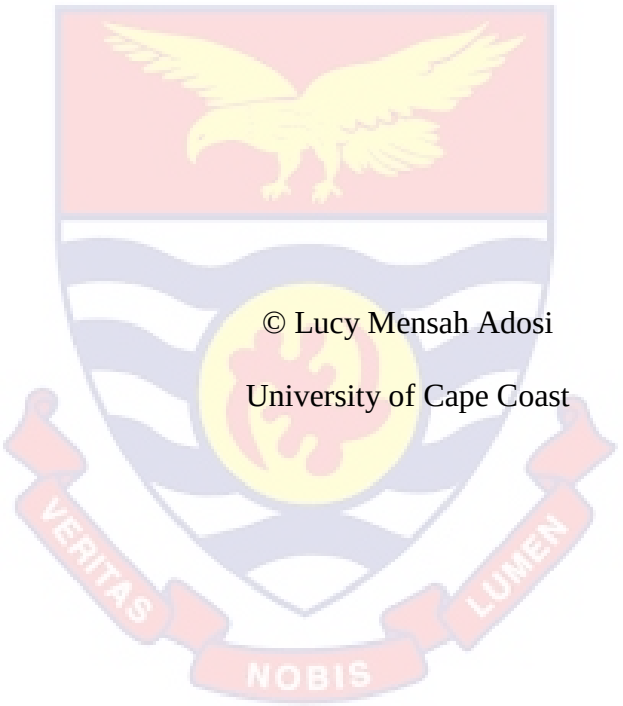
UNIVERSITY OF CAPE COAST

UNIVERSITY OF CAPE COAST SANDWICH POSTGRADUATE STUDENTS' EXPERIENCES AND EXPECTATIONS OF ONLINE LEARNING

LUCY MENSAH ADOSI

2023



UNIVERSITY OF CAPE COAST

UNIVERSITY OF CAPE COAST SANDWICH POSTGRADUATE STUDENTS' EXPERIENCES AND EXPECTATIONS OF ONLINE LEARNING

BY

LUCY MENSAH ADOSI

Thesis submitted to the Institute for Educational Planning and Administration, University of Cape Coast, in partial fulfilment of the requirements for award of Master of Philosophy degree in Administration in Higher Education

DECEMBER 2023

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my original research and that no part has been submitted for another degree in this university or elsewhere.

Candidate's Signature: …… Date: ……

Name: Lucy Mensah Adosi

Supervisor's Declaration

I hereby declare that the preparation and presentation of this thesis were supervised in accordance with the guidelines on the supervision of thesis laid down by the University of Cape Coast.

Supervisor's Signature: ……. Date: …….

Name: Dr. Edward Akomaning

ABSTRACT

This study explored the experiences and expectations of sandwich postgraduate students at the University of Cape Coast in their online learning environment using a concurrent mixed methods design. The study focused on 2022 and 2023 cohorts, with 426 students participating in the quantitative phase and nine course representatives providing qualitative insights. Guided by the Technology Acceptance Model and Social Constructivism Learning Theory, the study analysed quantitative data using descriptive statistics and qualitative data using thematic analysis. The findings showed that many students struggled with unreliable internet connectivity, only 4% received technical support from UCC, and over half (232 students) lacked a dedicated learning space. However, students benefited from interactive communication with lecturers and flexibility in study schedules. Key challenges included unstable internet connectivity and high data costs, which affected student participation. To address these challenges, the study proposed a Theory of Change for Online Learning Experiences to improve students' engagement and academic success. The model focuses on improving technology by enhancing internet access, providing learning devices, and strengthening IT support. It also highlights the need for better course design with more interactive and engaging content, stronger student support through timely instructor feedback and guidance, and training students in time management and digital literacy to promote independent learning. The study concluded that UCC needs to improve its support for online learning, as students want a more engaging and responsive virtual environment. It is recommended that Heads of academic departments adopt the proposed Theory of Change to create a better online learning experience for students.

KEY WORDS

Postgraduate students

Sandwich students

Experiences

Expectations

Online learning

ACKNOWLEDGEMENTS

My sincerest gratitude goes to my supervisor, Dr. Edward Akomaning, of the Institute for Educational Planning and Administration (IEPA), for the guidance during this research.

I am very grateful to all UCC Sandwich Postgraduate students who served as respondents/participants in this study.

My heartfelt appreciation also goes to all my family members for their immense support in this research.

DEDICATION

To my awesome husband and wonderful children

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

UCC	University of Cape Coast
IEPA	Institute for Educational Planning and Administration
M.Ed	Master of Education
UCC IRB	University of Cape Coast Institutional Review Board

CHAPTER ONE

INTRODUCTION

Background to the Study

The rapid advancement of Information and Communication Technology (ICT) has significantly transformed various aspects of society, with education being one of the most profoundly impacted sectors. The increasing integration of technology into education has led to the widespread adoption of online learning, which offers students flexible and accessible alternatives to traditional face-to-face instruction. Technological advancements, improved internet connectivity, and evolving educational needs have all contributed to the expansion of online learning, prompting higher education institutions worldwide to incorporate digital platforms into their curricula.

Online learning has a long history, dating back to the early 1980s when computer conferencing systems were first developed. The New Jersey Institute of Technology was one of the pioneering institutions to implement online education through a virtual classroom model between 1985 and 1987, using conferencing software developed by Roxanne Hiltz and Murray Turoff (Hiltz, 1995; Bates, 2008). Since then, advancements in digital technology have facilitated the expansion of online education, making it a central component of modern higher education. Many universities now integrate online learning with collaborative teaching resources to enhance student engagement, accessibility, and participation (Rodriguez, Ooms, & Montanez, 2008).

The growing appeal of online learning stems from its ability to provide students with self-paced learning opportunities while accommodating their

professional and personal commitments. Beqiri, Chase, and Bishka (2009) argue that online learning enables students to achieve their academic and career goals more effectively than traditional classroom-based instruction. This flexibility has led to a substantial increase in enrolment in online programmes, particularly among working professionals, such as sandwich postgraduate students at the University of Cape Coast (Bocchi, Eastman, & Swift, 2004).

With the continuous evolution of digital technologies, online learning has become an essential mode of educational delivery in both academic institutions and corporate settings (Castro & Tumibay, 2021). The integration of technology and pedagogical advancements has established a new paradigm for teaching and learning (Volery & Lord, 2000). Higher education institutions worldwide, including the University of Cape Coast, have increasingly expanded their online course offerings (Haugen, LaBarre, & Melrose, 2001; Liaw & Huang, 2002). Fuady, Sutarjo, and Ernawati (2021) predict that the prominence of online learning will continue to grow in the coming years, as more institutions embrace digital platforms for teaching and learning.

Despite these advancements, concerns remain regarding the quality and effectiveness of online learning. Key stakeholders in higher education—including facilitators, students, and administrators—have expressed scepticism about whether online learning can produce learning outcomes comparable to traditional face-to-face instruction. Some researchers argue that the effectiveness of online education varies significantly across different regions, depending on the availability of digital infrastructure. While developed countries such as Germany, Switzerland, and the United Kingdom possess the

necessary resources to support online learning, many developing nations, including Ghana, face significant challenges due to inadequate technological infrastructure (Castro & Tumibay, 2021; Fuady, Sutarjo, & Ernawati, 2021; Liaw & Huang, 2002).

As online education continues to expand, researchers have raised critical questions about its effectiveness and accessibility. Song, Singleton, Hill, and Koh (2004) identified key issues that higher education institutions must address: What are students' perceptions of online learning? What factors enable students to succeed in an online learning environment? How can universities enhance student engagement and retention in online courses? Addressing these questions is essential for improving the quality of online education and ensuring that students benefit fully from digital learning environments.

Rodriguez et al. (2008) emphasise that sustaining student enrolment in online programmes depends largely on students' experiences and expectations. Dobbs, Waid, and del Carmen (2009), as well as Motargy and Boghikian-Whitby (2010), support this view, arguing that a clear understanding of students' needs is crucial for refining online learning models. However, while international research has provided insights into students' experiences with online learning, studies on Ghanaian higher education institutions remain limited.

The COVID-19 pandemic accelerated the global adoption of online learning, bringing unprecedented disruptions to education. In March 2020, higher education institutions worldwide were forced to transition from traditional classroom instruction to remote learning (Almahasees, Mohsen, &

Amin, 2021). In Ghana, universities, including the University of Cape Coast, closed their campuses and shifted to online learning in response to government-mandated stay-at-home orders (Tabiri, Jones-Mensah, Fenyi, & Asunka, 2022). This rapid transition placed a considerable burden on universities to develop robust online learning models that could accommodate a diverse student population, including working professionals enrolled in sandwich postgraduate programmes.

Recent educational reforms and corporate shifts continue to mandate the adoption of innovative instructional approaches, including online learning (Almahasees, Mohsen, & Amin, 2021). However, as Greener (2008) points out, despite its differences from traditional classroom instruction, online education requires rigorous monitoring and assessment to ensure quality. Armstrong (2011) also highlights the need for university administrators to consider both the number of degrees awarded and the quality of student learning outcomes.

The widespread adoption of online learning necessitates a comprehensive evaluation of students' experiences to determine its effectiveness. O'Malley and McGraw (1999) argue that understanding students' encounters with online learning is essential for improving instructional delivery. Roach and Lemasters (2006) further emphasise that student satisfaction is a crucial measure of online education's success. While technological advancements have facilitated the expansion of digital learning, evaluating students' perspectives remains a critical step in ensuring its long-term viability.

Given the increasing reliance on online learning, particularly for postgraduate programmes at the University of Cape Coast, it is important to assess students' experiences and expectations regarding digital education. This study explores the realities of online learning for sandwich postgraduate students at UCC, examining both the challenges they face and the expectations they hold for improving the online learning environment. The study is grounded in the Technology Acceptance Model (TAM) and the Social Constructivism Learning Theory (Davis, 1989; Vygotsky & Cole, 2018), providing a theoretical framework for analysing students' engagement with online learning.

Findings from this study will offer valuable insights for policymakers, educators, and university administrators, helping to inform data-driven strategies for improving online education. Understanding students' experiences will enable UCC to refine its digital learning platforms, address existing challenges, and enhance the overall effectiveness of online learning for postgraduate students.

Statement of the Problem

The closure of schools in Ghana during the 2019/2020 academic year due to the COVID-19 pandemic led to a rapid and unprecedented transition from face-to-face instruction to online learning across various higher education institutions. Since 2020, the University of Cape Coast (UCC) has integrated online learning into its sandwich-mode postgraduate programmes to enhance accessibility and provide greater flexibility for students balancing academic, professional, and personal responsibilities (Darkwa & Antwi, 2021). This blended approach aligns with global trends in higher education,

where digital learning technologies are increasingly used to support student engagement and learning continuity.

Despite its potential benefits, anecdotal evidence suggests that UCC sandwich postgraduate students encounter significant challenges in the online learning environment. A major concern is the issue of unstable internet connections, which makes it difficult for students to participate in live sessions, engage in interactive discussions, and access course materials effectively. However, it remains unclear whether these challenges are widespread across the student population or if they reflect the experiences of a specific subset of learners. This uncertainty raises critical questions about the effectiveness of UCC's online learning model in meeting students' academic needs.

Furthermore, the integration of online learning into sandwich postgraduate programmes has been in place for over three years, yet a review of available academic sources—including UCC's institutional repository, Google Scholar, JSTOR, Scopus, and ERIC—reveals a lack of empirical research on the experiences of sandwich postgraduate students with online learning. The absence of systematic studies creates a knowledge gap, making it difficult for UCC administrators and stakeholders to implement targeted, data-driven interventions to enhance the online learning experience. Without concrete evidence on students' challenges and expectations, institutional efforts to refine the online learning framework may not adequately address the actual needs of learners.

International studies on students' experiences with online learning have highlighted critical issues such as unreliable internet connectivity

(Basuony, EmadEldeen, Farghaly, El-Bassiouny, & Mohamed, 2021; Agung, Surtikanti, & Quinones, 2020) and inadequate access to information technology (IT) equipment (Bączek, Zagańczyk-Bączek, Szpringer, Jaroszyński, & Wożakowska-Kapłon, 2021). While these findings provide valuable insights into students' challenges, they primarily focus on broader contexts and do not sufficiently address the unique experiences and expectations of Ghanaian higher education students. Specifically, there is a notable gap in the literature concerning how UCC sandwich postgraduate students navigate online learning, the nature of difficulties they encounter, and the extent to which their expectations align with their actual learning experiences.

Addressing this gap is essential for improving the quality and effectiveness of UCC's online learning framework. This study explores the experiences and expectations of sandwich postgraduate students regarding online learning at UCC. The findings will provide stakeholders with empirical evidence to guide the development of data-driven strategies that enhance student engagement, improve online learning accessibility, and ensure that digital education meets the academic and professional needs of postgraduate learners.

Purpose of the Study

This study sought to provide empirical evidence about UCC sandwich postgraduate students' experiences and expectations with regard to UCC recent introduction to online facilitation.

Research Questions

The following research questions were formulated to guide the study.

1. What online learning conditions were experienced by UCC sandwich postgraduate students during their online learning?
2. How did online learning benefit UCC sandwich postgraduate students?
3. What challenges did UCC sandwich postgraduate students encounter during their online learning?
4. What expectations do UCC sandwich postgraduate students have for future online learning?

Significance of the Study

As postgraduate students, the expectation is that they will pursue academic excellence in a rigorous yet user-friendly environment (i.e. online learning platforms). Therefore, finding out their experiences and expectations about online learning through thorough research is vital to facilitating their smooth and successful experience. The absence of empirical research on the sandwich postgraduate students' experiences and expectations of online learning at the University of Cape Coast prevents the University administration from making data-driven decisions. According to Tabiri et al. (2022), failing to get timely consumer feedback is one of the primary reasons why most institutions fail to satisfy most of their customers. Based on this assertion, one may conclude that a lack of study in this area may limit the administration of the University of Cape Coast's grasp of the benefits and problems of online learning from the students' perspective, as well as what can be done to improve it.

Notably, Ward and LaBranche (2003), cited by Smart and Cappel (2006), emphasised the relevance of research in enhancing online learning

experiences. In addition, Fedynich, Bradley, and Bradley (2015) assert that the needs and expectations of students must be prioritised while planning, creating, and delivering online courses. This study will highlight students' online learning experiences and expectations in terms of what works and what needs improvement. This information will be relevant to educational institutions, the government, and other stakeholders involved in the designing, development, and delivery of education through online means.

Delimitations

This study is delimited to investigating the experiences and expectations of sandwich postgraduate students at the University of Cape Coast (UCC) in Ghana regarding online learning. The focus is specifically on sandwich postgraduate students who access a portion of their academic curriculum through digital platforms. As a result, the study relies on the perspectives of these students to understand their engagement with online learning and the challenges they encounter.

In examining students' online learning experiences, the study is delimited to three key aspects: the availability and reliability of internet connectivity, the extent of technical support provided by UCC, and whether students have dedicated learning spaces conducive to online studies. These factors are considered essential in shaping students' ability to participate effectively in virtual learning environments.

With regard to students' expectations, the study focuses on the types of online activities and interactions they anticipate in their virtual learning environment. Understanding these expectations will help identify

gaps in the current online learning structure and inform strategies to enhance digital education delivery.

UCC offers approximately 83 postgraduate programmes under the sandwich mode (UCCMIS, 2023). Upon completion, students earn various degrees, including Master of Science (MSc), Master of Business Administration (MBA), Master of Arts (MA), Master of Education (MEd), and Master of Philosophy (MPhil). The study is delimited to students enrolled in these programmes, as they represent a diverse group of learners who experience both online and face-to-face instructional modes.

Limitations

This study was conducted at the University of Cape Coast, one of the higher education institutions in Ghana offering sandwich postgraduate programmes. It will, therefore, not be appropriate to generalise the findings of this research to all sandwich postgraduate students in the country. However, this study was limited to sandwich postgraduate students and did not cover the views of regular postgraduate students and both regular and sandwich undergraduate students. Additionally, the respondents' opinions of this study were gathered when the sandwich postgraduate students reported to school to study in the traditional face-to-face classroom setting after completing part of their studies online, and this affected the views they expressed.

Definition of Terms

To help readers of this study, the operational definition for some key terms has been provided.

Postgraduate students refer to students who have earned their undergraduate degrees and are pursuing additional education at the University of Cape Coast.

Sandwich students are learners who have enrolled in academic programmes that are brief and intensive (3 months) at the University of Cape Coast.

Experiences refer to the University of Cape Coast sandwich postgraduate students' encounters with online learning.

Expectations refer to how the University of Cape Coast sandwich postgraduate students want online learning.

Online learning refers to delivering instruction through electronic platforms over the internet at the University of Cape Coast.

Organisation of the Study

There are five chapters throughout the overall study. The study's introduction is covered in Chapter 1, which focuses on the study's background, problem statement, purpose, research questions, significance, delimitations, limitations, definition of terms, and organisation of the study. The review of related literature is the main subject of Chapter 2. The empirical investigations, theoretical, and conceptual framework are presented. The focus of Chapter 3 is the research methods. The research design, study area, population, sampling procedure, data collection instruments, data collection procedures, and data processing and data analysis are all covered in detail. The study's findings are presented in Chapter 4, along with a discussion. The summary, results, recommendations, and suggestions for additional research are all detailed in Chapter 5.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The global learner community has undoubtedly been forced to switch from the traditional in-class learning approach to online learning within a very short period because of the coronavirus disease (COVID-19), which first appeared worldwide in the first quarter of 2020. The COVID-19 epidemic caused the world to come to a standstill, and people were forced to stay inside their homes to prevent the disease from spreading. Despite this challenging circumstance, most academic institutions have tried to maintain the ongoing nature of the learning process. Most institutions of higher learning have transitioned to an entirely online mode of instruction, where students and teachers communicate with one another using various technology tools and methods. Universities in Ghana, including the University of Cape Coast, adopted the traditional in-class approach to learning and online learning due to the COVID-19 pandemic. Students access part of their courses online and then come to campus to continue their studies using the traditional in-class method.

The full benefit of online learning has now been realised, even though some institutions had practised it before the pandemic. There are numerous opportunities and advantages that online learning offers students, including convenience (Poole, 2000), flexibility (Chizmar & Walbert, 1999), time saving, teamwork, and chances to collaborate with people beyond geographical borders (Hung, Chou, Chen, & Owen, 2010). Additionally, it allows students to decide how to manage their time, space, pace, depth, and

breadth for their regular classwork, giving them more control over their learning activities (Stansfield, McLellan, & Connolly, 2004).

This study was designed to explore the experiences of sandwich postgraduate students of the University of Cape Coast with online learning and their expectations if they are to reaccess online learning at UCC. The primary focus of this chapter is the review of relevant literature. Frempong (2011) states that a literature review is a process of reading or finding the literature and a very interactive process of learning how past researchers approached a topic. Webster and Watson (2002), cited in Wegener and Leimeister (2012), assert that a thorough literature assessment establishes a solid foundation for knowledge advancement. Under the following headings, related online learning literature was reviewed:

- Definition of Online Learning
- Types of Online Learning
- Forms of Online Learning
- Tools and Platforms for Online Learning
- Review of Related Studies
- Online Learning in the Ghanaian Context
- Theoretical Framework
- Conceptual Framework
- Chapter Summary

Definition of Online Learning

A review of the literature reveals various definitions of online learning. Welsh et al. (2003) define online learning as the distribution of knowledge and instructions using computer network technology, primarily through the

internet. Similarly, Masrom (2007) describes online learning as an educational form enabled by the internet and its technologies, including using the World Wide Web (WWW) to provide course materials and support instruction.

Jenkins and Thorburn (2003) perceive online learning as the utilisation of information and communication technologies to facilitate education. Other definitions include education delivered via a computer to enhance learning (Clark & Mayer, 2003, as cited in Moore, 2006). It can be deduced that scholars define online learning based on their familiarity with its delivery modes. For example, since the authors associate online learning with internet delivery, they base their definitions on this aspect. They also characterise online learning as being delivered through multimedia channels.

Welsh et al. (2003) specifically focus their definition on learning via the internet, implying accessing education online. Masrom (2007) views online learning as instruction provided through Information Communication Technology (ICT) or computers. These definitions suggest that researchers regard online learning as educational delivery via the internet and computer technology, encompassing both internet use and multimedia technology. Therefore, it can be concluded that online learning presents an alternative to traditional classroom or face-to-face learning. It also provides a method for accessing and delivering education through various technical means, such as the internet, multimedia, and other ICTs, to complement conventional classroom instruction. Unlike face-to-face teaching, online learning enables students to access education from institutions without being physically present, thus allowing more individuals to access education.

Types of Online Learning

Higher education institutions have adopted three primary types of online instruction delivery. Anastasiades and Retalis (2001) categorise these as full online learning, Web-assisted online learning, and hybrid or blended learning. Full online learning involves students undertaking their courses entirely through the internet and its technologies, without physical campus attendance. This mode, characterised by a lack of physical interaction between instructors and students, allows for self-directed and flexible learning. Young and Bruce (2011) note that in full online learning, all aspects, including teaching, learning, and course materials, are conducted online, addressing students' needs, interests, and learning preferences (Buzzetto-More, 2015). Web-assisted learning uses synchronous tools to enhance teaching and learning through course websites and other online tools. It features live instructions and interactions between teachers and students, similar to a conventional classroom but conducted online (Buzzetto-More, 2015).

Hybrid learning, as described by Allen and Seaman (2003), combines face-to-face interactions with online learning. Students complete part of their courses online and the remainder in physical classrooms. For example, the University of Cape Coast's sandwich postgraduate students access part of their courses online and complete the remainder on campus. Lorenzetti (2005) suggests that hybrid learning, which could represent the future of education, may encompass 80 to 90% of all higher education courses, supplementing traditional classroom instruction.

Torrisi and Davis (2000) indicate that hybrid learning is the most preferred among the three types, combining elements of both completely

online and web-assisted learning with conventional classroom instruction. For instance, students may study some course materials online before in-person classes, aiding their understanding (Smart & Cappel, 2006). It is evident that in all forms of online learning, face-to-face interaction is minimal or absent, relying on the internet and technical tools for education.

In 2002, less than half of all higher education institutions recognised online learning as crucial to their long-term strategy, a figure that increased to nearly seventy per cent by 2015 (Allen & Seaman, 2014; Nwankwo, 2015). Online learning can occur in asynchronous or synchronous interactive settings. Furthermore, the use of technology in education means that traditional classroom attendance is no longer necessary. Engelbrecht and Harding (2005) note that some academics define online learning as the delivery of educational content through various electronic media. Bauer and Kelly (2004, cited in Al-Busaidi, 2013) view online learning as internet-based learning that includes online collaboration, communication, and knowledge transfer. This study investigates students' experiences and expectations of online learning, as they are the primary beneficiaries of this IT-enabled education. It is important to understand their encounters and aspirations regarding this teaching and learning style.

Many higher education institutions globally, including in Sweden, India, and the USA, have embraced online education, offering part of their programs to international students. The University of the People in the USA, for example, provides all its programs online (University of the People, 2015 cited in Mamattah, 2016). Platforms like Coursera and EdX enable institutions such as Nanjing University, Vanderbilt University, Australian National

University, Cornell University, National Taiwan University, and the University of Tokyo to deliver their programs online (Coursera and EdX, 2015 cited in Kumar, Agrawal & Agrawal, 2015).

Forms of Online Learning

Online learning encompasses two primary forms: synchronous and asynchronous learning. Synchronous online learning involves students participating in live lectures and discussions led by an instructor. In this mode, learners log in at a designated time and interact directly with the lecturer and fellow students. These interactions occur with participants in different locations engaging simultaneously. One significant limitation of synchronous learning is the need for simultaneous engagement, which can create challenges such as conflicting schedules and differing time zones, as noted by Obasa et al. (2013). Tools supporting synchronous learning, identified by McGreal and Elliott (2004), include audio conferencing, chat, instant messaging, video conferencing, web conferencing, whiteboarding, and application sharing. Each of these tools serves to facilitate real-time interaction and collaboration between instructors and learners, striving to replicate the traditional classroom environment but without physical contact.

On the other hand, asynchronous learning does not require simultaneous participation, offering flexibility for students to learn at their own pace. This form of learning utilises tools that allow individuals to share information regardless of their location or time. Asynchronous learning is particularly advantageous for students in different time zones, as highlighted by Kocur & Kosc (2009). The tools used in asynchronous learning include databases for accessing teaching and learning resources at any time, document

libraries to track and resume learning progress, electronic books for offline study, and forums for course-related discussions. These tools facilitate a self-directed learning experience, allowing students to engage with course materials and discussions on their schedules.

