of this study will be used for research purposes only. Your responses will be kept confidential, and no identifying information will be included in any reports or publications. Your participation in this study will not affect your academic status at Monrovia Bible College in any way.

If you agree to participate in this study, please sign and date the attached consent form and return it to me via email at encourageafrica@gmail.com. If you have any questions or concerns about the study, please do not hesitate to contact me at 0791240913.

Thank you for considering this request for your participation.

Sincerely,

Nelson Teah Toe Jr.

Appendix 2: QUESTIONNAIRE

INSTRUCTIONS:

1) Please read each question carefully and select the answer that best reflects your opinion or experience by using a tick (**V**).
2) If a question does not apply to you, please select "N/A".
3) Please answer all questions truthfully and to the best of your ability.
4) Your participation in this study is voluntary and your responses will be kept confidential.

SECTION ONE: DEMOGRAPHIC IDENTIFICATION

1.1.Age

a) 16 – 20 years old ☐
b) 21 – 25 years old ☐
c) 26 – 30 years old ☐
d) 31 – 35 years old ☐
e) More than 35 years old ☐

1.2.Sex

a) Male ☐
b) Female ☐

1.3.Marital status

a) Single ☐
b) Married ☐
c) Co-habitation ☐
d) Divorced ☐
e) Widowed ☐

1.4.Do you have any disability

a) Yes ☐
b) No ☐

1.5.Year (s) you have been studying at Monrovia Bible College

a) 1 ☐
b) 2 ☐
c) 3 ☐
d) 4 ☐
e) 5 ☐
f) More than 5 ☐

1.6.Academic program

a) Theology ☐
b) Religious education ☐
c) School administration ☐
d) Primary education ☐
e) Secondary education ☐
f) Accounting ☐
g) Management ☐
h) Public Administration ☐
i) Economics ☐
j) Professional nursing ☐
k) Public health ☐
l) Other, please specify: ----------

2. Academic level

a) Level I ☐

b) Level II ☐

c) Level III ☐

d) Level IV ☐

e) Level V ☐

3. Occupation status

a) Employed full-time ☐

b) Employed part-time ☐

c) Unemployed ☐

d) Student full-time ☐

SECTION TWO: THE STATUS OF INTEGRATING DIGITAL MATERIALS IN MONROVIA BIBLE COLLEGE

2.1. What devices do you primarily use to access digital materials

a) Personal computer ☐
b) Laptop ☐
c) Tablet ☐
d) Smartphone ☐
e) Other, please specify: ----------

2.2. How often do you use digital materials in your current course

a) Daily ☐
b) Several times a week ☐
c) Once a week ☐
d) Rarely ☐
e) Never ☐

2.3. How do you rate your overall comfort level using digital materials

a) Very uncomfortable ☐
b) Somewhat comfortable ☐
c) Neutral ☐
d) Somewhat comfortable ☐
e) Very comfortable ☐

2.4. The accessibility of the digital infrastructure and digital literacy skills

*Note: Please tick (**V**)to the right answer*

	Statement	**YES**	**NO**
1.	Do you use your own devices		
2.	Do you use the school devices		
3.	Do you have reliable access to the internet at home		
4.	Do you have reliable access to the internet at school		
5.	Have you received any training or support on how to use digital materials for your studies		
6.	Have you used digital materials in your studies before, either at Monrovia Bible College		
7.	Have you previously used digital materials in your education		

2.5. How do you rate the accessibility and existence of digital materials in Monrovia Bible College?

*Note: Questions/statements are asked /stated in a five-Likert model. In such a way, you should choose only one number on correspondence by **ticking (V)** to your best answer /choice.*

1	2	3	4	5
Very uncomfortable	Uncomfortable	Neutral	Comfortable	Very comfortable

	Statement	Very uncomfortable (1)	Uncomfortable (2)	Neutral (3)	Comfortable (4)	Very comfortable (5)
	E-books & online textbooks					
	Video lectures					
	Chatrooms & discussion forums					
	Online quizzes and assessments					
	Online research, data & libraries					
	Webinars & live-streamed lecturing					

2.6. How do you rate the user-friendly of the digital materials?

Note: Questions/statements are asked /stated in a five-Likert model. In such a way, you should choose only one number on correspondence by ***encircling*** *to your best answer /choice.*

1	2	3	4	5
Very uncomfortable	Uncomfortable	Neutral	Comfortable	Very comfortable

	Statement	Very uncomfortable (1)	Uncomfortable (2)	Neutral (3)	Comfortable (4)	Very comfortable (5)
	E-books & online textbooks					
	Video lectures					
	Chatrooms & discussion forums					
	Online quizzes and assessments					
	Online research, database & libraries					
	Webinars & live-streamed lecturing					

2.7. The integration level digital materials in the course learning in Monrovia Bible College

Note: Questions/statements are asked /stated in a five-Likert model. In such a way, you should choose only one number on correspondence by ***ticking (V)*** *to your best answer /choice.*

1	2	3	4	5
Strongly Disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly Agree (SA)

N/O	Statement	1 SD	2 D	3 N	4 A	5 SA
1.	Digital materials (e-books, online textbooks, video lectures, etc.) are readily available for use in my coursework.					
2.	The college provides adequate technology infrastructure and support for the use of digital materials.					
3.	Faculty members effectively integrate digital materials into their lectures and coursework.					
4.	I have access to reliable and high-speed internet for using digital materials					
5.	The college provides adequate training and support for using digital materials					
6.	The cost of digital materials is reasonable and affordable.					
7.	The college encourages the use of digital materials in the classroom					
8.	The college provides a sufficient number of devices for students to use digital materials.					