The choice between synchronous and asynchronous learning depends on the specific educational needs and context. While synchronous learning is suitable for scenarios where real-time interaction is crucial, asynchronous learning is ideal for self-paced knowledge acquisition. It's important to note, as the study emphasises, that the term "online learning" is not confined to a specific style or form. Instead, it broadly encompasses teaching and learning facilitated by electronic technologies, covering both synchronous and asynchronous methods and their various tools and applications.

Tools and Platforms for Online Learning

Online learning platforms integrate various tools to create a cohesive educational experience, serving as the digital infrastructure for facilitating and supporting a broad spectrum of educational activities. These platforms host courses, enable interactions, and are distinct from online learning tools, which are specific applications and software designed to enhance virtual learning. The differentiation between tools and platforms lies in their scope and focus: tools represent the individual components necessary for specific tasks within the learning process, while platforms encompass these tools, providing a comprehensive environment for effective and engaging online education.

The origins of online learning can be traced back to the 1980s, stemming from computer conferencing, or computer-mediated communication (CMC), pioneered by Murray Turoff in 1970. This innovation laid the

groundwork for asynchronous communication, where messages from participants are centrally stored and accessible on demand, facilitating communication between lecturers and students irrespective of time or location. Initially, computer conferencing was limited to local networks, often within a single organisation. However, it evolved over time, with early software like Virtual Classroom or CoSy offering basic online exchanges between students and teachers.

The mid-1990s marked a significant turning point for online learning with the advent of the World Wide Web and its rapid adoption in higher education, especially in developed countries. This period saw the first university courses offered online, a notable example being the University of British Columbia in Vancouver, Canada. In conjunction with these developments, the university created WebCT, a software program designed to facilitate the delivery of online, web-based courses. This period also witnessed the emergence of other online tools like Blackboard Inc., which provided similar functionalities. The expanding use of the internet for educational purposes spurred the development of a variety of web-based technologies and platforms, catering to the growing demands of online learning in virtual learning environments.

In their categorisation of online learning tools, Chen, Hwang & Wang (2012) highlighted the diversity and functionality of these tools. Informative tools, for example, act as repositories for various media types, while communicative tools bridge the gap in time and geography between instructors and students. Constructive tools allow for the editing of data in multiple formats, aiding in the production of content that reflects learners'

understanding. Similarly, co-constructive tools foster collaborative work among students. Additionally, situating tools immerse users in contextual environments through simulations and virtual realities.

Institutional adoption of online education has also evolved. The British Open University, for instance, was an early adopter, offering a fully online course in 1998 using CoSy software. Similarly, the University of Cape Coast began its foray into online learning in 2006, later expanding its offerings in response to the COVID-19 pandemic. A key element in their online education delivery is the use of MOODLE, an open-source software developed to support constructivist, student-centred learning environments.

The concept of open-source software, essential in online learning platforms, champions the availability of source code to the public, facilitating collaborative development and customisation. This approach, contrasting with the limitations of proprietary systems like WebCT and Blackboard, offers educators and institutions the flexibility to tailor their digital learning environments to specific needs. With open-source platforms like MOODLE, users have a wider range of options for customisation and the capability to modify the software's code, thereby shaping the learning environment to align with their unique educational objectives.

Review of Related Studies

Osei's (2010) study on graduate students' views of Kwame Nkrumah University of Science and Technology's online distance learning program found favourable opinions towards online learning. Respondents expressed satisfaction with both the student support services and the online teaching and learning provided by their institution. Contrastingly, Sarpong, Dwomoh,

Boakye, and Ofosua-Adjei (2021) revealed that about 90.1% of students perceived online learning as ineffective due to barriers such as lack of access devices, erratic internet connectivity and high cost of internet data. This indicates a significant challenge in fully engaging in online classes.

Research in foreign literature, like Liaw and Huang (2002), suggests that if technology is well-utilised, online learning in a virtual environment can be enriching for both students and teachers. Rafique, Mahmood, Warraich, and Rehman (2021) echoed this sentiment, noting that online learning can be successful if it is well-designed, executed, and yields results comparable to direct instruction. Yang and Durrington (2010) found that students consider the online learning component the most crucial aspect of an online course's quality. Other important elements include the course structure and student support in online instruction, suggesting that while convenience is a factor, students are primarily attracted to online courses for their learning opportunities.

Mamatha's (2016) study at Ho Polytechnic revealed that online education has advantages over traditional classroom instruction, particularly because it employs multimedia tools. This approach enables students to apply concepts more realistically and facilitates clearer communication and understanding, especially when animations are used to illustrate complex topics. Guernsey (1998) outlined several benefits of online learning, including flexibility, ease of use, and no mandatory travel. Kocur and Kosc (2009) added that the flexibility of online learning allows students to study at their own pace and schedule. McDonald (1999-2000) and "Elearning" (2003), cited in Smart and Cappel (2006), noted that this flexibility also enables students to

access their programs from any location, eliminating the need to commute to campus.

Biesenbach-Lucas (2003) found that online learning creates a social learning environment where students can share knowledge and gain skills. However, Mores (2003) reported that students often feel frustrated due to malfunctioning online learning technologies. Lee et al.'s (2009) study in South Korea highlighted that perceived usefulness is a significant predictor of the intention to use online learning. They emphasised the need for online learning to be valuable and well-designed to encourage continued usage. Ku and Lohr (2003) discovered that Chinese students felt isolated and frustrated due to a lack of peer support in their initial online learning experiences. Similarly, Hara and Kling (2001) reported student distress in web-based distance education, noting feelings of frustration, anxiety, and confusion, primarily due to different locations and the need for self-discipline.

Gollady et al. (2000) indicated that online learning requires students to be self-motivated and committed, as they often join classes at their convenience. Buzzetto-More (2008) found at Maryland State University that a slight majority of students preferred hybrid learning over traditional face-to-face instruction, reflecting a growing interest in fully online courses. Masrom (2007) at the University of Technology of Malaysia City Campus noted that a positive perception of technology's usefulness is crucial for encouraging its use. However, the study also suggested that students' attitudes towards technology might not be equally significant. Essel, Owusu-Boateng and Saah (2008) reported a positive perception of course materials in terms of content, design, and usability, emphasising the importance of these aspects in distance

learning. Tagoe (2012) found that students at the University of Ghana who had prior IT competency favoured hybrid online learning over fully online options.

This review of related literature has significantly informed parts of this study, influencing the choice of theories, methodology, and data analytical tools. The Technology Acceptance Model and the Social Constructivist Theory of Learning were adopted to explore the University of Cape Coast Sandwich postgraduate students' experiences and expectations of online learning. The literature review guided the decision to use concurrent mixed methods, focusing on how students perceive online learning and its benefits and challenges. Consequently, this study adopted concurrent mixed methods, incorporating both qualitative and quantitative approaches, with thematic analysis and SPSS used to analyse data from semi-structured interviews and questionnaires.

Online Learning in the Ghanaian Context

The global COVID-19 pandemic has profoundly impacted various aspects of life, including education. As Mouchantaf (2020) notes, the epidemic led to the closure of educational institutions and the suspension of face-to-face instruction as a measure to slow the spread of the virus. This situation, detailed by Gupta et al. (2020), forced many universities worldwide to adopt online learning, both fully and partially. The shift to online learning offered several advantages, such as providing unrestricted access to education beyond the physical confines of campuses and alleviating the typically crowded schedules in lecture rooms during active academic seasons, as observed by Hadullo et al. (2018). This transition also highlighted the benefits of online teaching and

learning over traditional face-to-face methods, offering greater convenience and flexibility for both students and teachers.

The impact of COVID-19 on education was particularly evident in Ghana. Following the nationwide school closures on 15th March 2020, there was a rapid shift to online teaching and learning across the country's education sector, particularly in higher education institutions. This move, as Cromwell (2020) describes, was a strategic response to limit the spread of the coronavirus. However, the abrupt closure of higher education institutions had significant negative consequences, disrupting their operations and hindering students' progress towards their educational goals, as highlighted in a report by UNESCO (2020), cited in Demuyakor (2020). Despite these challenges, online learning emerged as a crucial and promising method for instruction in both the current and post-COVID era of higher education in Ghana, supplementing traditional on-campus face-to-face instruction.

The transition to online learning, however, was not without its difficulties. As reported by Anyorigya (2020), the National Union of Ghana Students (NUGS) petitioned the Ministry of Education to address ongoing issues related to online learning, citing difficulties faced by students in accessing these digital platforms. This sentiment was echoed in a survey by Sarpong et al. (2021) and the Centre for Social Science Research (CSSR) at the Kumasi Technical University, where 93% of university students in their final year expressed a preference to return to face-to-face systems due to these challenges. The issues faced in Ghana's education system are reflective of broader challenges encountered across Sub-Saharan Africa, as noted by Asunka (2008).

Despite these challenges, Tam and El-Azar (2020, cited in Maphosa, 2021) argue that the success of online learning hinges on students' willingness to engage with the technology, even with limited prior knowledge. It also requires a shift in focus away from traditional face-to-face instruction. In response to these challenges, higher education institutions in Ghana have made significant investments in their online learning infrastructure. The role of student acceptance in the success of online teaching and learning systems is well-documented (Turban et al., 2015). Therefore, this study underscores the need for empirical evidence on students' experiences with online courses and their expectations for future online education, particularly focusing on institutions like the University of Cape Coast, to effectively reassess and enhance their online learning offerings.

Theoretical Framework

Keller and Cernerud (2002) identified key factors such as age, prior computer use, technology acceptance, and individual learning styles as primary predictors influencing students' experiences and expectations of online learning in higher education. This study, which investigated the experiences and expectations of the University of Cape Coast's sandwich postgraduate students regarding online learning, draws upon two foundational theories: the Technology Acceptance Model (TAM) (Davis,1989) and Vygotsky's Social Constructivist Learning theory (Arduini-Van, 2020).

The Technology Acceptance Model (TAM), based on the theory of reasoned action, posits that a person's attitude significantly influences their social behaviour and the likelihood of adopting information systems, as Lin (2007) explains. Developed by Davis in 1989 and later referenced by Silva in

2015, TAM posits that users are more likely to adopt beneficial and easy to use technology. Dillon and Morris (1996) emphasise that the more users perceive a system as enhancing their work efficiency, the more likely they are to adopt it. TAM has been recognised by Legris et al. (2003) as a robust theoretical model that uses empirical data to predict and explain user adoption of information technology. It serves as a framework for understanding the factors influencing users' acceptance or rejection of technology and how external factors shape attitudes toward its use.

In his TAM model, Davis (1989) identified two critical cognitive beliefs: perceived usefulness and perceived ease of use. He posited that these beliefs directly or indirectly influence users' attitudes towards technology and their intentions to use it, ultimately affecting adoption decisions. The TAM model comprises four components: perceived usefulness, perceived ease of use, attitude towards usage, and the behavioural intention to use. Davis (1986), as cited in Masrom (2007), defined perceived usefulness as the user's subjective perception that using a particular technology will enhance their performance. In the context of this study, perceived usefulness helps to understand the experiences of University of Cape Coast Sandwich postgraduate students in online learning and their expectations for its future use.

Perceived ease of use, defined by Davis et al. (1989) and cited in Masrom (2007), is the degree to which individuals believe that using a technology will be effortless. Park and Choi (2009) also noted that it refers to the extent to which online learning is perceived as free of cognitive effort. In online learning, a certain level of comfort with technology is essential for full

participation, as pointed out by Lee and Witta (2001). Loyd and Gressard (1984) and Cheurprakobkit et al. (2002), as cited in Dabbagah (2007), suggest that the lack of technical skills can create barriers to online learning. Thus, for the University of Cape Coast study, perceived ease of use investigates the usability of online learning tools and their suitability for the students.

Attitude towards usage, as discussed by Taylor and Todd in 1995 and cited in Arif and Kanwal (2016), reflects the positive or negative feelings based on technology experiences. Davis (1993) described it as the degree to which a person positively associates a target system with their activities. In this study, this component explores the University of Cape Coast sandwich postgraduate students' attitudes based on their online learning experiences and how it shapes their future educational choices.

Behavioural intention to use, as discussed by Ajzen and Fishbein (2000) and cited in Huang et al. (2010), is influenced by students' attitudes toward online learning. Al-Gahtani and King (1999) note that both perceived usefulness and ease of use shape behavioural intentions. Nov and Ye (2008) further explain that positive perceptions of online learning's usefulness and ease lead to a more favourable attitude and intention to use it. This study applies this component to understand the intentions of University of Cape Coast sandwich postgraduate students to engage in online learning in the future.

Lastly, the Social Constructivist Learning Theory (SCLT), proposed by Lev Vygotsky between 1896 and 1934, emphasises learning as a social activity deeply embedded in social contexts. Vygotsky argued that learner interaction is crucial for effective learning. This theory becomes particularly

relevant for online learning, where digital platforms enable students to integrate their experiences and collaborate from any location. In this study, the SCLT offers a lens to examine the University of Cape Coast students' online learning experiences, focusing on their interactions with lecturers and peers, thus enriching the understanding of their online learning processes and outcomes.

Conceptual Frame Work

Researchers such as Buzzetto-More (2008), Lee et al. (2009) and Masrom (2007) have all talked about how students feel about online learning and what kinds of online learning they like best. In this study, I explored what the University of Cape Coast sandwich postgraduate students encountered with online learning and how and what they want online learning at the University of Cape Coast to be like in the future. The findings of this study will enable the management of the University of Cape Coast to make informed decisions about online teaching and learning in the University, leading to improved quality assurance.

The success of online education delivery thrives on specific factors; in line with the purpose of this study, I have conceptualised the University of Cape Coast sandwich postgraduate students' experiences and expectations of online learning into a four-variable conceptual framework. The first variable is conceptualised as *Technological Infrastructure*. This has to do with the resources such as the availability and accessibility of reliable internet connectivity, appropriate learning devices and the required software that facilitates the online learning environment.

Fedynich et al. (2015) mentioned that online education has certainly moved into higher education, continuously adding new programs. Vonderwell and Turner (2005) maintained that changes in technology instruction and pedagogy have led to a new way of teaching and learning in higher education; as a result, institutions of higher learning ought to ensure the availability of Technology Infrastructure to facilitate their online education delivery. This variable is characterised by online assessment tools, including Google Forms and plagiarism detection.

The second variable for successful online learning is *Learning Design in online learning.* Learning design in online learning involves the intentional and thoughtful creation of educational experiences in a digital environment. It encompasses the development of content, activities, assessments, and interactions that foster effective learning outcomes for online learners. The structure of the courses and learning resources, including multimedia, such as videos and interactive whiteboards, characterises this variable.

I have conceptualised the third variable for effective online learning as *Learner support.* Learner support is an essential component of online learning that aims to assist and guide students throughout their educational journey in a virtual environment. As online learning continues to grow in popularity, providing effective learner support becomes increasingly important to ensure student success and engagement. For example, the findings of a study by Osei (2010) on what graduate students think about the Kwame Nkrumah University of Science and Technology's online distance learning programme revealed that respondents said they were happy with online distance learning and their institution's support. This variable is characterised by technical support by

institutions and orientation programs for students to familiarise themselves with the online learning environment. It is further marked by instructors' feedback and support in online learning environments.

The last variable of effective online learning is *Self-Regulated Learning*. In online learning, where students have more control over their learning experiences, self-regulated learning, which is the ability of learners to set goals, monitor their progress, and employ strategies to regulate their learning effectively, is crucial for students in online learning environments. Self-regulated learning is self-motivation, where students join an online class without coercion, are self-disciplined and stay focused in an online environment regardless of distractions such as social media, email notifications and house chores. The findings of a study by Hara and Kling (2000) on students' distress on web-based distance education revealed that online learning requires self-discipline, which the students saw as challenging but a key to a successful online learning experience.

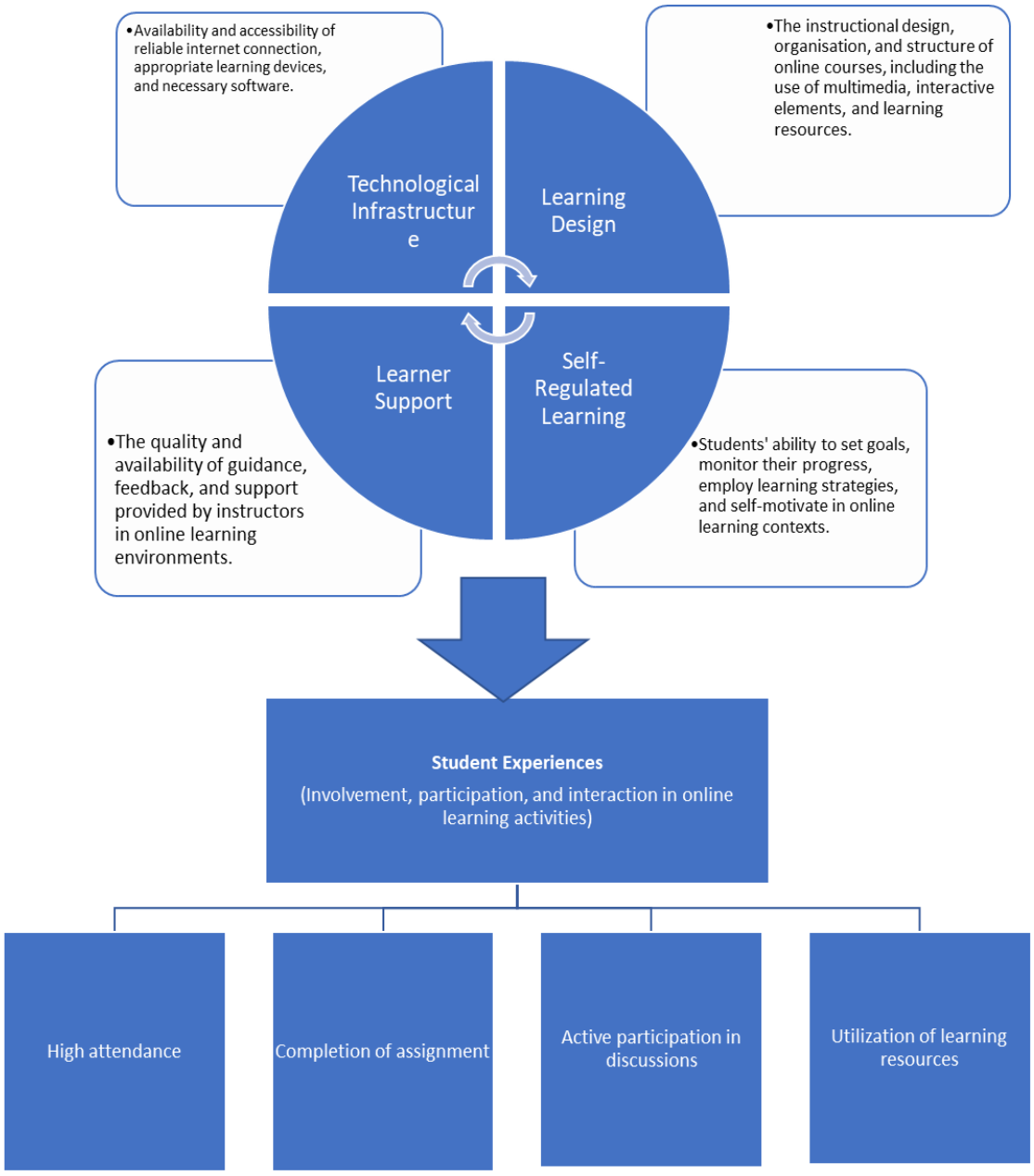


Figure 1: Conceptual Framework for Effective Online Learning

Source: Author's construct

Chapter Summary

This chapter presented a review of related literature on students' experiences and expectations of online learning. The review showed that, though online learning has benefits over traditional classroom settings, it also

has some challenges. The review revealed that perceived usefulness, perceived ease of use and attitude towards usage are the most significant predictors of intention to use online learning. For students to continue pursuing online learning, it should be designed to benefit them. The review noted that most students preferred hybrid/mixed to full online and traditional face-to-face learning. The literature review submits that a positive view of technology being useful is vital to encourage individual intention to use technology. The review further revealed that students who went to higher education institutions with fairly good IT skills were able to take part in online learning.

This study is grounded on the Social Constructivist Learning theory by Lev Vygotsky (1896 -1934), which highlights that learning is a social activity and, therefore, inseparable from its social context. Davis's (1989) Technology Acceptance Model theory proposes two factors that predict whether a technology will be accepted by its potential users. According to Davis, these factors are (1) perceived usefulness of the technology and (2) perceived ease of use of the technology. The most important thing about this model is that it focuses on how the potential user of technology sees it. The theory shows how people learn to use and accept technology. It also assumes that the actual system use is the end point where people use the technology and that behavioural intention is a factor that makes people use the technology.

A four-variable conceptual framework for effective online learning was conceptualised based on insights from the literature. The first variable is about various technologies that facilitate the delivery of educational content and enable effective interactions between instructors and learners in an online environment. I conceptualised it as *Technological Infrastructure*. The second

variable is the thoughtful process of creating educational experiences tailored explicitly for online environments, conceptualised as the *Learning Design* of online learning. The third variable is *Learner Support*, which is the support institutions and instructors offer students in an online learning environment. The fourth variable is about the capability of students to stay focused and self-motivated and set and monitor educational goals in an online context, which I conceptualise as *Self-Regulated Learning* by students.

CHAPTER THREE

RESEARCH METHODS

This chapter discusses the research approaches used in the study to ensure that the results are based on solid evidence. I discussed the methodology for exploring the University of Cape Coast sandwich postgraduate students' experiences with online learning and how they want the UCC online education delivery to be. Ihuah and Eaton (2013) defined research methods as the entire design process for undertaking research, including all of the steps, from the study's theoretical basis to the data collection and analysis. Sapsford and Jupp (2006), cited in Opie (2019), referred to research methods as a systematic plan for carrying out research. The research design, study area, population, sampling procedure, data collection instruments, data collection procedure, data processing and data analysis are all discussed in this chapter.

Research Paradigm

A paradigm can be defined as the way an individual views something. According to Kuhn (1962) cited in Kivunja & Kivunja (2017), paradigm refers to a philosophical way of thinking. Denzin and Lincoln (2000) also define a paradigm as human construction, which deals with first principles or ultimate indicating where a researcher is coming from to construct meaning rooted in data. Research paradigm can, therefore, be defined as the way a researcher sees and understands the world. Lather (1986) cited in Kivunja & Kivunja (2017), explains that a research paradigm inherently reflects the beliefs about the world that a researcher lives in and wants to live in. It constitutes the abstract beliefs and principles that shape how a researcher sees the world, and how the researcher interprets and acts within that world. It is the lens through

which a researcher looks at the world. It is the conceptual lens through which the researcher examines the methodological aspects of their research project to determine the research methods that will be used and how the data will be analyzed.

A research paradigm defines a researcher's philosophical orientation, and this has significant implications for every decision made in the research process, including the choice of methodology and methods. The philosophical approach guiding this study is pragmatism. Pragmatism is the philosophical approach that claims that an ideology or proposition is true if it works satisfactorily, that the meaning of a proposition is to be found in the practical consequences of accepting it, and that unpractical ideas are to be rejected. Pragmatics believe that an idea or a phenomenon can be explored with more than one research approach. Pragmatism allows researchers to use a variety of approaches to answer research questions that cannot be addressed using a singular method. Misak (2007) cited in Bacon (2012), identified three commitments that pragmatists tend to share. Firstly, pragmatists believe that standards of objectivity are historically situated, but their contingency does nothing to detract from their objectivity. Secondly, pragmatists believe that knowledge has and requires no foundation, and lastly, they believe in the importance of connecting philosophical concepts to the practices of everyday life. This study adopted pragmatism because it is an approach that emphasizes practicality, flexibility, problem-solving and aims to drive change or improvement. The pragmatism philosophical approach to research was employed for this study because the researcher used the mixed methods

approach, which allowed for both quantitative and qualitative methods to be adopted to provide a more comprehensive of the research problem.

Research Approach

A research approach refers to the methodology adopted by a researcher in a study. It involves the procedure by which the researcher collects, analyzes, and interprets data. A mixed methods approach was adopted for this study. This approach was employed for the study because it gives priority to both quantitative and qualitative methods in exploring a phenomenon resulting in a more comprehensive finding and generalizable understanding of the research problem, ultimately contributing to the advancement of knowledge and practice.

Research Design

The study adopted a concurrent mixed methods research design, facilitating the simultaneous collection and analysis of qualitative and quantitative data. This design aligned with the principles outlined by Creswell, Klassen, Plano Clark, and Smith (2011), emphasising the integration of both data types to enhance the understanding of research phenomena. The concurrent mixed methods approach was particularly advantageous in its ability to provide a comprehensive analysis of the research problem by harnessing the strengths of both qualitative and quantitative methodologies (Teddlie & Tashakkori, 2008).

The rationale for selecting this design was rooted in its suitability for exploring complex phenomena, particularly those involving human experiences and perceptions (Creswell, 2009). In this study, the concurrent mixed methods design was applied to explore the experiences and

expectations of sandwich postgraduate students at the University of Cape Coast (UCC) regarding their online learning. This approach allowed for a holistic understanding of the students' experiences by capturing the depth of qualitative data and the breadth of quantitative data simultaneously.

The qualitative component of this study involved conducting semi-structured interviews with a purposive sample of sandwich postgraduate students at UCC. These interviews were designed to elicit in-depth insights into the students' personal experiences, perceptions, and attitudes towards online learning. The interview protocol followed a thematic framework, allowing for flexibility in probing deeper into the topics of interest while maintaining a structured approach (Glesne, 2011). The qualitative data were analysed using thematic analysis, as outlined by Braun and Clarke (2006), to identify and interpret patterns and themes within the data.

Concurrently, a self-administered questionnaire was distributed to a broader sample of sandwich postgraduate students at UCC. The questionnaire aimed to quantify students' experiences, satisfaction levels, and expectations regarding online learning. Statistical analysis, including descriptive and inferential statistics, was employed to analyse the quantitative data. This approach aligned with Heale and Forbes (2013), who advocated for the use of statistical methods to complement and corroborate findings from qualitative analysis.

Following the principles of concurrent mixed methods design, the qualitative and quantitative data were integrated during the analysis phase. This integration involved comparing and contrasting findings from both data sets to derive a comprehensive understanding of the research problem

(Creswell et al., 2011). The integrated analysis enabled the study to address the research questions more effectively by leveraging the strengths of both methodological approaches.

Study Area

This research was carried out at the University of Cape Coast (UCC) to ascertain sandwich postgraduate students' experiences and expectations of online learning. The University of Cape Coast is a public collegiate higher education institution located in the historic town of Cape Coast in the Central Region of Ghana. It is situated within 500 metres of the Atlantic Ocean, making it one of the rare sea front universities in the world. It operates on the Southern and the Northern campuses, also known as the old and new sites respectively.

The University of Cape Coast (UCC) was preferred for the study area because it runs numerous postgraduate programmes on the sandwich mode. It is also the only University in Ghana and West Africa that is in the top 10 ranked Universities in Africa and has also retained its position as the top spot university in Ghana and West Africa for the third time in the 2024 Times Higher Education World University Rankings (UCC, 2023).

As the only university in Ghana to achieve this position in West Africa, UCC is expected to render the best services to its students. It was, therefore, imperative to explore the modes of delivery, particularly online delivery, to identify any lapses or gaps and address them to enable the university to preserve its enviable position.

Population

The population of a study refers to the entire set of people that a researcher is interested in studying. It is the sum of all the people who possess shared defining features that interest a researcher (Creswell, 2012). The University of Cape Coast runs a collegiate system and has five colleges, one of which delivers education on a distance mode, and the other four colleges offer education in both regular and sandwich modes. Academic programmes run by all five colleges are provided at both undergraduate and postgraduate levels. UCC offers 85 of its postgraduate programmes in the sandwich mode (UCCSGS, 2023).

Integrating online learning into the University of Cape Coast sandwich programme in the year 2020 as a preventive measure for COVID-19 saw a decline in student enrolment from 1229 students in the 2020 sandwich academic year to 1189 students in the 2021 sandwich academic year with a difference of 110. Student enrolment for the 2022 sandwich academic year increased to 1228 with a difference of 39. Unfortunately, the admission rate for the 2023 sandwich academic year dropped to 926, with a difference of 302 (UCCMIS, 2023). The student enrolment trend for the University of Cape Coast sandwich postgraduate programme after the incorporation of online learning into the programme can be described as inverse since the enrolment numbers from the 2020 to the 2023 sandwich academic years declined with a greater difference and increased with a smaller change. This study helps to discover what the UCC sandwich postgraduate students encounter with the online learning provided by UCC and how they want it to be.

The study's target population was the 2022 and 2023 cohorts of sandwich postgraduate students of the University of Cape Coast. The study population was delineated to the 2022 and 2023 cohorts of sandwich postgraduate students because, at the time of gathering data for this study, the 2022 cohort had encountered UCC's online learning for the second time and, therefore, had enough experience to give vital details of their experiences with online learning, which was fundamental to answering the research questions for this study. The 2023 cohort was also able to vividly recall and share details of their experiences with online learning because at the time data was being collected for this research, they had just ended online classes and reported to campus for the traditional face-to-face classroom learning, making it possible for them to respond to the research questions appropriately.

Mol, Van Boxtel, Willems, and Jolles (2006) assert that people's abilities to remember things are mostly affected as time passes. It was, therefore, worthwhile to limit the study population to the 2022 and 2023 cohorts of sandwich postgraduate students since they had currently accessed online learning. Table 1 shows the distribution of the study population.

Table 1: **Distribution of the Study Population**

College	Student Enrolment		
	2022 Cohort	2023 Cohort	Total
College of Agriculture and Natural Sciences	237	24	261
College of Education Studies	531	453	984
College of Health and Allied Sciences	29	18	47
College of Humanities and Legal Studies	431	431	862
Total	1228	926	2154

Source: UCCMIS (2023)

Sampling Procedure

Sampling is the process of selecting participants for research from a larger population. The primary goal of sampling is to generate a representative sample, a smaller group of individuals who accurately reflect the characteristics of the larger population that a researcher is interested in studying. A sample should be well selected to make the findings of a study generalisable to the target population. It is virtually impossible to observe every individual in research if the target population is too large for the researcher to plan a quality research study. Therefore, selecting study participants from a larger population is imperative to obtain data to answer the research question(s) without contacting the whole population.

The underlying idea of sampling is that accurate results can be obtained without gathering data from every member of a study population. This means that sampling will enable researchers to save time and money by minimising the amount of data they need to collect without sacrificing the accuracy of their findings (Denscombe, 2021). Researchers consider several factors when selecting a specific sampling method for their study. These factors include research objectives and population characteristics, such as population size and homogeneity. The choice of sampling method is highly dependent on such factors; hence the influences on researchers' decisions on sampling vary across disciplines and research questions of a study.

In the case of this study, the probability and non-probability sampling methods were employed in the selection of the study sample since both aligned with the purpose of the study, ensured the representativeness of the population and were feasible within the time constraint. In addition, the study

used concurrent mixed methods, so the data collection was in two forms; the qualitative form of data collection and the quantitative data collection procedure. Non-probability sampling was employed to select participants for the qualitative data collection procedure, while probability sampling was used to choose respondents for the quantitative data collection. According to Etikan & Bala (2017), non-probability sampling does not provide a basis for forming a judgment about the likelihood that all items in the universe will have the chance to be included in the research sample. Unlike probability sampling, not all population members are equally likely to be selected for a study in non-probability sampling, but researchers choose only those whom they deem fit to participate in the study.

The purposive sampling technique was adopted for the qualitative data collection phase. Twelve (12) participants comprising one (1) class rep from the 2022 cohort and 2 class reps from the 2023 cohort from each of the four colleges of UCC were chosen to solicit data for the interview questions. They were selected because they have led their colleagues to partake in the online learning provided by UCC and, therefore, had vital information about the experiences of the 2022 and 2023 cohorts of sandwich postgraduate students. These 12 course reps were exempted from the quantitative data collection procedure because they were engaged in the qualitative data collection. They were labelled Group One.

Probability sampling, which refers to the random selection of a sample from a population, was employed in this study to ensure an equal and fair chance of each member of the population being chosen. It is also known as random sampling. According to Etikan and Bala (2017), probability sampling

allows every item in the universe an equal chance of being present in the sample. This study adopted the proportional probability sampling technique because the population was large, and this was to ensure that the sample size was directly proportional to the entire population, which comprised the enrollment number of sandwich postgraduate students in four colleges in UCC.

Bhardwaj (2019) stated that, in proportional probability sampling, each stratum or proportionate sample size should have the same sampling fraction to achieve a representative sample to make the study findings more generalisable. Based on this assertion, a sample size calculator was used to determine the sample size for the quantitative data collection phase. Respondents in this phase were labelled Group Two. A sample size calculator has a confidence level of 95%, which is a certainty that a sample size will accurately reflect the population being studied within a chosen confidence interval and a margin of error of 5%, which is the percentage point by which the sample size will differ from the number of the entire population (Del Águila & González-Ramírez, 2014). Per the sample calculator, a sample size of 327 was deemed appropriate for a study with a population of 2154 comprising the four colleges.

The population of the sandwich postgraduate students for each of the colleges was divided by the total enrolment number or population of the four colleges, which served as the sampling fraction and the answer was multiplied by the computed sample size to determine the proportionate sample size for each of the four colleges.

In all, the sample size for the study was 339, comprising 12 sandwich postgraduate students' course reps for the qualitative data collection and 327 sandwich postgraduate students for the quantitative data collection. Table 2 and Table 3 show the computation of the proportionate sample size for each of the four colleges and the distribution of the sample size for the study.

Table 2: Computation of Proportionate Sample Size for each of the Four Colleges

College	Population	Proportionate Sample Size
College of Agricultural and Natural Sciences	261	261/2154 x 327 = 40
College of Education Studies	984	984/2154 x 327 = 149
College of Health and Allied Sciences	47	47/2154 x 327 = 7
College of Humanities and Legal Studies	862	862/2154 x 327 = 131
Total	2154	327

Source: Author's construct (2023)

Table 3: Distribution of the sample size for the study

College	Sample size (For qualitative data)	Sample size (For quantitative data)	
	Group one	Group two	Total
College of Agriculture and Natural Sciences	3	40	43
College of Education Studies	3	149	152
College of Health and Allied Sciences	3	7	10
College of Humanities and Legal Studies	3	131	134
Total	12	327	339

Source: Author's construct (2023)

Data Collection Instruments

The data collection instruments employed to gather data for the study were an interview guide and a self-administered closed and open-ended questionnaire. The interview guide was used to elicit responses from 9 out of the 12 class reps in group one who availed themselves for the interview. The questionnaire was administered to group two, the proportional sample size of the four colleges excluding their class reps in group one.

An interview is a dialogue for data collection. A research interview consists of an interviewer, who facilitates the conversation and asks questions, and an interviewee, who responds to the questions posed by the researcher. Eight (8) semi-structured questions (see appendix D) were developed for the interview of class reps of the sandwich postgraduate students of the four colleges in UCC. A semi-structured interview guide was preferred for the data

collection because it is an effective means of gathering data when the researcher aims to collect qualitative and open-ended information, and explore participant views about a particular phenomenon. Cargan (2007) emphasised that using a semi-structured interview guide ensures flexibility in data collection in that the interviewer can alter the order of questions if he believes it is appropriate. The researcher can add, delete, explain, probe and even modify questions to solicit more adequate answers from each respondent. Possessing good interviewing skills and adopting a semi-structured interview guide fosters a good response rate (Cargan, 2007; Charmaz & Belgrave, 2012; Cresswell, 2009).

The interview guide was developed primarily in line with the purpose of the study and the literature reviewed. The interview questions were designed in line with the four research questions for the study to discover the experiences of class reps of the sandwich postgraduate students of UCC about the online learning they accessed and their expectations for future online learning at the University of Cape Coast. The content of the self-administered mixed closed and open-ended questionnaire for this study (see Appendix E) was based mainly on the literature reviewed.

A questionnaire is a data collection instrument consisting of questions to gather information from respondents in a study. Sincero (2012), cited in Shah et al. (2017), defines a questionnaire as a self-report data collection instrument each research respondent fills out as part of a research study. Closed-ended questions were developed to solicit responses for questions that required limited possible answers, whilst open-ended questions were designed to enable the respondents to give a free-form answer. Open-ended questions

allow respondents to elaborate on a piece of information, giving the researcher additional valuable feedback. Moreover, open-ended questions enable researchers to understand respondents' perspectives about a phenomenon better.

The questionnaire for the study had a preliminary section providing information on the topic and instructions for respondents to complete the questionnaire. The questionnaire was divided into five (5) parts. Section one was tailored to elicit the demographic profile of respondents, which was necessary to determine whether the respondents in the study were representative of the target population for generalisation purposes. The demographic profile was about the gender of the respondents and their programme of study.

Respondents were also asked to indicate whether they were on full-time study leave, that is, whether they had been relieved of their work schedules and been released from their places of work to come for further studies or full-time students, that is, not working at all, or they were working partly and schooling at the same time, that is part-time study leave. The respondents' employment status was essential to determine whether their experiences with online learning interfered with external factors such as the demands of their jobs. Furthermore, it was vital to find out if external factors interfered with the respondents' experiences with online learning because their experiences with online learning can influence their expectations about it. Doing so helped to explore and determine what transpired during the online education delivery provided by the University of Cape Coast, which informed the sandwich postgraduate students' expectations about online learning.

Section two of the questionnaire focused on question one of the study: " What online learning conditions were experienced by UCC sandwich postgraduate students during their online learning?". Multiple choice questions were developed to explore the online learning conditions that the UCC sandwich postgraduate students experienced during their online learning. The essence of research question one was to explore the learning conditions experienced by the students in relation to internet connectivity, institutional technical support and the availability of a dedicated space for the students for their online learning.

Section three of the questionnaire was intended to solicit answers from respondents for question two, " How did online learning benefit UCC sandwich postgraduate students?" A 4-point Likert-scale question with a list of statements of the possible benefits of online learning was developed for the respondents to choose from. They were to specify whether they Strongly Agree, Agree, Disagree or Strongly Disagree with the statements. A decision rule was adopted, with a mean score ranging from 1.00 to 1.75 for Strongly Agree, 1.76 to 2.50 for Agree, 2.51 to 3.25 for Disagree and 3. 26 to 4.00 for Strongly Disagree. This decision rule was used to analyse the results for all the questionnaire's Likert-scale questions. A space was provided for the respondents to indicate other benefits they have derived from the online learning they accessed from UCC that was not provided in the options of statements.

Section four of the questionnaire was developed in line with research question three. That is, “What challenges did UCC sandwich postgraduate students encounter during their online learning?” The format of questions in

this section was similar to section three. A 4-point Likert-scale question with a list of statements bearing the likely challenges of online learning derived from literature was designed for respondents to choose from. They were to indicate the degree to which they Strongly Agree, Agree, Disagree or Strongly Disagree with the statements. Respondents were allowed to specify any challenges they encountered in accessing online learning at UCC in case none of the options reflected their viewpoint satisfactorily.

Section five of the questionnaire solicited respondents' views for research question four: "What expectations do UCC sandwich postgraduate students have for future online learning?". Multiple choice questions were developed for respondents to indicate their expectations for the UCC future online learning. A space was also provided for them to specify how they think the online learning provided by the University of Cape Coast can be enhanced.

Both the interview guide and questionnaire for the study were pretested. Dawson (2002) emphasised that it is crucial to test data collection instruments once constructed to determine if they are obtaining the results required. Since it is impossible to anticipate possible issues a researcher might encounter during data collection, the pretesting aimed to identify problems with the data collection instruments and find possible solutions. Pretesting a research instrument aids in detecting potential problems in data collection instruments and if concepts have been appropriately operationalised (Watson, Atkinson, & Rose, 2007). According to Cohen et al. (2007), researchers can ensure the validity and reliability of their instruments by conducting pretests. Validity in research refers to the extent to which a data collection instrument measures what it is supposed to measure. On the other hand, reliability is the

degree to which an instrument produces consistent findings when repeatedly used in the same situation. A research instrument's reliability is determined by how consistently and steadily it generates results (Kimberlin & Winterstein, 2008).

The data collection instruments for the study were pretested on 36 sandwich postgraduate students from the Institute for Educational Planning and Administration (IEPA), a UNESCO category 11 centre for excellence in West Africa in UCC. Until its attainment of the UNESCO category 11 status in November, 2020 (IEPA, 2021), IEPA was part of the College of Education Studies in UCC so for the purpose of this study, IEPA is considered as part of the College of Education Studies and the 2022 cohort of IEPA sandwich postgraduate students was chosen for pretesting of the data collection instruments but were exempted from the study population. They were chosen for the pretesting of the data collection instruments because they possess characteristics similar to the target population.

IEPA has three sets of sandwich postgraduate students; M.Ed. Administration in Higher Education, M.Ed. Educational Administration and M.Ed. Educational Planning. The interview guide was pretested on 6 class reps for the 2022 cohort sandwich postgraduate students of IEPA, 2 class reps from each group. Rapport was established with participants by explaining the nature and reasons for the study. They were also oriented on all the protocols regarding confidentiality, anonymity and consent in the interview guide to facilitate better responses. Pretesting the interview guide helped the researcher of this study to estimate the time needed to complete one interview session. It helped to inform and assured participants of how long an interview would

take. Pretesting the interview guide also helped to establish issues concerning the questions. Some vague questions were detected and modified, whilst some redundant ones were identified and removed.

The questionnaire for the study was developed with guidance from the research supervisor to clarify questionnaire items, instructions and layout of the questions. It was then pretested on 30 students from the three groups of the 2022 sandwich postgraduate students of IEPA, excluding their class reps who were interviewed during the pretesting of the interview guide. The data gathered during the questionnaire pretesting were analysed with Cronbach's alpha test to determine the reliability of the Likert-scale items. After pretesting, the reliability co-efficient for items 8 and 9 were .85 and .82 respectively (see Appendix F).

Data Collection Procedures

Nine (9) out of the twelve (12) class representatives of the two cohorts of sandwich postgraduate students of the four colleges in UCC who were purposively sampled for the qualitative data collection consented to partake in the interview. Each of them specified their convenient times, so I met them one after the other at their various appropriate times in their lecture room. The purpose of the study was explicitly explained to participants, and they were also taken through an informed consent form to ensure confidentiality and anonymity before the interview began. I used a voice recorder to record the interviews with the consent of all 9 participants. The class reps and I confirmed that our phones were silent to avoid distractions. I tried as much as possible not to influence the responses from the participants by not asking leading questions. Instead, I ensured the questions were open for them to

understand easily. Furthermore, I consciously tried not to bring my personal views to interrupt the interviewees' thoughts during the entire interview session. I rigorously adhered to the interview instructions to ensure the findings were consistent.

For the quantitative data collection, I contacted the respondents differently at various lecture times and booked appointments to administer the questionnaire. Though the targeted sample size for the quantitative data collection was three hundred and twenty-seven (327), four hundred and twenty-six (426) questionnaires were administered and retrieved. This allowed the study to achieve enhanced generalizability and greater confidence in the reliability of the study's findings.

Data Processing and Analysis

This study, which was based on the Technology Acceptance Model and the Social Constructivist Learning Theory, aimed to explore the University of Cape Coast sandwich postgraduate students' experiences and their expectations of the online learning provided by the University of Cape Coast. The analysis of data of a study is the most critical part of any research since it involves the breakdown, summary, and interpretation of data collected. Data analysis in research is an illustrative means of applying the right statistical tool to make sense of raw data. Pallant and Manual (2007) define data analysis as a researcher's thought process to make sense of what has been seen, heard, read, understood and thought about throughout a study.

The study employed the concurrent mixed methods design, which embraces qualitative and quantitative approaches. Hence, both qualitative and quantitative data were collected and analysed separately. Combs and

Onwuegbuzie (2010) maintain that mixed analyses involve at least one qualitative and one quantitative analysis, implying that both are necessary for composite analysis. Qualitative data analysis involves organising, analysing, and making sense of non-numerical data to find themes and patterns that help answer research questions in a study.

Miles et al. (2016) specified three simultaneous activities for qualitative data analysis: data condensation, data display, and conclusion drawing and verification. They explained that data condensation refers to summarising and simplifying a lot of data into a form that is easier to deal with. They emphasised that data condensation comprises the selection, focusing, simplification, abstraction and transformation of qualitative data, which appear in the entire corpus of interview transcripts, written-up field notes and other empirical resources. This activity occurs unceasingly throughout any qualitatively oriented project.

Miles et al. (2016) explained that data analysis in research is where information is organised and compressed to make conclusions. It involves visualising words after they have been quantified through idea coding, word frequency, or both. According to Miles et al. (2016), the last activity of qualitative data analysis is drawing and verifying conclusions, echoed by Braun and Clarke (2006). Conclusion drawing involves considering the analysed data and assessing their implications for the study's research questions. Verification, integrally connected to conclusion drawing, entails revisiting the data as often as necessary to cross-check or verify the emergent conclusions.

The thematic analysis method was used to analyse the qualitative data. The process of thematic analysis is to find themes in qualitative data. Braun and Clarke (2006) say that it should be the first qualitative method learned because it teaches basic skills that can be used for many other types of analysis. Furthermore, unlike many qualitative methods, this method is not attached to a particular epistemological or theoretical perspective, making it a very flexible approach. In order to answer a study's research questions, a thematic analysis seeks to discover themes that are essential or intriguing data patterns. An excellent thematic analysis interprets and makes sense of the data rather than just reporting it.

A Thematic analysis frequently has the flaw of using the primary interview questions as the themes (Clarke & Braun, 2013). This usually means that data has been summarised and organised rather than analysed. Different authors, including Alhojailan and Ibrahim (2012), Boyatzis (1998), and Javadi and Zarea (2016), proposed diverse means to approach thematic analysis. However, the qualitative data analysis of this study adopted Braun and Clarke's (2006) 6-step framework, as presented in Table 4, arguably the most influential because it provides a simple and practical framework for performing thematic analysis.

Table 4: Braun & Clarke's (2006) 6-phase Framework for Conducting Thematic Analysis

S/N	Phases
1	Become familiar with the data
2	Generate initial codes
3	Search for themes
4	Review themes
5	Define themes
6	Write-up

Source: Braun & Clarke (2006)

The Braun & Clarke (2006) 6-phase thematic analysis was used to analyse the interview data. Accordingly, 12 class representatives of the 2023 cohort of sandwich postgraduate students of UCC who have accessed online learning at the University of Cape Coast were interviewed.

The interview responses were transcribed verbatim, and the transcripts were read through and re-read to familiarise the data corpus in the first step. The notes for each interview were then carefully examined to discover any independent thoughts in the form of fundamental themes, and each one was given a specific code as a marker to condense the data into manageable units of meaning in the second phase. The third phase, which focuses on searching for themes, involves grouping the codes into more general topics related to the research questions. I eventually studied the codes, and some fell into a theme. There are no hard and fast criteria on what constitutes a theme, according to Braun and Clarke (2006); as such, a theme is distinguished by its significance. The motive and procedure for categorising themes may vary from one study to

the other depending on the methodology and the research questions (Braun & Clarke, 2006).

In the next step (step 4), to review themes, I read the information pertaining to each theme and considered whether they were consistent with them. I studied, modified, and developed the preliminary themes based on all the basic themes identified in Step 3. Next, a more general classification of themes was defined in step five. In line with the assertion by Braun and Clarke (2006) that step 5 is the final refinement of themes, I made a more general categorisation of themes based on all the basic themes or patterns I identified in the data. The broad categorised themes are termed organising themes, i.e. the overarching concepts that emerged from the data identified through coding and categorising. I eventually categorised the organising themes into more specific and focused themes, known as inclusive themes. Inclusive themes are more minor and refined concepts in the data. I identified the inclusive themes by probing the data for patterns and similarities and then grouping these patterns into meaningful categories. The aim was to determine the essence of what each theme was about. Step 6 is the write-up phase, where I sum up the findings of the interview in a more meaningful manner.

For the questionnaire analysis, I used the computerised data analysis software - Statistical Package for the Social Sciences (SPSS) for the descriptive data analysis and interpretation. I assigned a unique code corresponding to the row number of the SPSS data sheet to the questionnaires. This made it easy to keep track of the questionnaires throughout the analysis process and for further verification if needed. After inputting all the questionnaire responses, I randomly selected them and cross-checked them

with their corresponding data inputted; I detected some errors and corrected them. I did this to ensure accuracy. After the data entry, descriptive statistics were generated, presented and discussed. After analyses of each question on the questionnaire, these questions were further explored to address the various research questions. The analysis was guided by the five research questions for the study.

Table 5 shows each research question and the statistical tool used in analysing it.

Table 5: Research questions and their analytical responses

Research Questions	Analytical Tool
1. **What online learning conditions were experienced by UCC sandwich postgraduate students during their online learning?**	Descriptive statistics in the form of frequencies percentages, pie charts and bar graphs
2. **How did online learning benefit UCC sandwich postgraduate students?**	Descriptive statistics in the form of means
3. **What challenges did UCC sandwich postgraduate students encounter during their online learning**	Descriptive statistics in the form of means
4. **What expectations do UCC sandwich postgraduate students have for future online learning?**	Descriptive statistics in the form of frequencies

Ethical Considerations

Ethics in research are the principles that guide a study. Best and Kahn (2006), cited in Nwankwo (2015), claimed that ethics are crucial to conducting research. Resnik (2015) mentioned five reasons why every researcher needs to adhere to ethics in a study. First, Research goals such as knowledge, truth, and error prevention are promoted by ethics. For instance, prohibitions against creating, manipulating, or falsifying research results encourage the truth and reduce inaccuracy. Second, research ethics promote values critical to collaborative work, including trust, accountability, mutual respect, and fairness. Research often involves cooperation and coordination among people in different disciplines and institutions. Therefore, adhering to values that promote collaborative work is vital for a good study.