9.	The college provides adequate technical support to faculty to ensure they can effectively integrate digital materials into their teaching					
10.	The college actively seeks feedback from students regarding the use of digital materials in the classroom.					
11.	The Monrovia Bible College regularly updates its digital materials to ensure they are up-to-date and relevant					
12.	The use of digital materials at Monrovia Bible College is easily accessible and user-friendly.					

SECTION THREE: THE CONTRIBUTION OF INTEGRATING DIGITAL MATERIALS IN THE IMPROVEMENT OF STUDENTS' PERFORMANCE AT MONROVIA BIBLE COLLEGE

*Note: Questions/statements are asked /stated in a five-Likert model. In such a way, you should choose only one number on correspondence by **ticking (V)** your best answer /choice.*

1	2	3	4	5
Strongly Disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly Agree (SA)

N/O	Statement	1 SD	2 D	3 N	4 A	5 SA
1.	Digital materials have helped me to stay engaged and motivated in my coursework					
2.	Digital materials have provided me with more opportunities for interactive and collaborative learning					
3.	Digital materials have helped me to better prepare for exams and assessments					
4.	Digital materials have positively impacted my understanding of course content					
5.	Digital materials have helped me to be more engaged in the learning process					
6.	Digital materials have helped me to better understand complex concepts					
7.	Digital materials have improved my ability to apply course content to real-world situations					

8.	Digital materials have improved my overall academic performance					
9.	Digital materials have helped me to develop important skills, such as critical thinking and problem-solving					
10.	The use of digital materials has made learning more enjoyable for me					
11.	Digital materials have helped me to develop important digital literacy skills					
12.	Digital materials have increased my engagement and participation in class.					

SECTION FOUR: THE CHALLENGES AND BARRIERS STUDENTS AND HIGHER EDUCATION FACES IN INTEGRATING DIGITAL MATERIALS INTO THE CLASSROOM IN MONROVIA BIBLE COLLEGE

*Note: Please **tick (V)** to where all apply*

Statement	Frequency	Percentage
Lack of access to reliable internet.		
Lack of technical skills among students		
Lack of technical skills among faculty.		
The cost of accessing digital materials		
The availability of digital materials in local languages		
The lack of sufficient hardware and software infrastructure		
The lack of training and professional development opportunities for faculty		
The lack of support and resources from the college administration		
The lack of student motivation and engagement		
The quality of digital materials available in the classroom is poor		
Technical difficulties frequently arise when using digital materials		
There is a lack of awareness among students and faculty members about the benefits of using digital materials in the classroom		
The use of digital materials in the classroom requires additional time and effort from both		

students and faculty		
Students may face distractions when using digital materials in the classroom		
The use of digital materials lead to a widening of the digital divide among students		

Appendix 2: INTERVIEW GUIDES ADDRESSED TO THE STUDENTS

Notes: Remember, the interview should be a conversation, and it's important to follow up on interesting or relevant points made by the participant. Also, be prepared to adapt or modify the questions based on the participant's responses.

1. Can you tell me about your experience in using digital materials in your coursework at Monrovia Bible College?
2. In your opinion, how have digital materials affected your academic performance?
3. Have you noticed any differences in your learning experience when using digital materials compared to traditional learning methods?
4. How do you feel about the integration of digital materials into the classroom?
5. Are there any challenges or barriers that you have faced in using digital materials in your coursework?
6. How do you think the use of digital materials has impacted your motivation to learn?
7. In your opinion, how effective are the digital materials provided by the college?
8. Have you received any training or support on how to use digital materials in your coursework?
9. How do you think the use of digital materials can be improved in the classroom?
10. Do you have any additional comments or suggestions on the use of digital materials in higher education?

Appendix 4: INTERVIEW GUIDE ADDRESSED TO THE MONROVIA BIBLE COLLEGE ADMINISTRATORS & ACADEMICIAN

Notes: remember to adapt and modify the questions based on the administrator's responses, and keep the interview conversational while still focusing on the research objectives.

1. Can you tell me about the current status of integrating digital materials in the curriculum at Monrovia Bible College?
2. What are the benefits of integrating digital materials into the classroom, according to the college's perspective?
3. What are the main challenges or barriers faced by the college in integrating digital materials into the classroom?
4. What measures have been taken by the college to ensure that students and faculty have access to and are comfortable using digital materials?
5. How does the college measure the effectiveness of digital materials on students' academic performance?
6. In your opinion, what are the best practices for integrating digital materials into the curriculum effectively?
7. Are there any concerns or potential drawbacks of integrating digital materials into the classroom?
8. How do you see the role of digital materials evolving in the future of higher education at Monrovia Bible College?
9. How does the college ensure that faculty members are trained and equipped to integrate digital materials effectively?

10. Do you have any additional comments or suggestions on the use of digital materials in higher education?