Third, Researchers can be held accountable to the public with the help of ethics. For instance, national regulations on research misconduct and conflicts of interest are required to guarantee that researchers who receive public funding can be held accountable to the general public. Fourthly, ethics in research also contribute to increasing public support for it. People are more likely to fund a study if they trust its integrity and quality. Finally, research ethics promote moral and societal ideals like respect for human rights, care for animals, and legal conformity. Defects in ethics can have a severe negative impact on both human and animal subjects. For instance, a researcher who falsifies data in a clinical trial could hurt the participants, and a researcher who disregards radiation or biological safety rules and laws could threaten both his or the participants' health and safety.

The University of Cape Coast Institutional Review Board (UCC-IRB) granted ethical clearance for the study (See Appendix A) to guarantee that all ethical requirements were met. Human participants in a study raise ethical concerns since some questions may necessitate disclosing personal and confidential information. Eide and Kahn (2008) assert that it is vital to protect participants of a study from danger and ensure that there is no exploitation of vulnerable participants. Therefore, acquiring informed consent is essential to conducting research with human subjects.

Capacity, information, and voluntariness are the three requirements for informed consent, as defined by Drew and Hardman (2007). Capacity refers to a participant's ability to comprehend and assess a researcher's claims about a study and determine whether or not to participate. The information presented by the researcher must be presented in a language that the participants can easily understand. Any ambiguities should also be clarified so that participants know exactly what is required of them and what the objectives of the study are. Finally, participants should be informed that participation is optional and they can leave the study without penalty. Participants' rights are key and cannot be exaggerated (Jones and Kottler, 2006). This study's informed consent form (See Appendix B) conformed to the above conditions.

Chapter Summary

The concurrent mixed methods design was employed for the study. This design was chosen because the study is phenomenological and phenomenological research uses qualitative and quantitative methods. Data for the study was gathered from 9 class representatives and 426 students of the

2022 and 2023 cohorts of sandwich postgraduate students of the University of Cape Coast, excluding the class representatives.

I simultaneously collected qualitative and quantitative data from class representatives and class members of the 2022 cohort and 2023 cohorts of sandwich postgraduate students of the four colleges of UCC, respectivrely. The qualitatitive data was in the form of insights from the semi-structured interview and the quantitative data was in the form of self-administered questionnaire. The qualitative data were analysed with thematic analysis while the quantitative data were analysed with descriptive statistics in the form of pie charts, bar charts, and frequency distribution tables to allow for statistical inferences.

CHAPTER FOUR

RESULTS AND DISCUSSION

This study explored the experiences of the University of Cape Coast sandwich postgraduate students about the online learning they accessed at the University of Cape Coast and their expectations of how online learning should be if they are to reaccess education at the University of Cape Coast in a virtual setting. The study adopted the concurrent mixed methods, where qualitative and quantitative data were collected simoultaneously to achieve a holistic understanding of the research findings. The qualitative data was analysed with Braun and Clarke's (2006) 6-phase framework for conducting thematic analysis, while the quantitative data was analysed with descriptive statistics in the form of means, frequencies and percentages. This chapter presents the results and discussion of the study's findings. The demographic characteristics of respondents/participants for the research are presented and discussed first, followed by a chronological presentation and discussion of the qualitative and quantitative findings exposed after the data collection.

Demographic Characteristics of Respondents

This section presents and discusses the demographic characteristics of the respondents of the study. In all, nine course reps were interviewed (qualitative data) while the quantitative data were collected from 426 respondents**.** Figure 2: Gender Distribution of Respondents shows the gender distribution of respondents.

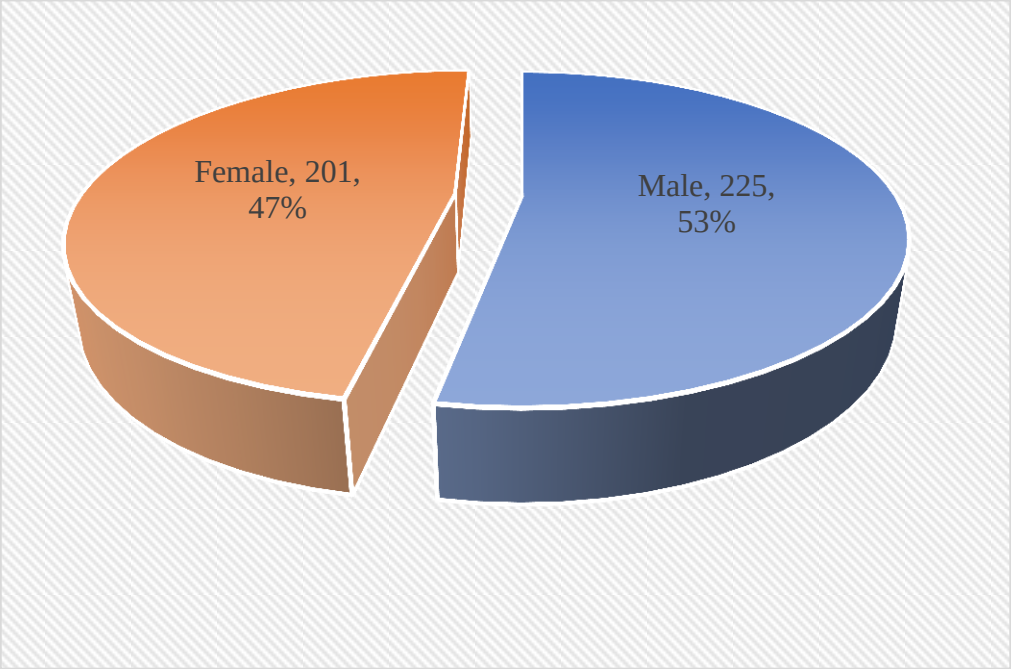


Figure 2: Gender Distribution of Respondents

Source: Field survey (2023)

Figure *2* indicates a higher participation rate among male sandwich postgraduate students, accounting for 53% of the total respondents (n=225), as opposed to their female counterparts (n=201). This observation hints at a potential trend wherein more males enrol in UCC's sandwich postgraduate programmes than females. This discrepancy might be attributed to the demanding nature of the sandwich programme, which could potentially attract a higher proportion of male students. Figure 3 illustrates the number of respondents from each College engaged in the study.

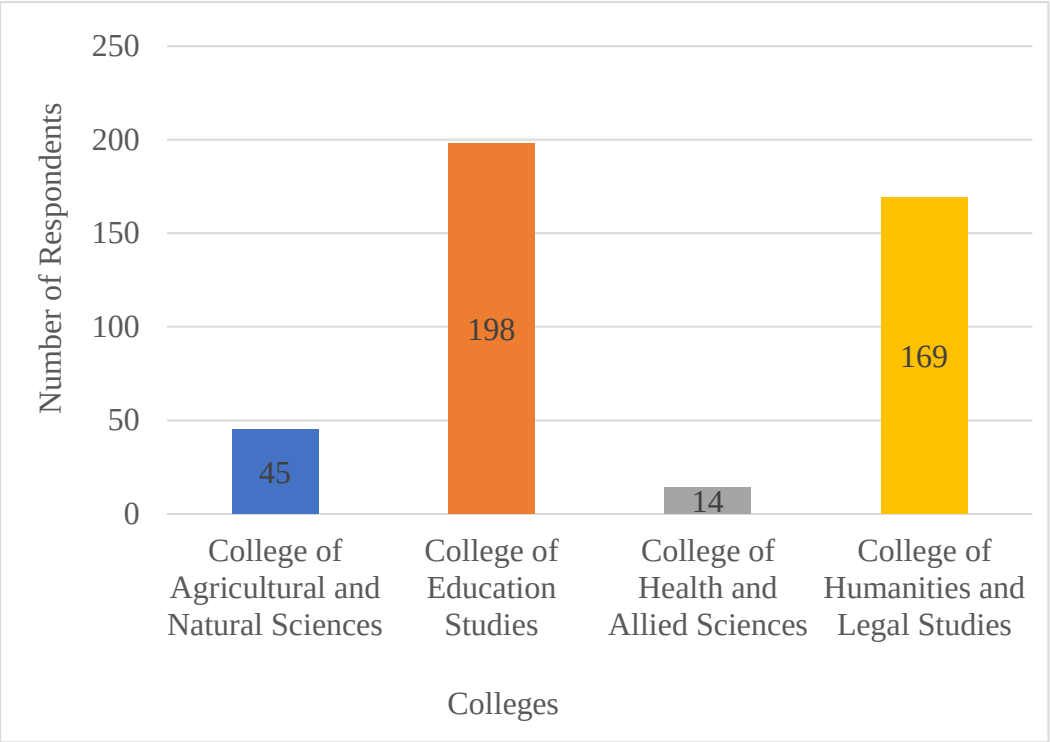


Figure 3: Distribution of Respondents According to Colleges

Source: Field survey (2023)

The data in figure 3 aligns with the anticipated sample distribution in Table 3, indicating that the data collection procedure successfully captured a proportional representation of respondents from each College. These matching patterns between the observed data and the projected sample distribution for the colleges enhanced the reliability and validity of the study's results. It implies that the collected data reflects the student population, lending credibility to the findings and reinforcing the generalisability of the study's conclusions. This alignment with expectations is essential for the researcher and stakeholders as it suggests that the sample is not skewed in favour of any particular group, allowing for more robust and applicable insights. Additionally, it indicates that efforts made to ensure a diverse and

representative sample have been effective, contributing to the overall validity and reliability of the study's outcomes.

Additionally, respondents were asked to specify their current employment status as part of their demographic characteristics. The data is presented in Figure 4.

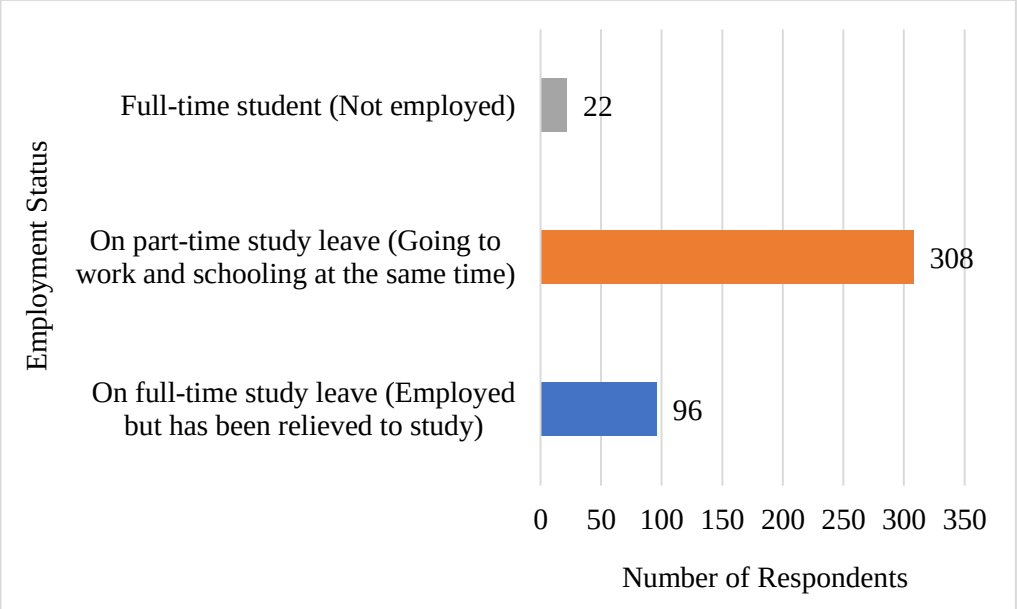


Figure 4: Employment Status of Respondents

Source: Field survey (2023)

Figure 4 demonstrates that most sandwich postgraduate students are also actively engaged in employment. This data aligns with the perspective put forth by Bocchi et al. (2004) that a substantial portion of individuals enroling in online programmes are already workers. Specifically, out of the total respondents, majority (n=308) were managing the dual responsibilities of studying and working. However, 96 respondents had been granted relief from their work commitments to dedicate time to their studies. This demographic data has some implications. For instance, the fact that a substantial portion of

respondents are juggling professional responsibilities with academic commitments puts them in a position to better contribute to the issues being explored, particularly the quality and effectiveness of their online learning experience.

Findings and Discussion of the Research Questions

This section delves into the findings and discussion of the four research questions formulated to guide the study. For the purposes of orderly presentation, each research question is presented, followed by a discussion of the issues that emerged from the dataset.

What online learning conditions are experienced by UCC sandwich postgraduate students?

This research question explored the learning conditions experienced by postgraduate students enrolled in the UCC sandwich programmes. To gather insights, a focused set of questionnaire items was employed. Recognising that the success of online learning is closely tied to reliable internet connectivity, collecting data on students' internet access becomes pivotal in understanding a critical aspect of the online learning experience. Considering this, the initial questionnaire item sought respondents' descriptions of the reliability of their internet connectivity during online lectures. The findings of this item are presented in Figure 5.

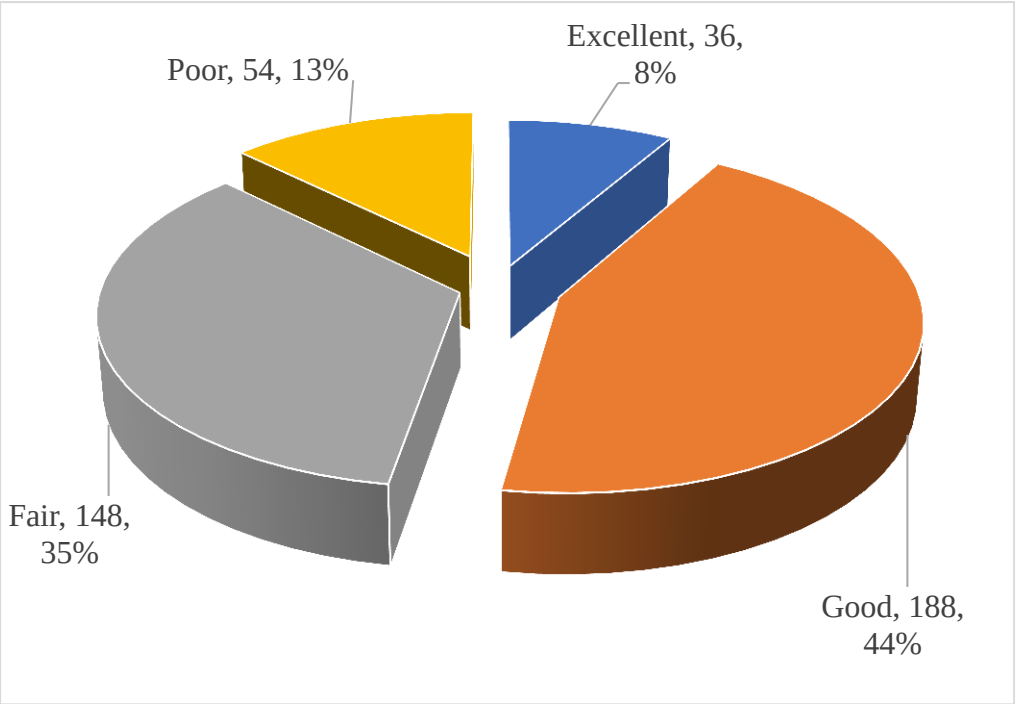


Figure 5: Extent of Respondents' Access to Reliable Internet Connection

Source: Field survey (2023)

The findings presented in provide an understanding of postgraduate students' experiences regarding the reliability of internet connectivity during online lectures. For instance, 8% of respondents (n=36) reported experiencing excellent internet access. This minority expressing high satisfaction suggests that a segment of the postgraduate student population at UCC has a robust and reliable internet connection, contributing positively to their online learning experience. However, the majority of respondents, comprising 44% (n=188), characterised their internet access as good. While not exceptional, this still indicates a relatively satisfactory level of connectivity for a significant portion of the student population.

On the flip side, a noteworthy 35% of respondents described their internet connectivity as fair. This suggests a sizable proportion of students facing challenges or inconsistencies in their online connectivity. Additionally,

13% of respondents labelled their internet connectivity as poor, indicating a substantial number of students who encounter significant obstacles in accessing online resources. When combined, these figures underscore the challenges faced by almost half of the respondents (48%) in terms of fair to poor internet connectivity. This challenge was echoed in the semi-structured interviews with the course reps. For example, two Course Reps summarised their experiences regarding internet connection briefly as follows:

> *… I missed most of our lessons due to an unstable network connection. For instance, with Google Meet, you need to be admitted by the host before you can join the class, and as a result of me not having reliable network connectivity, I was always almost the last person to join my class. Some lecturers were reluctant to allow me to join my colleagues since I was always late; in fact, my network restricted my participation in the online learning (Course Rep 1).*
>
> *I think my network connectivity was not dependable. It was pretty challenging to access the network; the network was bad. So, at the end of the day, I end up missing most of my lessons because sometimes the lecturer will be online, I will try to join the class but can never. There was a time I wasn't alone; most of my colleagues could not join, so the lecturer rescheduled the class (Course Rep 6).*

Clearly, these findings suggest that online learning has led to disparities in learning opportunities, particularly for individuals with poor internet access. This limitation may have caused them to struggle to participate and potentially

left them feeling isolated and disconnected from both peers and instructors, ultimately impacting their motivation and overall learning experience. This observation aligns with the findings of Sarpong et al.'s (2021) study on online teaching and learning during the COVID-19 pandemic among university students in Ghana. In that study, students faced challenges in fully engaging in online classes due to unreliable internet connectivity.

In essence, these findings underscore the importance of addressing issues related to internet infrastructure to improve sandwich students' overall online learning experience. Interventions and improvements in this area are crucial to fostering a more equitable educational environment and ensuring that all students can fully participate and benefit from online lectures.

Again, consistent with exploring the learning conditions encountered by respondents and recognising the pivotal role of technical support in facilitating a smooth online learning experience, respondents were queried about receiving technical support services from UCC during their online classes. The outcomes of this query are visually represented in Figure 6.

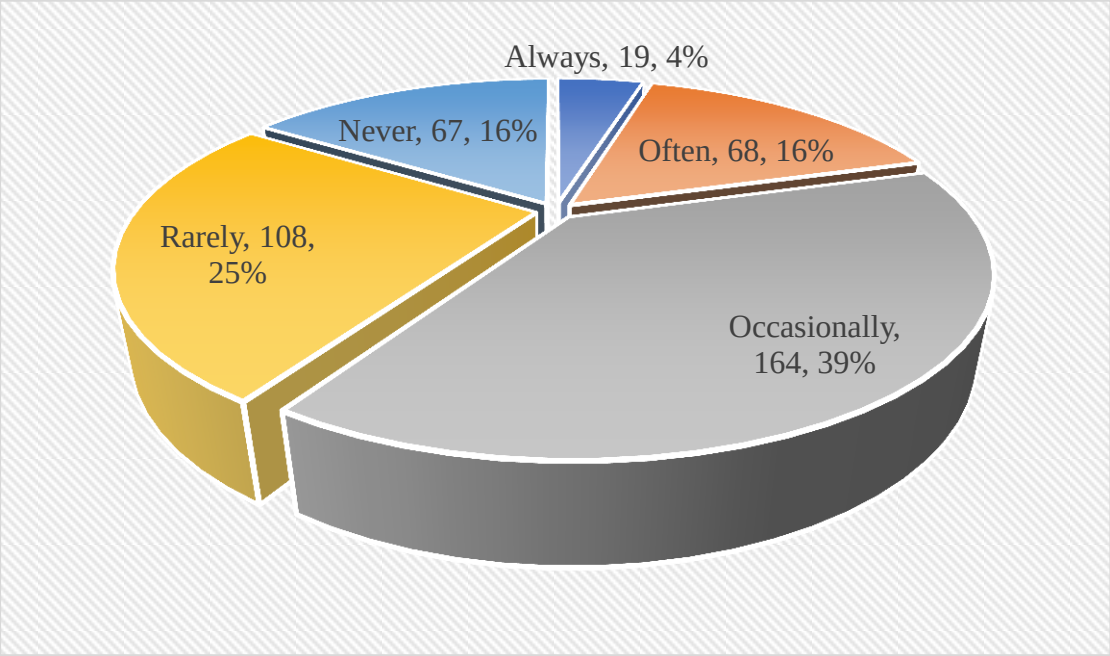


Figure 6: Frequency of Technical Support Provided by UCC to Respondents

Source: Field survey (2023)

The findings illustrated in Figure 6 regarding receiving technical support services from UCC during online classes reveal several noteworthy points. Firstly, a small percentage of students, specifically 4% (n = 19), consistently received technical support from UCC, indicating a proactive engagement with the support services offered by the institution. Furthermore, a significant portion of respondents, accounting for 16% (n = 68), reported that they often received technical support from their institution. This suggests a notable reliance on the assistance provided by UCC, emphasising the importance of such services in facilitating a smooth online learning experience. The data in Figure 6 also highlights that most students, constituting 64% (calculated as 25% + 39%, n = 108 + 164 = 272), did not frequently receive technical support from UCC. Thus, their interactions were not regular occurrences.

Conversely, 16% of respondents (n = 67) reported never receiving technical support. This finding prompts further investigation into the reasons behind this lack of engagement with the available support services. Understanding the factors contributing to this trend could provide valuable insights for UCC to enhance and optimise its technical support offerings, ensuring broader accessibility and effectiveness for all students. Taken together, the data in Figure 6 underscores both positive impact and potential areas for improvement in UCC's provision of technical support services during online classes. These findings could serve as a foundation for targeted interventions and enhancements to better meet the diverse needs of the student population in their pursuit of successful online learning experiences. This is particularly important in light of the findings by Yang and Durrington (2010) that technical support is essential to creating a positive and effective online learning environment and promoting equitable educational opportunities for all students. They further argue that inadequate technical support may cause students to perceive online learning negatively, impacting their willingness to engage in future online programmes.

Against this backdrop, a follow-up question was posed to respondents (n=359) who indicated that they receive technical support from UCC to ascertain their level of satisfaction with those services. The findings of this question are presented in Figure 7.

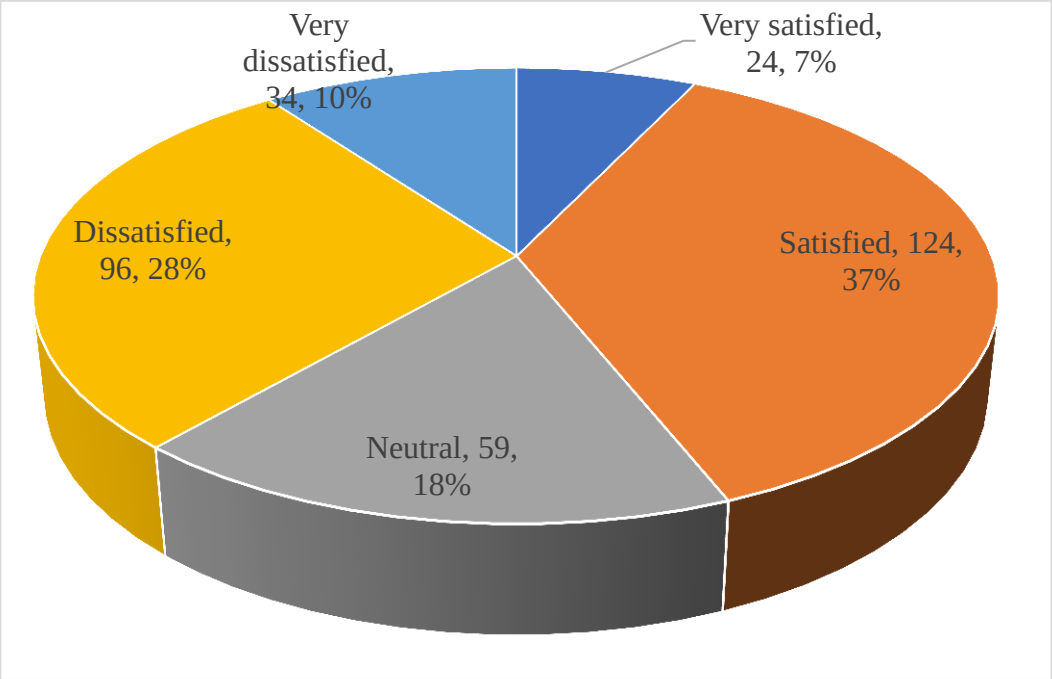


Figure 7: Respondents' Level of Satisfaction with Technical Support from UCC

Source: Field survey (2023)

The findings presented in Figure 7 highlight the satisfaction levels of respondents with the technical support provided by UCC during their online classes. Notably, 7% of participants expressed being "very satisfied," while a larger proportion, 37%, indicated being "satisfied." On the contrary, a significant 10% reported being "very dissatisfied," and an additional 28% expressed a general sense of dissatisfaction with the technical support they received. This divergence in satisfaction levels, particularly the presence of a substantial percentage of respondents who were dissatisfied or very dissatisfied, contrasts with the findings of Osei's (2010) study on graduate students' opinions of the online distance learning programme at Kwame Nkrumah University of Science and Technology. Osei's study revealed a

higher overall satisfaction among students with their institution's support services.

This inconsistency suggests that the factors influencing satisfaction with technical support services may vary between institutions or have evolved over time. It prompts a deeper exploration into the specific aspects of technical support that may be contributing to dissatisfaction among UCC students. It could be beneficial for UCC to conduct further research or surveys to pinpoint areas of improvement, gather more detailed feedback, and address the concerns raised by the dissatisfied respondents. Thus, understanding these nuanced differences in satisfaction levels is crucial for UCC to refine and enhance its technical support services, aligning them more closely with the expectations and preferences of the student body. This iterative feedback and improvement process can provide a more effective and satisfying online learning experience for UCC students.

As discussed in the literature, the nature of online learning demands a certain degree of self-discipline and concentration. In light of this, a dedicated learning space has been recognised for its role in reducing distractions and fostering an environment conducive to effective online learning. Exploring whether students have access to such a space becomes crucial in providing valuable insights into the learning conditions and challenges students face. In alignment with this perspective, respondents were explicitly asked whether they had a dedicated study space for their online learning. The findings of this questionnaire item are presented in Figure 8.

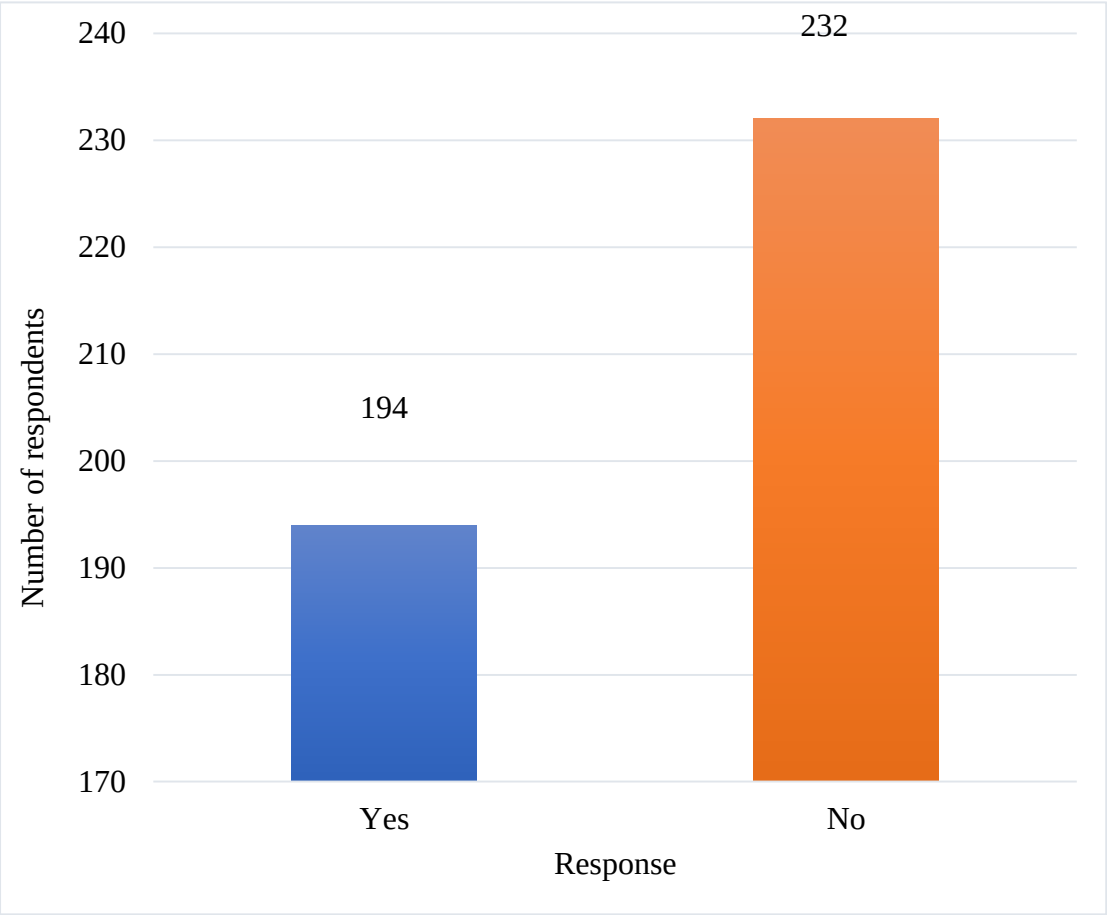


Figure 8: Proportion of Students with Dedicated Space for Online Learning

Source: Field survey (2023)

The findings presented in Figure 8 shed light on the varying circumstances of students concerning their online learning conditions. Notably, 46% of the respondents (n=194) reported having a dedicated space for online learning activities. Thus, a substantial portion of the student population has taken measures to create a focused and organised environment for their online learning. On the other hand, the data also reveals that a majority, accounting for 54% of the respondents (n=232), do not have a dedicated space for online learning. This suggests that a significant portion of the student body might be experiencing their online classes within shared or less-than-ideal conditions. This was succinctly captured in the words of Course Rep 2 as follows:

> *… I wanted somewhere to have my online classes… Sometimes, I decide to stay in my hall and join the class, but by the time I realise I am dozing off on the sofa. So then, I decided to come to campus. I came to campus way before it was due for us to report to school because being at home wasn't helping me in terms of where to have my online classes. After I came to campus, I realised most of my colleagues had already reported to campus due to the unavailability of space devoted to online learning in our various homes.* (C*ourse Rep 2)*

These findings prompt a closer examination of the potential impact of the absence of a dedicated learning space on students' academic experiences. It raises questions about the challenges students without dedicated spaces may face, such as potential distractions, limited privacy, or difficulties maintaining concentration during virtual classes. Moreover, the disparity between those with and without dedicated spaces underscores the importance of considering equity and access in the context of online education. Institutions may need to explore strategies to support students in creating conducive learning environments, whether by providing guidance on optimising shared spaces or advocating for allocating dedicated spaces within their living arrangements.

Undoubtedly, the findings in Figure 8 highlight the diversity in students' access to dedicated learning spaces for online education. This insight is crucial for educational institutions and policymakers as they work towards addressing the unique needs of students and promoting an inclusive online learning environment. Efforts to support those without dedicated spaces may

contribute to a more equitable and conducive virtual learning experience for all students.

In conclusion, the examination of online learning conditions experienced by UCC sandwich postgraduate students reveals a diverse landscape of experiences. While a commendable proportion of students reported excellent or good internet access, a substantial number faced challenges, with notable percentages rating their connectivity as fair or poor. Similarly, the inquiry into the presence of dedicated study spaces highlights varying circumstances among respondents, underscoring the importance of considering the learning environment's impact on the online education experience. Furthermore, the data on the receipt of technical support services adds another layer of insight. These combined findings bear implications for the provision of online higher education at UCC. For example, the data emphasises the need for a comprehensive approach to online education that considers the diverse needs of students. Acknowledging and addressing challenges related to connectivity, study spaces, and technical support will be instrumental in fostering an equitable and supportive online learning environment for UCC sandwich postgraduate students.

What benefits do the University of Cape Coast sandwich postgraduate students derive from online learning?

As online learning continues to reshape the landscape of higher education, understanding the benefits derived by students becomes paramount for institutions committed to providing effective and enriching educational experiences (Allen & Seaman, 2014). In the context of the UCC sandwich postgraduate programmes, this research question sought to unravel the benefits

students accrue from online learning. In this regard, insights obtained from the review of online learning literature were transformed into statements describing the potential benefits of online learning. These statements were presented to respondents in the form of Likert scale items for them to indicate their level of agreement with the statements as they apply to them. Figure 9 presents the findings from the data analysis.

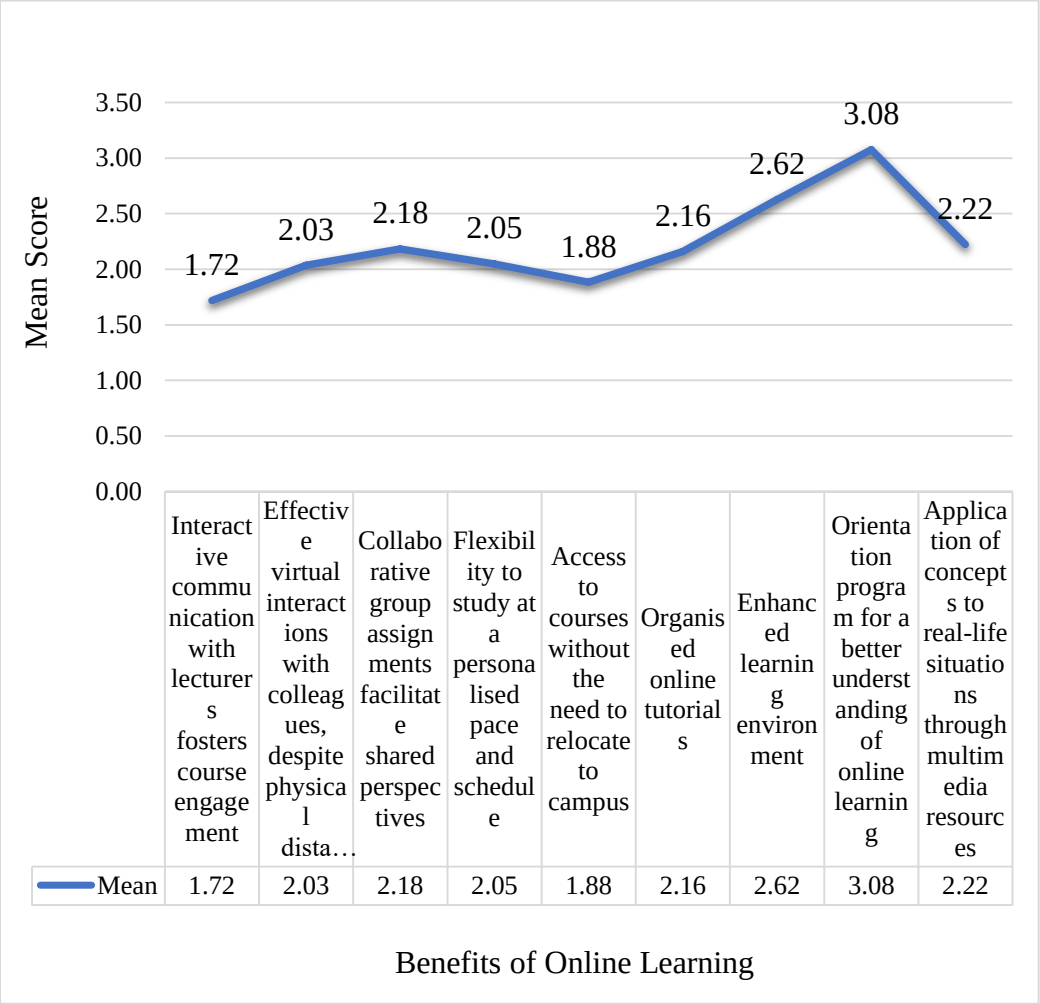


Figure 9: Respondents' Level of Agreement with Statements Regarding the Benefits they Derived from UCC's Online Learning

Source: Field survey (2023)

It is essential to emphasise that a decision rule guides the interpretation of the findings presented in Figure 9. The rule specifies that respondents strongly agree with statements with mean scores from 1.00 to 1.75, while statements with mean scores from 1.76 to 2.50 are considered agreed upon. Conversely, statements with mean scores from 2.51 to 3.25 are disagreed with by respondents, and those with mean scores from 3.26 to 4.00 are strongly disagreed with.

Applying this decision rule, the findings in Figure 9 provide valuable insights into respondents' experiences with the benefits associated with online learning. Overall, seven of the nine statements received favourable responses, indicating a high level of agreement on various aspects of online learning benefits. For instance, respondents strongly agreed that interactive communication with lecturers fostered course engagement (M=1.72). This underscores the importance of effective instructor-student interaction in enhancing the online learning experience. Additionally, effective virtual interactions with colleagues despite the physical distance (M=2.03) highlight the significance of collaborative elements in the online learning environment. Besides, collaborative group assignments facilitating shared perspectives (M=2.18) and the flexibility to study at a personalised pace and schedule (M=2.05) were also acknowledged as significant benefits. The following extract from the semi-structured interviews with the Course Reps corroborates these findings.

> *Yes, yes, it was very beneficial. For instance, I had this sort of device on my laptop. So, I recorded the voices of the lecturers because I mainly joined the class, but I didn't have time to listen to*

the lecturers, so that was maybe my strategy. I recorded, and later I listened (Course Rep 1)

These findings emphasise the advantages of flexible scheduling and collaborative learning opportunities in the context of online education. Respondents also appreciated practical aspects of online learning, such as access to courses without the need to relocate to campus (M=1.88), organised online tutorials (M=2.16), and the application of concepts to real-life situations through multimedia resources (M=2.22). The Course Reps also echoed these benefits during their interviews, as evident in the following extracts:

It's good; it's good because it helped the people who could not leave their work and were not also granted study leave or permission from work, because there is one man in my class, because of his job he has not yet come to campus even though we are supposed to report. He has to come and write quizzes and stuff, but we don't even know if he can come … (Course Rep 3).

… yes, it was beneficial, at least for most of my colleagues; we all leave our children without any care at home and come into the classroom for the face-to-face classes, but with the online, you being in the house, your mind is at peace about your children's care (Course Rep 2).

These findings suggest that UCC's online learning is flexible and convenient to sandwich postgraduate students, confirming the assertion by Guernsey (1998) that students could study at their own pace and on their own schedule due to the flexibility of online learning. Likewise, McDonald (2003), cited in

Smart & Cappel (2006), has also maintained that students may conveniently access their study programmes wherever they choose, avoiding commuting to campus to pursue their education. The findings also affirm the claims that online learning offers students numerous opportunities and advantages, including convenience (Poole, 2000), flexibility (Chizmar & Walbert, 1999), time saving, teamwork, and chances to collaborate with people beyond geographical borders (Hung, Chou, Chen & Owen, 2010).

Largely, the findings of this research question are somewhat in line with the findings of Biesenbach-Lucas' (2003) study on asynchronous discussion groups in teacher training classes, where the students experienced a social learning environment and were able to share and gain ideas. It also resonates with Vygotsky's social constructivist learning theory, which assumes that interaction among learners in an online class effectively promotes learning and provides an opportunity for students to incorporate their experiences, encourages them to share their expertise, and allows them to make substantial contributions from any location they find themselves.

Notwithstanding the positives, the findings also identified areas of concern. For example, respondents did not experience an enhanced online learning environment (M=2.62), indicating the inadequacy of technological support. Also, respondents expressed disagreement with the statement that they had an orientation programme for a better understanding of online learning (M=3.08). This dissent suggests a potential gap in delivering sufficient guidance and support to learners transitioning to online learning, as succinctly captured in the words of the Course Reps as follows:

> *To me, I think the University should really be prepared. We have moved into whatever globalisation and all that, but I don't believe the UCC system is covered because this is not how to do online. I know people who get online degrees; they study online in Universities outside and they do it perfectly with electronic facilities … (Course Rep 1).*
>
> *We have a course, the vectors, which involves calculation, and we had it online. What the lecturer was doing was just a slide presentation. The university should provide the lecturers with devices that they can use to teach the calculation courses online; if not, the online courses should be restricted to only reading courses. We really suffered with the calculations online (Course Rep 5).*
>
> *I think the university should consider briefing both students and lecturers about the system before classes begin because we need to get an orientation about the whole system before it begins, but the lecturers should not be left out. Some of them find it challenging to handle online delivery (Course Rep 4).*

The absence of a comprehensive orientation programme, as suggested in the words of Course Rep 4, could precipitate challenges for students and lecturers in adapting to the online learning environment, potentially resulting in decreased engagement, higher dropout rates, and an overall negative impact on the learning experience.

Collectively, these findings have broader implications for UCC's online education. Thus, the identified issues suggest a compromise in the

overall quality of online learning. Insufficient orientation and a lack of impactful technological support can contribute to a less effective learning experience for students, raising concerns about student satisfaction, retention, and educational outcomes.

What challenges do the University of Cape Coast sandwich postgraduate students face in online learning?

This research question aimed to identify the challenges faced by UCC sandwich postgraduate students in the context of online learning. To achieve this, a Likert scale questionnaire item was formulated, drawing on insights from existing literature. The item consisted of nine statements designed to cover the challenges encountered by online learners. Participants were required to express their agreement or disagreement with these statements based on their personal experiences. The results of this questionnaire item are presented in

.

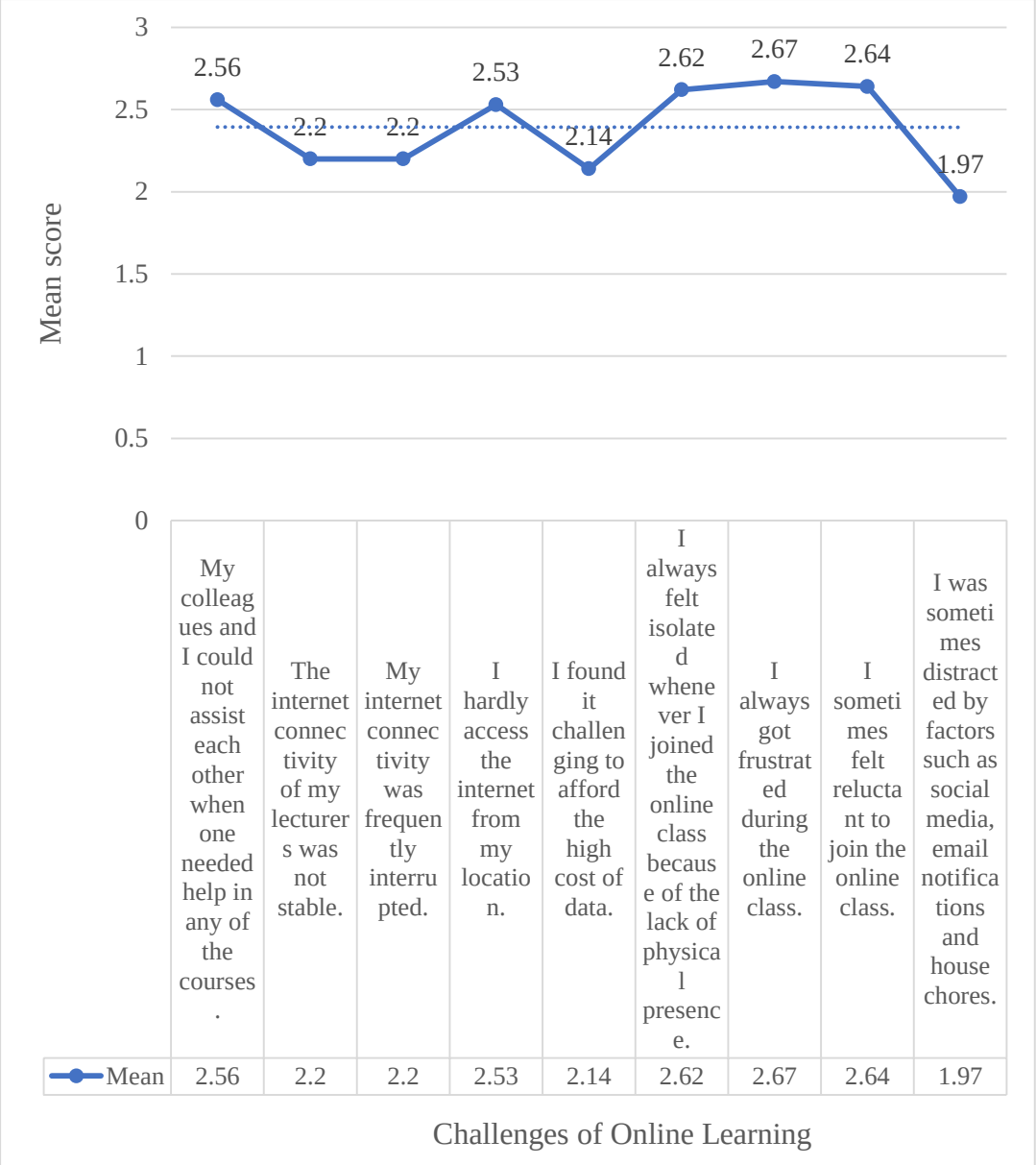


*Figure 10:*Respondents' Level of Agreement with Statements Regarding the Challenges they Encountered during UCC's Online Learning

Source: Field survey (2023**)**

The findings presented in Figure 10 reveal the challenges UCC sandwich postgraduate students encounter during their online learning experiences. For instance, respondents agreed with the statement that the instability of lecturers' internet connectivity is a challenge (M=2.2). Similarly,

the interviews with the individual Course Reps, as presented in the extracts below, emphasised this challenge.

> *The lecturers had challenges with their internet. One lecturer like this, it wasn't working whenever he tried to log on. We sat down for almost an hour, waiting for his internet to be stable (Course Rep 4)*
>
> *I think the university should get a standby generator for the lectures; once the power goes]off, it also takes over. The generator can serve as a backup to the WiFi because I think they were using the school Wi-Fi once the power went off; they don't have internet access (Course Rep 2)*
>
> *They need to work on the lecturers' internet for stability (course Rep 3)*

These shared experiences among respondents suggest a technological barrier that could have disrupted the flow and effectiveness of the online classes. The implications of such disruptions could extend beyond inconvenience, potentially impacting the overall quality of the educational experience for these students. Addressing these connectivity issues becomes crucial for ensuring a seamless online learning environment.

Similarly, the acknowledgement of frequent interruptions in personal internet connectivity (M=2.2) highlights a common challenge the respondents face. This finding suggests that many respondents encountered internet connection disruptions during virtual academic activities. These disruptions may manifest as connectivity lapses during live lectures, difficulty accessing course materials in real-time, or hindrances in participating actively in virtual

discussions and collaborative activities. Such interruptions can result in a fragmented and less seamless learning experience, potentially affecting the quality of education these students receive, as Sarpong et al. (2021) observed. It is worth noting that the transient nature of online interactions can make it challenging to recover missed content or fully engage in synchronous learning activities. Therefore, addressing issues related to personal internet connectivity is fundamental for fostering effective student engagement, participation, and interaction.

For example, investing in improved internet infrastructure, providing technical support to students, or exploring alternative learning modalities that are less reliant on real-time connectivity could be a way out of this challenge. Additionally, proactive measures such as asynchronous content delivery, recorded lectures, and accessible course materials can serve as mitigating strategies, allowing students to navigate interruptions and catch up on missed content at their convenience. Collaborative efforts between educational institutions and internet service providers may also play a crucial role in addressing the broader issue of internet connectivity and ensuring that students have the necessary resources to participate fully in online learning.

Also, respondents expressed challenges in coping with the high cost of data, as indicated by a mean score of 2.14, which underscores a substantial concern related to the affordability of online education for UCC sandwich postgraduate students. Some of the Course Reps had this to say concerning the affordability:

If you don't have data to learn trouble, we need to get data. So, it was challenging. We were using our own money to buy data. After paying school fees, we thought we would be given online data, but this was not the case. Everything from our pockets, buying data every day, for all the one-month online lecture. So you see the amount of data we bought, and the amount of money that has come out. So it was a big challenge (Course Rep 1)

For me, my main challenge was the cost of the internet data (Course rep 2).

This particular challenge reflects students' financial constraints in their pursuit of online learning experiences. Thus, the affordability issues associated with data costs can be a barrier, limiting access to online educational resources for a segment of the student population. As data costs contribute to the overall expenses of pursuing online education, this challenge may disproportionately affect students with limited financial resources, potentially hindering their ability to engage in their online learning fully. Additionally, it may lead to students being selective in their online activities, potentially compromising their ability to participate in synchronous classes, access supplemental learning materials, or engage in collaborative online discussions. This selective engagement could impact the depth of their learning experiences and hinder their overall performance.

From an equity and inclusivity perspective, addressing the financial constraints related to data affordability becomes imperative. Consequently, educational institutions should explore strategies to alleviate the financial burden on students. For example, negotiating partnerships with

telecommunication companies for discounted data plans, providing subsidies, or incorporating data costs into students' overall financial support framework can help mitigate this challenge. Also, lecturers should be conscious of students' potential data constraints when developing online courses. Optimising content for efficient data usage, providing downloadable materials, and offering asynchronous learning options can be practical approaches to accommodate students facing data affordability challenges.

Furthermore, the finding that respondents agreed they were sometimes distracted by factors such as social media, email notifications, and house chores (M=1.97) highlights a challenge in maintaining focus and attention during online classes. Undeniably, social media platforms, in particular, present a constant stream of information and notifications that can be tempting to check during online classes or study sessions. These distractions can divert students' attention from educational content, potentially impacting their comprehension and engagement. Also, the asynchronous nature of online learning further compounds the challenge, as students may be managing their online classes alongside other responsibilities, including house chores, leading to divided attention and reduced concentration. These assertions are captured in the words of two Course Reps as follows:

> *It was not easy because in the house, getting up early to join in. I could imagine just starting online classes when I had to care for the children before the lecture. And most of my colleagues too because they were combining work at the same time, some two different jobs. Even when the class had begun, they would be in*

their cars, where there was noise in the background, So we all just decided to come to campus before reopening (Course Rep 5).

I wasn't active because I attended to my clients when I joined the class, so I didn't participate much. I logged in less than one hour, and then I ran away from the class (Course Rep 6).

To address this distraction challenge, lecturers should ensure clear communication of expectations regarding participation and attention during online sessions, coupled with guidelines on minimising external distractions. Also, providing structured breaks within sessions may allow students to manage non-academic tasks without disrupting the class flow. Moreover, incorporating interactive and engaging elements into online lessons can help captivate students' attention, reducing the likelihood of succumbing to distractions. Students can employ self-regulation strategies such as setting specific study times, creating a dedicated and organised study space, and using digital tools that limit access to distracting websites or notifications during focused study periods.

In contrast to the agreed statements, where respondents shared common challenges, the findings presented in Figure 10 also reflect areas of resilience and positive engagement. These include the respondents' ability to assist each other when needed (M=2.56) and their rejection of feelings of isolation during online classes (M=2.62). These dissenting views suggest a supportive and collaborative online learning community where students actively contribute to each other's learning experiences and manage to create a sense of connection despite the absence of physical presence. This finding resonates with an earlier finding presented in Figure 9 regarding the benefits

of online learning, where respondents agreed that online learning allowed them to collaborate during group assignments (M=2.18). However, this finding departs from a study by Ku and Lohr (2003), which revealed that online learning students lacked peer support because they were not meeting physically.

Additionally, the respondents generally disagreed with feelings of frustration (M=2.67) and reluctance to join online classes (M=2.64). These findings indicate a generally positive attitude and commitment to online learning among the respondents, essential factors in sustaining an effective and engaging virtual educational environment.

In summary, while challenges in internet connectivity, data affordability, and distractions were acknowledged, the overall picture painted by the respondents reveals a resilient and engaged community of learners. Addressing the agreed-upon challenges could further enhance the online learning experience, ensuring that technological barriers and financial constraints do not impede the educational journey of UCC sandwich postgraduate students.

What expectations do UCC sandwich postgraduate students have for future online learning?

The research question recognises the dynamic nature of education and the imperative for institutions to adapt to changing circumstances. By centring on what students anticipate in their online learning experiences, the research question aims to prioritise the perspectives and needs of the learners themselves. This student-centred perspective is crucial for designing effective and inclusive online education strategies. Consequently, respondents were

asked to indicate their expectations for future online learning. The results of this item are detailed in Table 6.

Table 6: Expectations UCC Sandwich Postgraduate Students have for Future Online Learning

Expectation	Frequency
1. **Quality engagement in live interactions with instructors in real-time**	250
2. **Participation in effective virtual group discussions and collaborative activities**	173
3. **Implementation of an intelligent monitoring and feedba system to enhance learning**	122
4. **Integration of an intelligent recommendation system foı learning resources**	105
5. **Increase the content of special education**	61

Source: Field survey (2023)

The findings presented in

Table 6 indicate expectations among respondents regarding their future online learning experiences. As the topmost expectation, the respondents expressed a desire for their future online learning to be characterised by quality real-time engagement in live interactions with lecturers. This expectation underscores the importance that respondents place on the interactive aspect of online education. The term ‘quality engagement’ suggests a desire for meaningful and effective interactions with lecturers during live sessions. This could include features such as live video lectures, virtual office hours, or real-time discussions where students can actively participate, ask questions, and receive immediate feedback.

The emphasis on real-time interactions with lecturers suggests recognising the value of direct communication in the online learning environment. This expectation aligns with the broader educational goal of fostering a sense of connection and collaboration between students and lecturers, even in the virtual space. It indicates a preference for dynamic and responsive teaching methods that leverage technology to facilitate instant communication and engagement. This finding speaks to the broader pedagogical approach that students anticipate, emphasising the human element in the digital space. Quality engagement in real-time interactions can contribute to a more immersive and effective learning experience, allowing students to actively participate in discussions, seek clarification, and build a rapport with their lecturers. Besides, educational institutions, particularly UCC, and online learning platforms may find these findings valuable in shaping the design and delivery of their online courses. Implementing features that promote quality engagement, such as live question-and-answer sessions and interactive workshops, can enhance the overall satisfaction and efficacy of online learning experiences.

Referring to

Table 6, the finding that the desire to engage in effective virtual group discussions and collaborative activities ranked second on the list of respondents' expectations signifies a strong emphasis on interactive and collaborative learning experiences in their envisioned online learning. Thus, respondents demonstrated a clear interest in actively participating in virtual group discussions with their peers. This expectation aligns with the recognition that collaborative learning is valuable for sharing knowledge and

fostering a sense of community among learners. Indeed, effective virtual group discussions can serve as a platform for exchanging ideas, diverse perspectives, and collaborative problem-solving.

It is noteworthy that the term 'effective' in the context of virtual group discussions suggests a desire for structured and purposeful collaboration. This may involve utilising platforms that facilitate clear communication, task allocation, and the exchange of ideas. However, ensuring effective virtual group discussions may entail establishing clear guidelines, precisely defining objectives, and employing tools that support seamless communication and collaboration in the online space. Moreover, the emphasis on collaborative activities underscores respondents' awareness of the benefits associated with collaborative learning. Collaborative activities, for instance, can enrich critical thinking skills, deepen understanding through peer interaction, and provide a more comprehensive learning experience. Furthermore, they contribute to developing interpersonal skills and the ability to work effectively in a team, which are highly valued in various professional contexts.

Indeed, meeting this expectation involves a dual focus on pedagogical considerations and technological support. For instance, online platforms and tools that facilitate virtual collaboration, such as discussion fora, collaborative document editing, and video conferencing, are indispensable. Educational institutions, like UCC, should invest in or optimise their technology to meet this expectation and establish a seamless collaborative learning environment. Additionally, online lecturers should leverage this finding to align their pedagogical approaches with student expectations. This may involve incorporating well-structured virtual group activities into their curriculum,

guiding effective collaboration, and fostering an inclusive virtual environment. By doing so, lecturers can contribute significantly to meeting the expectations of students and enhancing the overall collaborative learning experience.

The desire for implementation of an intelligent monitoring and feedback system, as the third expectation in

Table 6, underscores a significant interest among respondents in leveraging advanced technologies to enhance their online learning experiences. A critical analysis of this expectation brings to the fore several implications. For instance, the inclusion of 'intelligent' in the expectation implies a preference for systems that go beyond basic tracking. Thus, respondents are likely looking for sophisticated tools that can analyse learning patterns, provide insightful feedback, and adapt to individual learning styles. This expectation aligns with the growing recognition of the potential benefits of artificial intelligence and data analytics in education.

Moreover, the desire for an intelligent monitoring and feedback system suggests a recognition among respondents of the importance of constructive feedback in their learning process. An intelligent or smart feedback system can allow students to make immediate adjustments, understand their strengths and weaknesses, and stay on track with their learning objectives. This aligns with best practices in pedagogy that emphasise the value of apt assessment and feedback for effective learning outcomes (Dixit & Pathak, 2023). Also, the expectation for an intelligent monitoring system points to a desire for a more personalised learning experience. Such a system can track individual progress, identify areas that require attention, and tailor feedback to the specific needs of each learner. Personalisation is crucial for accommodating diverse learning styles and ensuring educational content aligns with individual capabilities and

preferences. This finding further highlights the increasing role of technology in education, especially in the context of monitoring and feedback. The expectation for an intelligent system suggests acknowledging the potential benefits of technology in providing more support for learners.

To meet this expectation, educational institutions must invest in or optimise technologies that can intelligently monitor student progress and provide meaningful feedback. This could involve the integration of learning management systems, data analytics tools, and artificial intelligence applications into the online learning environment.

The finding that respondents expect the integration of an intelligent recommendation system for learning resources highlights a forward-looking desire among respondents. This expectation suggests recognising the potential benefits that artificial intelligence can bring to the learning process. For instance, such intelligent recommendation systems can analyse individual learning patterns, preferences, and performance data to suggest relevant resources that align with the specific needs of each student. Offering targeted resources can make students more likely to engage with content relevant to their academic goals, increasing comprehension, retention, and motivation. Thus, instead of spending time searching for appropriate learning materials, students can benefit from a system that understands their learning preferences and proactively suggests likely beneficial resources. This streamlining of the resource discovery process can result in more effective study sessions.

Meeting this expectation will require the integration of advanced technological tools into online learning systems. This could involve implementing recommendation algorithms, machine learning models, and data

analytics systems to process and interpret user data to generate personalised recommendations. Also, educational institutions may have to consider data privacy, transparency, and user control factors when implementing intelligent recommendation systems.

Finally, the finding that 'increase the content of special education' was the least among the expectations of respondents provides insight into their priorities and preferences regarding their online learning experiences. This result suggests that, perhaps, respondents already perceive the current content related to special education as adequate or satisfactory. This could imply that, while special education is undoubtedly important, it might not be the primary focus for all respondents. It is also possible that respondents might not be fully aware of the specific content gaps or needs within special education. This could result in a lower prioritisation of this expectation, indicating a potential disconnect between their expectations and the perceived relevance of increased content in this domain.

In line with this research question, respondents were asked to suggest measures to improve UCC's online learning. One prominent suggestion highlighted by the respondents is the importance of consistency in the choice of online learning platforms lecturers use. According to the respondents, lecturers should adhere to a single online learning platform. They noted that the frequent switch between platforms, such as Zoom, Google Meet, and Microsoft Teams, was not conducive to their learning experience. This finding suggests that a consistent platform contributes to an enhanced user experience. The assumption is that students may find navigating and engaging with the learning content easier when they are accustomed to a particular interface.

This familiarity can increase efficiency in accessing resources, participating in discussions, and completing assignments. It is worth pointing out that switching between multiple online learning platforms can sometimes introduce technical challenges, including compatibility issues, varied login procedures, and differing functionalities. Therefore, using one platform can minimise the potential for technical difficulties, creating a more stable and user-friendly online learning environment.

While this proposed measure is laudable, providing training and support for faculty members to effectively use and navigate the chosen online learning platform is crucial. This will ensure that lecturers are comfortable and proficient in utilising the selected platform for instructional purposes. Also, establishing a feedback mechanism allows students to express their experiences and concerns regarding the chosen online learning platform. This ongoing feedback loop can inform adjustments and improvements to the platform's use over time.

Another suggestion that came out firmly was the need to reduce the volume of contents of online classes. This suggestion implies that a segment of the sandwich postgraduate student population perceives an issue or challenge related to the volume or intensity of content delivered in their online classes. For example, one of the Course Reps had this to say:

> *... it was too loaded, so you can't remember anything by the time the class is over ... (Course Rep 4).*

Against this background, this suggestion could be seen as a strategy to enhance student's ability to grasp and retain the material presented during online classes. Another interpretation could be related to time constraints and

workload. Thus, students may feel that the current volume of content in their online classes is demanding, especially when considering other commitments, such as work or family responsibilities. Therefore, reducing the content load could be seen as a means to accommodate the practical constraints sandwich postgraduate students face. This finding might also indicate a desire to shift focus from quantity to quality. Thus, respondents may be expressing a preference for a more concentrated and impactful learning experience, where the emphasis is placed on understanding and mastering key concepts rather than covering a large volume of material.

In response to this suggestion, lecturers may need to prioritise and carefully select the most essential content for online classes. This may involve a strategic approach to curriculum design, ensuring that the material presented aligns with learning objectives and fosters meaningful understanding. Additionally, establishing effective feedback mechanisms may be crucial. This would allow lecturers to gauge student understanding and adjust content delivery accordingly. Thus, regular feedback loops can help identify areas where adjustments are needed and ensure that the pacing and depth of content align with students' learning needs.

Finally, the respondents suggested that every lesson should be recorded and uploaded to their learning platforms for revision purposes and for those who could not join the class to access later. This suggestion was succinctly captured in the words of two Course Reps as follows:

> *I think they should have recorded every class for us to access. They were not doing it, except one Dr., who was doing it for us (Course Rep 1).*

> *I think for now, it will be advisable or it will be helpful if they record all the classes. So maybe at the end of the class, if the recording is sent, you can fill in the missed gap. Most of us have meetings online in the offices, and we have Zoom meetings and all that, and at the end of the day, they are recorded and sent. … So, they should do that … (Course Rep 2).*

Clearly, this suggestion underscores the importance of accessibility and flexibility in education. By recording and uploading lessons, students who may have missed a class due to various reasons, such as scheduling conflicts or connectivity issues, can access the content at a later time. This promotes inclusivity and accommodates diverse learning circumstances. It also aligns with contemporary educational practices that acknowledge students' diverse learning styles and time constraints.

Implementing this suggestion may require a technology infrastructure for recording, editing and uploading lessons. To maximise the benefits of recorded lessons, students may need training or orientation sessions on how to use the recorded content for revision and review effectively. Guiding students in navigating their online learning platforms and utilising available resources can enhance their learning experience.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the study summary, key findings, conclusions and recommendations to inform practice, and suggestions for further research.

Summary

This research aimed to explore the University of Cape Coast sandwich postgraduate students' experiences with UCC's online learning with respect to the learning conditions they experienced in the virtual learning environment, which includes the internet connectivity, institutional technical support and the availability of a dedicated space for students for their online learning.

The study also explored how beneficial or challenging online learning was to the sandwich postgraduate students. The following four research questions were formulated to guide the study:

1. What online learning conditions were experienced by UCC sandwich postgraduate students during their online learning?
2. What benefits do the University of Cape Coast sandwich postgraduate students derive from online learning?
3. What challenges do the University of Cape Coast sandwich postgraduate students face in online learning?
4. What expectations do UCC sandwich postgraduate students have for future online learning?

The study adopted a concurrent mixed methods design. Nine class representatives from two cohorts of sandwich postgraduate students across four UCC colleges participated in interviews, conducted individually at their preferred lecture times to ensure confidentiality and consent. For the

quantitative data, 426 questionnaire were administered instead of the targeted 327, enhancing generalisability and confidence in the reliability of the findings. The qualitative data gathered from the semi-structured interviews were analysed with Braun and Clarke's (2006) 6-phase framework for conducting thematic analysis. The interview responses were transcribed verbatim, and the transcripts were read through and re-read to familiarise the data corpus in the first step. The notes for each interview were then carefully examined to discover any independent thoughts in the form of fundamental themes, and each one was given a specific code as a marker to condense the data into manageable units of meaning in the second phase. I studied the codes in the third phase, and some fell into a theme. In the next step (step 4), I checked, modified, and developed the preliminary themes based on all the basic themes identified in Step 3. Next, a more general classification of themes was defined in step 5, where I made a more general categorisation of themes based on all the basic themes or patterns I identified in the data. Step 6 is the write-up phase, where I sum up the findings of the interview in a more meaningful manner.

The qualitative data in the form of insights from the semi-structured open-ended interviews with course reps of the sandwich postgraduate students in the four colleges and the quantitative data derived from the self-administered questionnaire, were analysed concurrently.

Key Findings

The key findings that emerged from the analysis of data generated from this study are presented in line with the research questions that guided the study.

1. **What online learning conditions were experienced by UCC sandwich postgraduate students during their online learning?**

   The findings of this research question indicate that:

   a. almost half of the sandwich postgraduate students (48%) did not have access to reliable internet connectivity at their various destinations.
   b. 4% of the sandwich postgraduate students consistently received technical support from UCC.
   c. out of those who received technical support from UCC, 28% expressed dissatisfaction with it.
   d. 54% of the sandwich postgraduate students did not have a dedicated space for their online learning.

2. **What benefits do the University of Cape Coast sandwich postgraduate students derive from online learning?**

   Regarding the benefits derived from online learning, respondents indicated that:

   a. the interactive communication with their lecturers fostered course engagement (M=1.72).
   b. they had effective virtual interactions with colleagues despite the physical distance (M=2.03).
   c. the collaborative group assignments they had facilitated shared perspectives (M=2.18).
   d. they had the flexibility to study at a personalised pace and schedule (M=2.05).

e. they had access to courses without the need to relocate to campus (M=1.88).

f. they had organised online tutorials (M=2.16).

g. they were able to apply concepts to real-life situations through multimedia resources (M=2.22).

3. **What challenges do the University of Cape Coast sandwich postgraduate students face in online learning?**

The findings that emerged from the analysis of research question three show that:

a. The internet connectivity of UCC lecturers was not stable.

b. The internet connectivity of the sandwich postgraduate students was also not stable.

c. The sandwich postgraduate students found it challenging to afford the high cost of data for their online classes.

d. The sandwich postgraduate students were sometimes distracted by extraneous factors in their online learning.

4. **What expectations do the University of Cape Coast sandwich postgraduate students have for future online learning?**

The findings of this research question indicated that:

a. The top four online activities that sandwich postgraduate students expect to have if they are to reaccess online learning in the future are:

i. Effective interaction with their lecturers.

ii. Online group assignments.

iii. Intelligent recommendation system for learning resource.

iv. Intelligent monitoring and feedback system for learning.

b. The sandwich postgraduate students suggested the following measures to improve UCC's online learning:

i. UCC lecturers should adopt one online learning tool to facilitate online classes.

ii. Course materials should be uploaded on the online learning platform for students to access and read through before lecture time.

iii. The online classes' duration (4 weeks) should be substituted with the duration (2 weeks) for the face-to-face class and vice-versa.

iv. The number of courses treated daily in the online class should be reduced.

v. Each online lesson should be recorded and uploaded on the learning platform at the end of the class.

Conclusions

The following conclusions are drawn in light of the key findings of this research:

1. Regarding the finding that 48% of the Sandwich postgraduate students did not have access to reliable internet connectivity, it can be concluded that there were significant disparities in learning opportunities among the

Sandwich postgraduate students, particularly those with poor internet access.

2. The relatively small proportion of the students, 4%, who relied on technical support from UCC highlight a limited engagement with institutional support services. Also, the 28% of them who expressed dissatisfaction with the quality of help received indicates potential areas for improvement in technical assistance.
3. In line with the finding that the majority of 54% of the students lacked a dedicated space for their online learning, it can be concluded that a prevalent challenge exists in creating conducive home learning environments.
4. In light of the findings that the sandwich postgraduate students had an interactive online class since there was interactive communication between them and their lecturers, and also had real interactions with their colleagues in the online class even though they were not meeting in person, it can be concluded that the online learning that the sandwich postgraduate students accessed at UCC was effective since there were interactions between lecturers and the students, and among the students and their colleagues.
5. The finding indicating that the sandwich postgraduate students were able to share collective ideas in their online classes suggests that the Sandwich postgraduate students experienced teamwork in their online learning.
6. In line with the finding that the sandwich postgraduate students studied at their own pace and time in UCC's online learning, it can be concluded that

UCC's online learning was flexible for the sandwich postgraduate students.

7. In view of the finding that the sandwich postgraduate students could access their programmes of study from their various destinations suggest that the online learning they accessed at UCC was convenient.
8. With respect to the finding that UCC lecturers organised online tutorials for the sandwich postgraduate students, it can be concluded that the students enjoyed learner support from their lecturers.
9. The discovery that the sandwich postgraduate students indicated that they did not experience an enhanced online learning environment, it can be concluded that there might be a missed opportunity to augment the visual and interactive components of their online learning experience.
10. In line with the findings that the sandwich postgraduate students were not given any orientation with respect to the online learning they accessed and insisted that their lecturers could also not have been trained before the online classes it can be concluded that there was a significant gap in preparing both lecturers and the students for effective online teaching and learning.
11. In view of the finding indicating that the sandwich postgraduate students could apply the concepts they were taught online to real-life situations, which enhanced their understanding, it can be concluded that the lecturers explained concepts of the subject matter of the courses they taught to the extent of making it easy for the students to apply the concepts realistically.
12. In light of the findings that the internet connectivity of UCC lecturers and the sandwich postgraduate students was not stable during the online

classes, it can be concluded that there was a shared challenge within the online learning environment of the University of Cape Coast, which could have led to interrupted lessons.

13. The finding that the sandwich postgraduate students found it challenging to afford the high cost of data for their online classes suggests that there could be unequal access to the online courses they accessed since they might be hindered by the financial constraints associated with data costs.
14. In view of the finding that the sandwich postgraduate students were sometimes distracted by extraneous factors in their online learning, it can be concluded that they were not self-disciplined in their online classes, so they found it challenging to maintain focus and concentration.
15. The findings that the top four online activities that sandwich postgraduate students expect to have if they are to reaccess online learning in the future are effective interaction with their lecturers, online group assignments, an intelligent recommendation system for learning resources and intelligent monitoring and feedback system for online learning, it can be concluded that the sandwich postgraduate students desire for a more interactive, engaging, and personalised online learning environment that will lead to a more effective and satisfying online learning experience ultimately contributing to their academic success.
16. With respect to the finding that the sandwich postgraduate students proposed that UCC lecturers adopt one online learning tool for facilitating online classes, it suggests that the students want a streamlined and cohesive online learning experience. When a single, well-integrated tool is

adopted, it can enhance the consistency and accessibility of online classes, eventually benefiting both lecturers and students.

17. In line with the finding that the sandwich postgraduate students advised that course materials pertaining to their programmes of study should be uploaded on the online learning platform for them to access and read through before lecture time, it can be concluded that the students wish to engage in active preparation, which can lead to more meaningful and interactive discussions during the actual class session. It can also be concluded that the sandwich postgraduate students desire to take responsibility for their learning, for their lecturers to focus on facilitating discussions and addressing questions during class time.
18. The finding that the duration (currently 4 weeks) of the online classes accessed by the sandwich postgraduate students should be substituted with the duration (currently 2 weeks) for the face-to-face class and vice-versa connotes that the sandwich postgraduate students wish to have more physical meetings with their lecturers in accessing their programmes than the virtual learning environment.
19. With regard to the finding that the sandwich postgraduate students wished for the number of courses treated daily in the online class to be reduced, it can be concluded that the students are concerned about the quality and effectiveness of UCC's online learning, focusing on optimising the online learning experience. By reducing the number of courses treated daily, students may have more time for in-depth understanding, critical thinking, and active participation, which are crucial for effective learning.

20. In relation to the finding that the sandwich postgraduate students proposed that each online lesson should be recorded and uploaded on the learning platform at the end of the class, it can be concluded that students want UCC's online learning to be more flexible and accessible. By making lessons available for review and reference, students can revisit the content of their courses at their own pace, ensuring a deeper understanding and the opportunity to clarify doubts. Also, recorded lessons benefit students who might face connectivity issues, time zone differences or scheduling conflicts, allowing them to engage with their course materials when convenient.

Recommendations

The following recommendations grounded on the research findings and the conclusions drawn are made to promote the practicability of the discoveries that emerged from this study:

1. Given the learning conditions experienced by the sandwich postgraduate students, the management of the University of Cape Coast may need to consider alternative or blended learning methods that do not solely rely on internet access. This could involve providing offline materials, offering in-person support, or exploring other means of content delivery. Also, the management of UCC may need to enhance its support services, including technical support, to assist students in overcoming internet access challenges. This could include providing guidance on finding and using local internet resources and remotely assisting students in troubleshooting common connectivity issues. Students' satisfaction with the support services they receive

plays a pivotal role in their overall academic experience and success. Therefore, management of UCC and similar educational institutions must take this feedback seriously and work toward enhancing the technical support services to align them more closely with the students' requirements. Additionally, students accessing their programmes online should be encouraged to create a dedicated space devoid of distractions for their online classes to achieve a positive virtual learning experience. The management of UCC should further consider reducing the duration and number of courses treated daily in online learning to enhance their students' general online learning experiences.

2. In relation to the conclusions that UCC lecturers and the students did not receive any form of orientation, the management of UCC should consider organising thorough orientation programmes for both lecturers and students to familiarise themselves with the virtual learning environment before the commencement of online classes to enhance the learning experiences of its students. It is also recommended that the management of the University of Cape Coast should provide online digital resources to lecturers to facilitate online courses, especially for the courses that involve calculations.
3. Pertaining to the fact that the internet connectivity of both lecturers and the sandwich postgraduate students was unstable, it is recommended that the management of the University of Cape Coast should consider improving the internet connectivity of the institution to achieve quality services to its stakeholders by assessing the current internet connectivity and identifying the institution's specific needs.

Management should consider upgrading to a higher-speed internet connection if the current bandwidth is insufficient. They can consult service providers to determine the best options and choose a plan that suits the institution's requirements. Additionally, UCC should partner with telecommunication organisations to provide its students with data and WiFi if they wish to continue with online learning. They can achieve this by incorporating the data cost into the students' fees and encouraging their telecommunication organisation partners to deliver the data and WiFi on time to the students before the classes begin.

4. Against the backdrop that the top four online activities that sandwich postgraduate students expect to have if they are to reaccess online learning in the future are effective interaction with their lecturers, online group assignments, an intelligent recommendation system for learning resources and intelligent monitoring and feedback system, it is recommended that the management of UCC should integrate an educational commendation system, which leverages data analytics and artificial intelligence (AI) to provide personalised, context-aware recommendations to its online learners to enhance their online learning experiences by suggesting relevant content, courses, and resources based on individual student preferences, goals, and performance with existing learning management systems provide a unified and cohesive online learning experience for its students.
5. With respect to the suggestions made by the sandwich postgraduate students to improve UCC's online delivery, it is recommended that the management of UCC should consider adopting a single, user-friendly

online learning tool that the lecturers can consistently use to facilitate online classes, establish a practice of uploading course materials on the online learning platform ahead of lecture times to enable the students to access the course materials in advance, ensuring they come to class well-prepared and ready to engage in more meaningful discussions. The management of UCC can also consider getting electronic books (e-books) on the online learning platforms so that students can download and read offline. As part of the suggestions by the students to improve UCC's online learning, It is also recommended that the management of UCC consider offering flexibility in the duration of online and face-to-face classes by bearing with the students to choose the mode that best suits their needs and preferences, consider the suggestion by the students to reduce the number of courses treated daily in online classes, and implement a practice of recording each online lesson and uploading it to the learning platform at the end of the class. This will ensure that the students have access to recorded content for reference.

Implementation of a proposed Theory of Change for Online Learning Experiences in UCC

Based on the findings of this study, it is evident that sandwich postgraduate students in UCC face significant challenges in online learning, particularly concerning unreliable internet connectivity, limited technical support, and inadequate learning spaces. Despite these challenges, students also recognise the flexibility and engagement opportunities offered by online learning. To enhance their learning experiences, it is essential for Heads of Academic

Departments in UCC to adopt a structured Theory of Change for Online Learning Experiences to drive systematic improvements.

The goal of the theory of change

The goal of this framework is to improve students' online learning experiences by ensuring greater accessibility, engagement, and participation. Since learning is inherently a social process (Vygotsky & Cole, 2018), the proposed interventions will focus on fostering interactive and student-centred online learning environments.

Key intervention pillars for improving online learning experiences

To ensure a positive and effective online learning experience, the following four key intervention areas must be prioritised:

1. Technological Infrastructure Enhancement
    - UCC must ensure the availability of stable internet connectivity for students, either through institutional partnerships with telecommunications providers or the provision of subsidised data packages.
    - Adequate learning devices, such as laptops or tablets, should be made available to students through rental schemes or institutional support programmes.
    - A dedicated IT support team should be established to offer real-time troubleshooting assistance.
2. Innovative Learning Design
    - Course materials should be structured to incorporate multimedia elements (videos, audio clips, animations) to enhance interactivity and engagement.

- Online learning platforms should be optimised to include discussion forums, peer collaboration spaces, and interactive quizzes that promote active learning.
- Learning Management Systems (LMS) should be user-friendly and mobile-compatible, ensuring that students can access content seamlessly.

3. Enhanced Learner Support Mechanisms
   - Academic departments should strengthen student support systems, including the provision of timely feedback from instructors and regular online office hours.
   - UCC should implement a structured orientation programme to familiarise students with the online learning environment and available support services.
   - A dedicated helpdesk should be established to provide guidance on online learning challenges, including technical and academic concerns.
4. Promotion of Self-Regulated Learning
   - Students should be trained in time management, goal-setting, and digital literacy skills to enhance their ability to navigate online learning environments independently.
   - Academic departments should organise workshops or training sessions to equip students with self-directed learning strategies.
   - Online learning activities should be designed to promote collaborative learning, allowing students to engage in group projects, peer discussions, and shared problem-solving tasks.

Mechanisms for implementing change

To ensure the success of these interventions, the following mechanisms for change should be established:

1. Bridging the Digital Divide
    - UCC should collaborate with telecommunication providers to secure affordable data plans for students.
    - The university should explore funding options for providing students with access to learning devices through institutional partnerships or sponsorship programmes.
2. Optimising Online Course Design
    - Online courses should integrate interactive elements that encourage student participation.
    - Training should be provided for lecturers on best practices for online teaching, ensuring effective engagement with students.
3. Strengthening Instructor Support and Student Engagement
    - Lecturers should be trained in effective online pedagogy, with a focus on engagement and student interaction.
    - Academic departments should establish structured feedback mechanisms to assess and address students' online learning concerns.
4. Fostering a Culture of Self-Directed Learning
    - UCC should introduce self-regulated learning workshops at the start of every academic year.
    - Departments should promote student mentorship programmes where experienced online learners guide new students.

Expected short-term outcomes

Implementing these interventions should lead to:

1. Increased student access to reliable internet and digital learning resources.
2. Improved quality and structure of online course content.
3. Greater availability of instructor support and responsiveness.
4. Enhanced student ability to manage their own learning processes effectively.

Expected medium-term outcomes

Over time, these efforts should result in:

1. Higher levels of student engagement in online learning activities.
2. Increased completion rates for assignments and participation in discussions.
3. More effective use of digital resources by students.

Long-term impact

The long-term impact of adopting this Theory of Change will be:

1. Improved overall student satisfaction and experience with online learning at UCC.
2. Enhanced learning outcomes, leading to academic success and greater professional preparedness.

Assumptions underlying this theory of change

The successful implementation of this framework is based on the following assumptions:

1. UCC will invest in upgrading its digital infrastructure to support online learning.
2. Students will respond positively to enhanced course designs and support mechanisms.

3. Training in self-regulated learning will lead to sustained improvements in student autonomy.
4. Academic departments will commit to continuous monitoring and adaptation of online learning interventions based on feedback and data-driven insights.

Given the increasing role of online learning in higher education, it is imperative for UCC to enhance its digital education strategy. This Theory of Change provides a structured framework for Heads of Academic Departments to implement targeted improvements in online learning experiences. Addressing the technological, pedagogical, and support-related challenges identified in this study can significantly enhance student engagement, learning effectiveness, and overall academic success in online postgraduate programmes.

Suggestions for Further Research

This study has uncovered the learning conditions experienced by the University of Cape Coast sandwich postgraduate students in their online learning, the benefits they derived, and the challenges they encountered with accessing online learning. Measures have been outlined to be adopted by stakeholders to enhance students' online learning experiences. A further study is needed to explore whether a significant statistical difference exists in the overall learning experiences of sandwich postgraduate students among the four colleges of UCC that run programmes on the sandwich mode. Further research is also needed to be conducted to explore the learning conditions experienced by UCC lecturers in online instruction.

REFERENCES

Agung, A. S. N., Surtikanti, M. W., & Quinones, C. A. (2020). Students' perception of online learning during COVID-19 pandemic: A case study on the English students of STKIP Pamane Talino. *SOSHUM: Jurnal Sosial Dan Humaniora, 10*(2), 225-235.

Al-Busaidi, K. A. (2013). An empirical investigation linking learners' adoption of blended learning to their intention of full e-learning. *Behaviour & Information Technology, 32*(11), 1168-1176.

Al-Gahtani, S. S., & King, M. (1999). Attitudes, satisfaction, and usage: Factors contributing to each in the acceptance of information technology. *Behaviour & Information Technology, 18*(4), 277-297.

Alhojailan, M. I., & Ibrahim, M. (2012). Thematic analysis: A critical review of its process and evaluation. *West East Journal of Social Sciences, 1*(1), 39-47.

Ali, N. S., Hodson-Carlton, K., & Ryan, M. (2004). Students' perceptions of online learning: Implications for teaching. *Nurse Educator, 29*(3), 111-115.

Allen, I. E., & Seaman, J. (2003). *Sizing the opportunity: The quality and extent of online education in the United States, 2002 and 2003.* Sloan Consortium.

Allen, I. E., & Seaman, J. (2014). *Grade change: Tracking online education in the United States.* Babson Survey Research Group.

Almahasees, Z., Mohsen, K., & Amin, M. O. (2021). Faculty's and students' perceptions of online learning during COVID-19. *Frontiers in Education, 6*(1), 1-10.

Anastasiades, P., & Retalis, S. (2001). The educational process in the emerging information society: Conditions for the reversal of the linear model of education and the development of an open type hybrid learning environment (pp. 43-48). *Association for the Advancement of Computing in Education (AACE).*

Anyorigya, D. A. (2020). COVID-19: Halt challenge-ridden online learning in universities–NUGS to Government. *Citi Newsroom.* Retrieved from https://citinewsroom.com/2020/04/covid-19-halt-challenge-ridden-online-learning-in-universities-nugs-to-government.

Arduini-Van Hoose, N. (2020). Social constructivism: Vygotsky's theory. *Educational Psychology.*

Arif, M., & Kanwal, S. (2016). Adoption of social media technologies and their impact on students' academic performance: The only way for future survival of distance education students in Pakistan. *Pakistan Journal of Information Management and Libraries*, *18*(1), 25-36.

Armstrong, D. (2011, October). Students' perceptions of online learning and instructional tools: A qualitative study of undergraduate students' use of online tools. In *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 1034-1039). *Association for the Advancement of Computing in Education (AACE).*

Asunka, S. (2008). Online learning in higher education in Sub-Saharan Africa: Ghanaian university students' experiences and perceptions. *International Review of Research in Open and Distributed Learning*, *9*(3), 1-23.

Bacon, M. (2012). *Pragmatism: An introduction.* Polity.

Bączek, M., Zagańczyk-Bączek, M., Szpringer, M., Jaroszyński, A., & Wożakowska-Kapłon, B. (2021). Students' perception of online learning during the COVID-19 pandemic: A survey study of Polish medical students. *Medicine, 100*(7).

Basuony, M. A., EmadEldeen, R., Farghaly, M., El-Bassiouny, N., & Mohamed, E. K. (2021). The factors affecting student satisfaction with online education during the COVID-19 pandemic: An empirical study of an emerging Muslim country. *Journal of Islamic Marketing, 12*(3), 631-648.

Bates, T. (2008). *Online learning tools and technologies.* Retrieved from https://www.tonybates.ca/wp.

Beqiri, M. S., Chase, N. M., & Bishka, A. (2009). Online course delivery: An empirical investigation of factors affecting student satisfaction. *Journal of Education for Business, 85*(2), 95-100. https://doi.org/10.1080/08832320903258527

Bhardwaj, P. (2019). Types of sampling in research. *Journal of the Practice of Cardiovascular Sciences, 5*(3), 157.

Biesenbach-Lucas, S. (2003). Asynchronous discussion groups in teacher training classes: Perceptions of native and non-native students. *Journal of Asynchronous Learning Networks, 7*(3), 24-46.

Bocchi, J., Eastman, J. K., & Swift, C. (2004). Retaining the online learner: Profile of students in an online MBA program and implications for teaching them. *Journal of Education for Business, 79*(4), 245-253.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development.* Sage.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Burns, E., & Groove, W. (2014). *Research method. Ergonomics, 32*(3), 237-248.

Buzzetto-More, N. (2008). Student perceptions of various e-learning components. *Interdisciplinary Journal of E-Learning and Learning Objects, 4*(1), 113-135.

Buzzetto-More, N. (2015). Student attitudes towards the integration of YouTube in online, hybrid, and web-assisted courses: An examination of the impact of course modality on perception. *Journal of Online Learning and Teaching, 11*(1), 55.

Cargan, L. (2007). *Doing social research.* Rowman & Littlefield Publishers.

Castro, M. D. B., & Tumibay, G. M. (2021). A literature review: Efficacy of online learning courses for higher education institutions using meta-analysis. *Education and Information Technologies, 26*(2), 1367-1385.

Charmaz, K., & Belgrave, L. (2012). Qualitative interviewing and grounded theory analysis. In *The SAGE Handbook of Interview Research: The Complexity of the Craft* (2nd ed., pp. 347-365). SAGE.

Chen, Y. C., Hwang, R. H., & Wang, C. Y. (2012). Development and evaluation of a Web 2.0 annotation system as a learning tool in an e-learning environment. *Computers & Education, 58*(4), 1094-1105.

Chizmar, J. F., & Walbert, M. S. (1999). Web-based learning environments guided by principles of good teaching practice. *The Journal of Economic Education, 30*(3), 248-259.

Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist, 26*(2).

Cohen, L., Manion, L., & Morrison, K. (2007). Experiments, quasi-experiments, single-case research and meta-analysis. *Research Methods in Education*.

Combs, J. P., & Onwuegbuzie, A. J. (2010). Describing and illustrating data analysis in mixed research.

Connell, J. P., & Kubisch, A. C. (1998). Applying a theory of change approach to the evaluation of comprehensive community initiatives: Progress, prospects, and problems. *New Approaches to Evaluating Community Initiatives, 2*(15-44), 1-16.

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

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* Pearson Education, Inc.

Creswell, J. W., Klassen, A. C., Plano Clark, V. L., & Smith, K. C. (2011). *Best practices for mixed methods research in the health sciences.* National Institutes of Health.

Cromwell, A. (2020). Education Ministry set to release online learning platform for Senior High Schools. *MyJoyOnline.* Retrieved from https://www.myjoyonline.com/news/national/education-ministry-set-to-release-online-learning-platform-for-senior-high-schools.

Dabbagh, N. (2007). The online learner: Characteristics and pedagogical implications. *Contemporary Issues in Technology and Teacher Education, 7*(3), 217-226.

Darkwa, B. F., & Antwi, S. (2021). From classroom to online: Comparing the effectiveness and student academic performance of classroom learning and online learning. *Open Access Library Journal, 8*(7), 1-22.

Davis, F. D. (1993). User acceptance of information technology: System characteristics, user perceptions, and behavioral impacts. *International Journal of Man-Machine Studies, 38*(3), 475-487.

Dawson, C. (2002). *Practical research methods: A user-friendly guide to mastering research.* How To Books.

Del Águila, M. R., & González-Ramírez, A. R. (2014). Sample size calculation. *Allergologia et Immunopathologia, 42*(5), 485-492.

Demuyakor, J. (2020). Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China. *Online Journal of Communication and Media Technologies, 10*(3), e202018.

Denscombe, M. (2021). *The Good Research Guide: Research Methods for Small-Scale Social Research Projects.* McGraw-Hill Education (UK).

Dillon, A., & Morris, M. G. (1996). User acceptance of new information technology: Theories and models.

Dixit, P., & Pathak, U. (2023). Students' learning outcomes and emerging practices of blended learning: A case study. In M. K. Bhagat & S. K. Sahay (Eds.), *Sustainable blended learning in STEM education for students with additional needs* (pp. 247–277). Springer Nature Singapore.

Dobbs, R. R., Waid, C. A., & del Carmen, A. (2009). Students' perceptions of online courses: The effect of online course experience. *Quarterly Review of Distance Education, 10*(1), 9–26.

Dougiamas, M. (2004). *Moodle: A learning management system*. Moodle Pty Ltd.

Drew, C. J., & Hardman, M. L. (2007). *Intellectual disabilities across the lifespan* (8th ed.). Pearson Education.

Duffy, T. M., & Cunningham, D. J. (1996). Constructivism: Implications for the design and delivery of instruction. In D. H. Jonassen (Ed.), *Handbook of research for educational communications and technology* (pp. 170–198). Macmillan Library Reference.

Eide, P., & Kahn, D. (2008). Ethical issues in the qualitative researcher–participant relationship. *Nursing Ethics, 15*(2), 199–207.

Engelbrecht, J., & Harding, A. (2005). Teaching undergraduate mathematics on the internet. Part 2: Attributes and possibilities. *Educational Studies in Mathematics, 58*(2), 253–276.

Essel, R., Owusu-Boateng, W., & Saah, A. A. (2008). Effect of distance learner-perception of course materials on access to learning for professional development: A case study of Centre for Continuing Education, University of Cape Coast, Ghana. *Turkish Online Journal of Distance Education, 9*(1), 123–134.

Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal, 5*(6), 00149.

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

Frempong, K. A. (2011). Factors that motivate students to take teaching as a profession: A case study of colleges of education within Mampong Ashanti municipality. (Unpublished master's thesis). University of Cape Coast, Cape Coast, Ghana.

Fuady, I., Sutarjo, M. A. S., & Ernawati, E. (2021). Analysis of students' perceptions of online learning media during the COVID-19 pandemic (Study of e-learning media: Zoom, Google Meet, Google Classroom, and LMS). *Randwick International of Social Science Journal, 2*(1), 51–56.

Gelles, L. A., Lord, S. M., Hoople, G. D., Chen, D. A., & Mejia, J. A. (2020). Compassionate flexibility and self-discipline: Student adaptation to emergency remote teaching in an integrated engineering energy course during COVID-19. *Education Sciences, 10*(11), 304.

Glesne, C. (2011). Prestudy tasks: Doing what is good for you. In C. Glesne (Ed.), *Becoming qualitative researchers: An introduction* (4th ed., pp. 37–54). Pearson.

Golladay, R. M., Prybutok, V. R., & Huff, R. A. (2000). Critical success factors for the online learner. *Journal of Computer Information Systems, 40*(4), 69–71.

Greener, S. L. (2008). Self-aware and self-directed: Student conceptions of blended learning. *MERLOT Journal of Online Learning and Teaching, 4*(2), 243–253.

Greening, N. (2019). Phenomenological research methodology. *Scientific Research Journal, 7*(5), 88–92.

Guba, E. G. (Ed.). (1990). *The paradigm dialog*. Sage Publications.

Guernsey, L. (1998). Distance education for the not-so-distant. *Chronicle of Higher Education, 44*(29), A29–A31.

Gupta, A., Shrestha, R. M., Shrestha, S., Acharya, A., & Pandey, N. (2020). Perception of BDS students of Kathmandu University on online learning during COVID-19 pandemic. *Orthodontic Journal of Nepal, 10*(2), 20–28.

Hadullo, K., Oboko, R., & Omwenga, E. (2018). Factors affecting asynchronous e-learning quality in developing countries university settings. *International Journal of Education and Development Using ICT, 14*(1), 152–163.

Hara, N. (2000). Student distress in a web-based distance education course. *Information, Communication & Society, 3*(4), 557–579.

Hara, N., & Kling, R. (2001). Student distress in web-based distance education. *Educause Quarterly*, *24*(3), 68–69.

Harasim, L. M. (Ed.). (1990). *Online education: Perspectives on a new environment*. Praeger.

Haugen, S., LaBarre, J., & Melrose, J. (2001). Online course delivery: Issues and challenges. *Issues in Information Systems, 2*, 127–131.

Heale, R., & Forbes, D. (2013). Understanding triangulation in research. *Evidence-Based Nursing*, *16*(4), 98.

Hill, J. R. (2002). Overcoming obstacles and creating connections: Community building in web-based learning environments. *Journal of Computing in Higher Education*, 14, 67–86.

Hiltz, S. R. (1995). Teaching in a virtual classroom. *International Journal of Educational Telecommunications*, 1(2), 185–198.

Hofmann, D. W. (2002). Internet-based distance learning in higher education. *Tech Directions*, 62(1), 28–32.

Hong, S., & Jung, I. (2011). The distance learner competencies: A three-phased empirical approach. *Educational Technology Research and Development*, 59, 21–42.

Hoople, G. D., Chen, D. A., Lord, S. M., Gelles, L. A., Bilow, F., & Mejia, J. A. (2020). An integrated approach to energy education in engineering. *Sustainability*, 12(21), 9145. https://doi.org/10.3390/su12219145

Hrastinski, S. (2008). The potential of synchronous communication to enhance participation in online discussions: A case study of two e-learning courses. *Information & Management*, 45(7), 499–506. https://doi.org/10.1016/j.im.2008.07.005

Huang, Y. C., Backman, S. J., & Backman, K. F. (2010). Student attitude toward virtual learning in Second Life: A flow theory approach. *Journal of Teaching in Travel & Tourism*, 10(4), 312–334. https://doi.org/10.1080/15313220.2010.525425

Hung, M. L., Chou, C., Chen, C. H., & Own, Z. Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education*, 55(3), 1080–1090. https://doi.org/10.1016/j.compedu.2010.05.004

Ihuah, P. W., & Eaton, D. (2013). The pragmatic research approach: A framework for sustainable management of public housing estates in Nigeria. *Journal of US-China Public Administration*, 10(10), 933–944.

Institute for Educational Planning and Administration. (2021, August 21). *IEPA launched as a UNESCO Category II Centre of Excellence for West Africa*. https://iepa.ucc.edu.gh/news/iepa-launched-unesco-category-ii-centre-excellence-west-africa

Japar, M., Fadhillah, D. N., & Syarifa, S. (2019, August). Civic education through e-learning in higher education. In *1st International Conference on Education Social Sciences and Humanities (ICESSHum 2019)* (pp. 505–511). Atlantis Press. https://doi.org/10.2991/icesshum-19.2019.80

Javadi, M., & Zarea, K. (2016). Understanding thematic analysis and its pitfall. *Journal of Client Care*, 1(1), 33–39. https://doi.org/10.15412/J.JCC.02010107

Jenkins, H., & Thorburn, D. (2003). Introduction: The digital revolution, the informed citizen, and the culture of democracy. In H. Jenkins & D. Thorburn (Eds.), *Democracy and new media* (pp. 1–17). MIT Press.

Johnson-Eilola, J. (2002, October). Open source basics: Definitions, models, and questions. In *Proceedings of the 20th annual international conference on Computer documentation* (pp. 79–83). https://doi.org/10.1145/584955.584971

Jones, W. P., & Kottler, J. A. (2006). *Understanding research: Becoming a competent and critical consumer*. Pearson Merrill Prentice Hall.

Jung, M. L. L., Loria, K., & Saha, R. M. P. (2008). E-learning: Investigating university students' acceptance of technology. *European Journal of Open, Distance and E-Learning*, 11(2).

Kearns, L. R. (2012). Student assessment in online learning: Challenges and effective practices. *Journal of Online Learning and Teaching*, 8(3), 198–208.

Keller, C., & Cernerud, L. (2002). Students' perceptions of e-learning in university education. *Journal of Educational Media*, 27(1–2), 55–67. https://doi.org/10.1080/1358165020270105

Kimberlin, C. L., & Winterstein, A. G. (2008). Validity and reliability of measurement instruments used in research. *American Journal of Health-System Pharmacy*, 65(23), 2276–2284. https://doi.org/10.2146/ajhp070364

Kivunja, C., & Kuyini, A. B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, 6(5), 26–41. https://doi.org/10.5430/ijhe.v6n5p26

Ko, S., & Rossen, S. (2017). *Teaching online: A practical guide* (4th ed.). Routledge.

Kocur, D., & Kosc, P. (2009). E-learning implementation in higher education. *Acta Electrotechnica et Informatica*, 9(1), 20–26. https://doi.org/10.2478/v10198-009-0004-0

Ku, H. Y., & Lohr, L. L. (2003). A case study of Chinese students' attitudes toward their first online learning experience. *Educational Technology Research and Development*, 51(3), 95–102. https://doi.org/10.1007/BF02504041

Kumar, A., Agrawal, A., & Agrawal, P. (2015). Massive open online courses: EdX.org, Coursera.com and NPTEL, a comparative study based on usage statistics and features with special reference to India. *Procedia Computer Science*, 70, 28–34. https://doi.org/10.1016/j.procs.2015.10.048

Lee, B. C., Yoon, J. O., & Lee, I. (2009). Learners' acceptance of e-learning in South Korea: Theories and results. *Computers & Education*, 53(4), 1320–1329. https://doi.org/10.1016/j.compedu.2009.06.014

Lee, C. Y., & Witta, E. L. (2001). Online students' perceived self-efficacy: Does it change? *Journal of Distance Education*, 16(1), 23-39.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management*, 40(3), 191-204.

Leh, A. S. (2001). Computer-mediated communication and social presence in a distance learning environment. *International Journal of Educational Telecommunications*, 7(2), 109-128.

Liaw, S. S., & Huang, H. M. (2002). How web technology can facilitate learning. *Information Systems Management*, 19(1), 56-61.

Lin, H. F. (2007). Measuring online learning systems success: Applying the updated DeLone and McLean model. *Cyberpsychology & Behavior*, 10(6), 817-820.

Lodico, M. G., Spaulding, D. T., & Voegtle, K. H. (2010). *Methods in educational research: From theory to practice*. John Wiley & Sons.

Lorenzetti, J. P. (2005). Beyond multiple choice: Assessment for online learning. *Distance Education Report*, 9(18), 1-7.

Loyd, B. H., & Gressard, C. (1984). Reliability and factorial validity of computer attitude scales. *Educational and Psychological Measurement*, 44(2), 501-505.

Luo, T. (2011, October). An exploratory study of students' perception of their online learning experiences in a Midwestern university. In *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 2416-2420). Association for the Advancement of Computing in Education (AACE).

Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues in Educational Research*, 16(2), 193-205.

Mamattah, R. S. (2016). Students' perceptions of e-learning. *Unpublished master's thesis*.

Maphosa, V. (2021). Factors influencing student's perceptions towards e-learning adoption during COVID-19 pandemic: A developing country context. *European Journal of Interactive Multimedia and Education*, 2(2), e02109. https://doi.org/10.30935/ejimed/11000

Masrom, M. (2007). Technology acceptance model and e-learning. *Technology*, 21(24), 81.

McGreal, R., & Elliott, M. (2004). Technologies of online learning (e-learning). In T. Anderson & F. Elloumi (Eds.), *Theory and practice of online learning* (pp. 115-134). Athabasca University Press.

Mertens, D. M. (2007). Transformative paradigm: Mixed methods and social justice. *Journal of Mixed Methods Research*, 1(3), 212-225. https://doi.org/10.1177/1558689807302811

Miles, H., & Huberman, A. M. (2016). *Qualitative data analysis: A methods sourcebook* (3rd ed.). SAGE Publications.

Mol, M. E., van Boxtel, M. P., Willems, D., & Jolles, J. (2006). Do subjective memory complaints predict cognitive dysfunction over time? A six-year follow-up of the Maastricht Aging Study. *International Journal of Geriatric Psychiatry*, 21(5), 432-441. https://doi.org/10.1002/gps.1487

Moller, L. (1998). Designing communities of learners for asynchronous distance education. *Educational Technology Research and Development*, 46(4), 115-122.

Moore, D. R. (2006). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. Jossey-Bass.

Morse, K. (2003). Does one size fit all? Exploring asynchronous learning in a multicultural environment. *Journal of Asynchronous Learning Networks*, 7(1), 37-55.

Mortagy, Y., & Boghikian-Whitby, S. (2010). A longitudinal comparative study of student perceptions in online education. *Interdisciplinary Journal of E-Learning and Learning Objects*, *6*(1), 23-43.

Mouchantaf, M. (2020). The COVID-19 pandemic: Challenges faced and lessons learned regarding online education. *International Journal of Educational Technology*, 17(2), 1-15.

Niemi, H. M., & Kousa, P. (2020). A case study of students' and teachers' perceptions in a Finnish high school during the COVID pandemic. *International Journal of Technology in Education and Science*, *4*(4), 352-369. https://doi.org/10.46328/ijtes.v4i4.167

Nov, O., & Ye, C. (2008, January). Personality and technology acceptance: Personal innovativeness in IT, openness and resistance to change. In *Proceedings of the 41st annual Hawaii international conference on system sciences (HICSS 2008)* (pp. 448-448). IEEE. https://doi.org/10.1109/HICSS.2008.448

Nwankwo, A. A. (2015). *Students' learning experiences and perceptions of online course content and interactions* (Doctoral dissertation, Walden University). Walden University Repository.

O'Malley, J., & McGraw, H. (1999). Students' perceptions of distance learning, online learning, and the traditional classroom. *Online Journal of Distance Learning Administration*, *2*(5). http://www.westga.edu/~distance/ojdla/winter24/omalley24.html

Obasa, A. I., Eludire, A. A., & Ajao, T. A. (2013). A comparative study of synchronous and asynchronous e-learning resources. *International Journal of Innovative Research in Science, Engineering and Technology*, *2*(11), 5938-5946.

Obuobi, D., Adrion, W. R., & Watts, K. (2006, October). Applying information technology to improve teaching and learning in an African university. In *Proceedings of the 36th Annual Frontiers in Education Conference* (pp. 22-26). IEEE. https://doi.org/10.1109/FIE.2006.322461

Onwuegbuzie, A. J., Bustamante, R. M., & Nelson, J. A. (2010). Mixed research as a tool for developing quantitative instruments. *Journal of Mixed Methods Research, 4*(1), 56-78. https://doi.org/10.1177/1558689809355805

Opie, C. (2019). Research procedures. In *Getting Started in Your Educational Research: Design, Data Production and Analysis* (pp. 159-176). Routledge.

Osei, C. K. (2010). Perceptions of students towards the use of distance learning: The case in an executive master's business program in Ghana. *Online Journal of Distance Learning Administration, 13*(2), 1-12.

Pallant, J., & Manual, S. S. (2007). *A step-by-step guide to data analysis using SPSS version 15*. Open University Press.

Park, J. H., & Choi, H. J. (2009). Factors influencing adult learners' decision to drop out or persist in online learning. *Journal of Educational Technology & Society, 12*(4), 207-217.

Perens, B. (1999). The open source definition. In C. DiBona, S. Ockman, & M. Stone (Eds.), *Open sources: Voices from the open source revolution* (pp. 171-188). O'Reilly Media.

Poole, D. M. (2000). Student participation in a discussion-oriented online course: A case study. *Journal of Research on Computing in Education, 33*(2), 162-177. https://doi.org/10.1080/08886504.2000.10782310

Rafique, G. M., Mahmood, K., Warraich, N. F., & Rehman, S. U. (2021). Readiness for online learning during COVID-19 pandemic: A survey of Pakistani LIS students. *The Journal of Academic Librarianship, 47*(3), 102346. https://doi.org/10.1016/j.acalib.2021.102346

Resnik, D. B. (2015). What is ethics in research & why is it important? *National Institute of Environmental Health Sciences*. https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm

Roach, V., & Lemasters, L. (2006). Satisfaction with online learning: A comparative descriptive study. *Journal of Interactive Online Learning, 5*(1), 317-332.

Rodriguez, M. C., Ooms, A., & Montañez, M. (2008). Students' perceptions of online learning quality given comfort, motivation, satisfaction, and experience. *Journal of Interactive Online Learning, 7*(2), 105-125.

Rourke, J. R. (2001). Online learning: Fad or fate? *Principal Leadership, 1*(9), 8-14.

Sarpong, S. A., Dwomoh, G., Boakye, E. K., & Ofosua-Adjei, I. (2021). Online teaching and learning under COVID-19 pandemic: Perception of university students in Ghana. *European Journal of Interactive Multimedia and Education, 3*(1), e02203. https://doi.org/10.30935/ejimed/9365

Sawang, S., Newton, C., & Jamieson, K. (2013). Increasing learners' satisfaction/intention to adopt more e-learning. *Education+ Training, 55*(1), 83-105. https://doi.org/10.1108/00400911311295031

Shah, A., Ahsan, Z., Bukhari, F. S., Abbas, M., & Shah, F. (2017). Selecting respondents for survey questionnaire in Islamic way. *Journal of Islamic, Social, Economics and Development, 2*(5), 40-46.

Silva, P. (2015). Davis' technology acceptance model (TAM) (1989). In M. Khosrow-Pour (Ed.), *Information seeking behavior and technology adoption: Theories and trends* (pp. 205-219). IGI Global.

Smart, K. L., & Cappel, J. J. (2006). Students' perceptions of online learning: A comparative study. *Journal of Information Technology Education: Research, 5*(1), 201-219.

Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *Internet and Higher Education, 7*(1), 59-70. https://doi.org/10.1016/j.iheduc.2003.11.003

Stansfield, M., McLellan, E., & Connolly, T. (2004). Enhancing student performance in online learning and traditional face-to-face class delivery. *Journal of Information Technology Education: Research, 3*(1), 173-188.

Tabiri, M. O., Jones-Mensah, I., Fenyi, D. A., & Asunka, S. (2022). Challenges of online learning of English/French language in higher education in Ghana. *Journal of Language and Linguistic Studies, 18*(1), 207-222. https://doi.org/10.17263/jlls.1028921

Tagoe, M. (2012). Students' perceptions on incorporating e-learning into teaching and learning at the University of Ghana. *International Journal of Education and Development using ICT, 8*(1), 91-103.

Teddlie, C., Tashakkori, A., & Johnson, B. (2008). Emergent techniques in the gathering and analysis of mixed methods data. In N. Denzin & M. Giardina (Eds.), *Handbook of emergent methods* (pp. 389-413). Guilford Press.

Torrisi, G., & Davis, G. (2000). Online learning as a catalyst for reshaping practice: The experiences of some academics developing online learning materials. *International Journal for Academic Development, 5*(2), 166-176.

Turban, E., King, D., Lee, J. K., Liang, T. P., & Turban, D. C. (2015). Innovative EC systems: From e-government to e-learning, collaborative commerce, and C2C commerce. In *Electronic commerce: A managerial and social networks perspective* (pp. 209-254). Springer.

University of Cape Coast (UCC). (2023). UCC tops universities in West Africa for three consecutive times. *Documentation and Information Section*. Retrieved September 29, 2023, from https://ucc.edu.gh/news/ucc-tops-universities-west-africa-three-consecutive-times

University of Cape Coast. (2023). *Sandwich postgraduate programmes*. School of Graduate Studies.

University of Cape Coast. (2023). *Sandwich postgraduate students enrollment*. Management Information Section.

Volery, T., & Lord, D. (2000). Critical success factors in online education. *International Journal of Educational Management*.

Vonderwell, S., & Turner, S. (2005). Active learning and preservice teachers' experiences in an online course: A case study. *Journal of Technology and Teacher Education, 13*(1), 65-84.

Vygotsky, L., & Cole, M. (2018). Lev Vygotsky: Learning and social constructivism. In *Learning theories for early years practice* (pp. 68-73). SAGE Publications.

Warschauer, M. (2007). The paradoxical future of digital learning. *Learning Inquiry, 1*, 41-49.

Watson, R., Atkinson, I., & Rose, K. (2007). Pilot studies: To publish or not? *Journal of Clinical Nursing, 16*(4), 619-620. https://doi.org/10.1111/j.1365-2702.2006.01702.x

Wegener, R., & Leimeister, J. M. (2012). Virtual learning communities: Success factors and challenges. *International Journal of Technology Enhanced Learning, 4*(5-6), 383-397. https://doi.org/10.1504/IJTEL.2012.051517

Welsh, E. T., Wanberg, C. R., Brown, K. G., & Simmering, M. J. (2003). E-learning: Emerging uses, empirical results, and future directions. *International Journal of Training and Development, 7*(4), 245-258. https://doi.org/10.1046/j.1360-3736.2003.00184.x

Yang, Y., & Durrington, V. (2010). Investigation of students' perceptions of online course quality. *International Journal on E-Learning, 9*(3), 341-361.

Yates, A., Starkey, L., Egerton, B., & Flueggen, F. (2021). High school students' experience of online learning during COVID-19: The influence of technology and pedagogy. *Technology, Pedagogy and Education, 30*(1), 59-73. https://doi.org/10.1080/1475939X.2020.1857823

Young, S., & Bruce, M. A. (2011). Classroom community and student engagement in online courses. *Journal of Online Learning and Teaching, 7*(2), 219-230.

APPENDICES

Appendix A

UNIVERSITY OF CAPE COAST

INSTITUTIONAL REVIEW BOARD SECRETARIAT

TEL: 0558093143 / 0508878309

E-MAIL: irbüucc.edu.gh OUR REF: IRB/C3/Vol.1/0407 YOUR REF:

OMB NO: 0990-0279

JORG #: IORG001497 8TH SEPTEMBER. 202.3

Mrs. Lucy Mensah Adosi

Institute for Educational Planning and

Administration University of Cape Coast

Dear Mrs. Adosi

ETHICAL CLEARANCE - ID (UCCIRB/CES/2023/109)

The University of Cape Coast Institutional Review Board (UCCIRB) has granted Provisional Approval for the implementation of your research **University of Cape Coast Sandwich Postgraduate Students' Experiences and Expectations of Online Learning**. This approval is valid from 8th September, 2023 to 7th September, 2024. You may apply for an extension of ethical approval if the study lasts for more than 12 months.

Please note that any modification to the project must first receive renewal clearance from the UCCIRB before its implementation. You are required to submit a periodic review of the protocol to the Board and a final full review to the UCCIRB on completion of the research. The UCCIRB may observe or cause to be observed procedures and records of the research during and after implementation.

You are also required to report all serious adverse events related to this study to the UCCIRB within seven days verbally and fourteen days in writing.

Always quote the protocol identification number in all future correspondence with us in relation to this protocol.

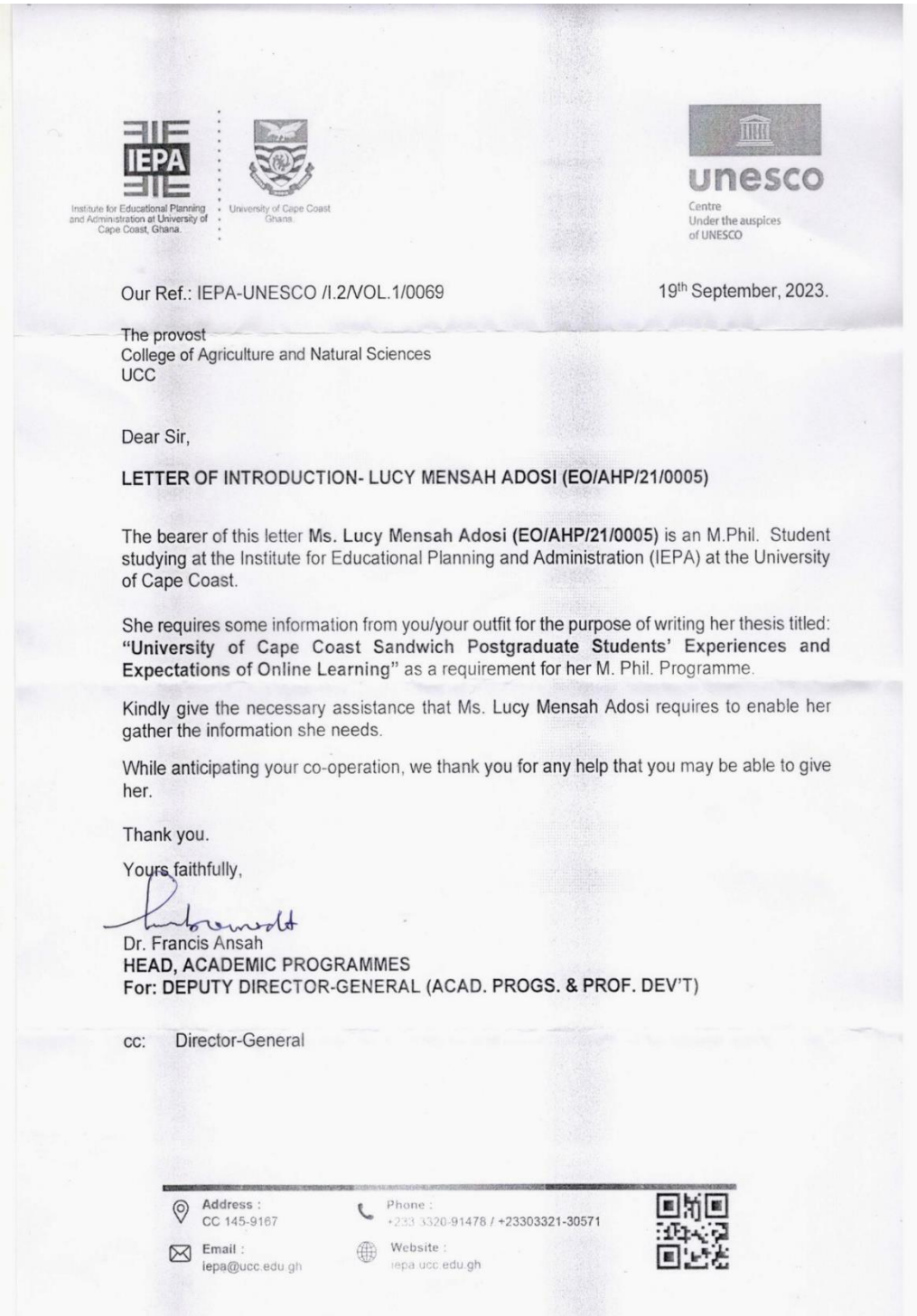
Yours faithfully

Kofi Amuquandoh

Ag. Administrator

ADMINISTRATOR
INSTITUTIONAL REVIEW BOARD
UNIVERSITY OF CAPE COAST

Appendix B



IEPA
Institute for Educational Planning and Administration at University of Cape Coast, Ghana.

University of Cape Coast Ghana.

unesco
Centre Under the auspices of UNESCO

Our Ref.: IEPA-UNESCO /I.2/VOL.1/0069

19th September, 2023.

The provost
College of Agriculture and Natural Sciences
UCC

Dear Sir,

LETTER OF INTRODUCTION- LUCY MENSAH ADOSI (EO/AHP/21/0005)

The bearer of this letter **Ms. Lucy Mensah Adosi (EO/AHP/21/0005)** is an M.Phil. Student studying at the Institute for Educational Planning and Administration (IEPA) at the University of Cape Coast.

She requires some information from you/your outfit for the purpose of writing her thesis titled: **"University of Cape Coast Sandwich Postgraduate Students' Experiences and Expectations of Online Learning"** as a requirement for her M. Phil. Programme.

Kindly give the necessary assistance that Ms. Lucy Mensah Adosi requires to enable her gather the information she needs.

While anticipating your co-operation, we thank you for any help that you may be able to give her.

Thank you.

Yours faithfully,

Dr. Francis Ansah
HEAD, ACADEMIC PROGRAMMES
For: DEPUTY DIRECTOR-GENERAL (ACAD. PROGS. & PROF. DEV'T)

cc: Director-General

Address : CC 145-9167
Phone : +233 3320-91478 / +23303321-30571
Email : iepa@ucc.edu.gh
Website : iepa.ucc.edu.gh

IEPA
Institute for Educational Planning and Administration at University of Cape Coast, Ghana.

University of Cape Coast Ghana

unesco
Centre
Under the auspices of UNESCO

Our Ref.: IEPA-UNESCO /I.2/VOL.1/0070

19th September,2023.

The provost
College of Education Studies
UCC

Dear Sir,

LETTER OF INTRODUCTION- LUCY MENSAH ADOSI (EO/AHP/21/0005)

The bearer of this letter **Ms. Lucy Mensah Adosi (EO/AHP/21/0005)** is an M.Phil. Student studying at the Institute for Educational Planning and Administration (IEPA) at the University of Cape Coast.

She requires some information from you/your outfit for the purpose of writing her thesis titled: **"University of Cape Coast Sandwich Postgraduate Students' Experiences and Expectations of Online Learning"** as a requirement for her M. Phil. Programme.

Kindly give the necessary assistance that Ms. Lucy Mensah Adosi requires to enable her gather the information she needs.

While anticipating your co-operation, we thank you for any help that you may be able to give her.

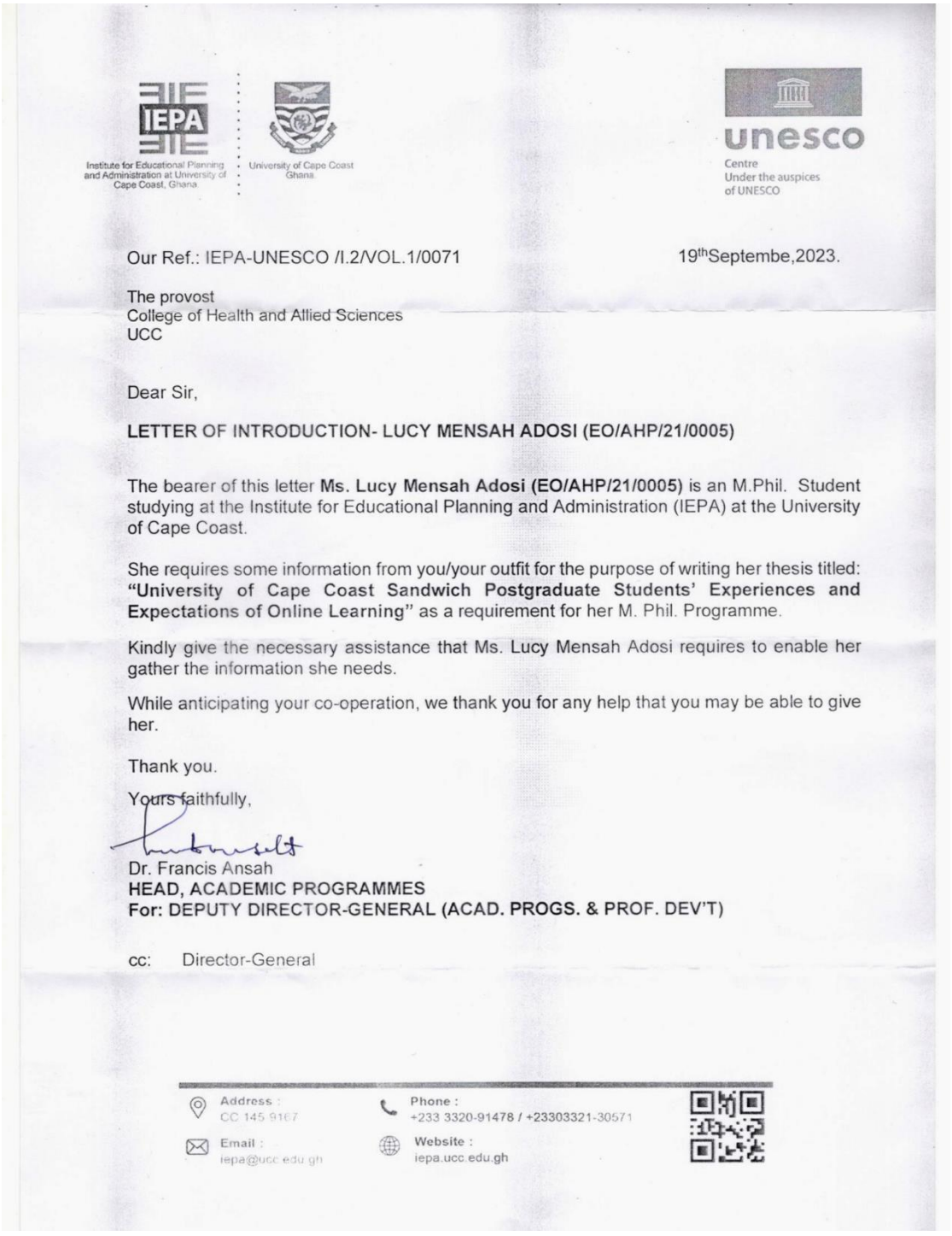
Thank you.

Yours faithfully,

Dr. Francis Ansah
HEAD, ACADEMIC PROGRAMMES
For: DEPUTY DIRECTOR-GENERAL (ACAD. PROGS. & PROF. DEV'T)

cc: Director-General

Address : CC 145-9167
Phone : +233 3320-91478 / +23303321-30571
Email : iepa@ucc.edu.gh
Website : iepa.ucc.edu.gh



IEPA
Institute for Educational Planning and Administration at University of Cape Coast, Ghana

University of Cape Coast
Ghana

unesco
Centre
Under the auspices
of UNESCO

Our Ref.: IEPA-UNESCO /I.2/VOL.1/0071

19th Septembe,2023.

The provost
College of Health and Allied Sciences
UCC

Dear Sir,

LETTER OF INTRODUCTION- LUCY MENSAH ADOSI (EO/AHP/21/0005)

The bearer of this letter **Ms. Lucy Mensah Adosi (EO/AHP/21/0005)** is an M.Phil. Student studying at the Institute for Educational Planning and Administration (IEPA) at the University of Cape Coast.

She requires some information from you/your outfit for the purpose of writing her thesis titled: **"University of Cape Coast Sandwich Postgraduate Students' Experiences and Expectations of Online Learning"** as a requirement for her M. Phil. Programme.

Kindly give the necessary assistance that Ms. Lucy Mensah Adosi requires to enable her gather the information she needs.

While anticipating your co-operation, we thank you for any help that you may be able to give her.

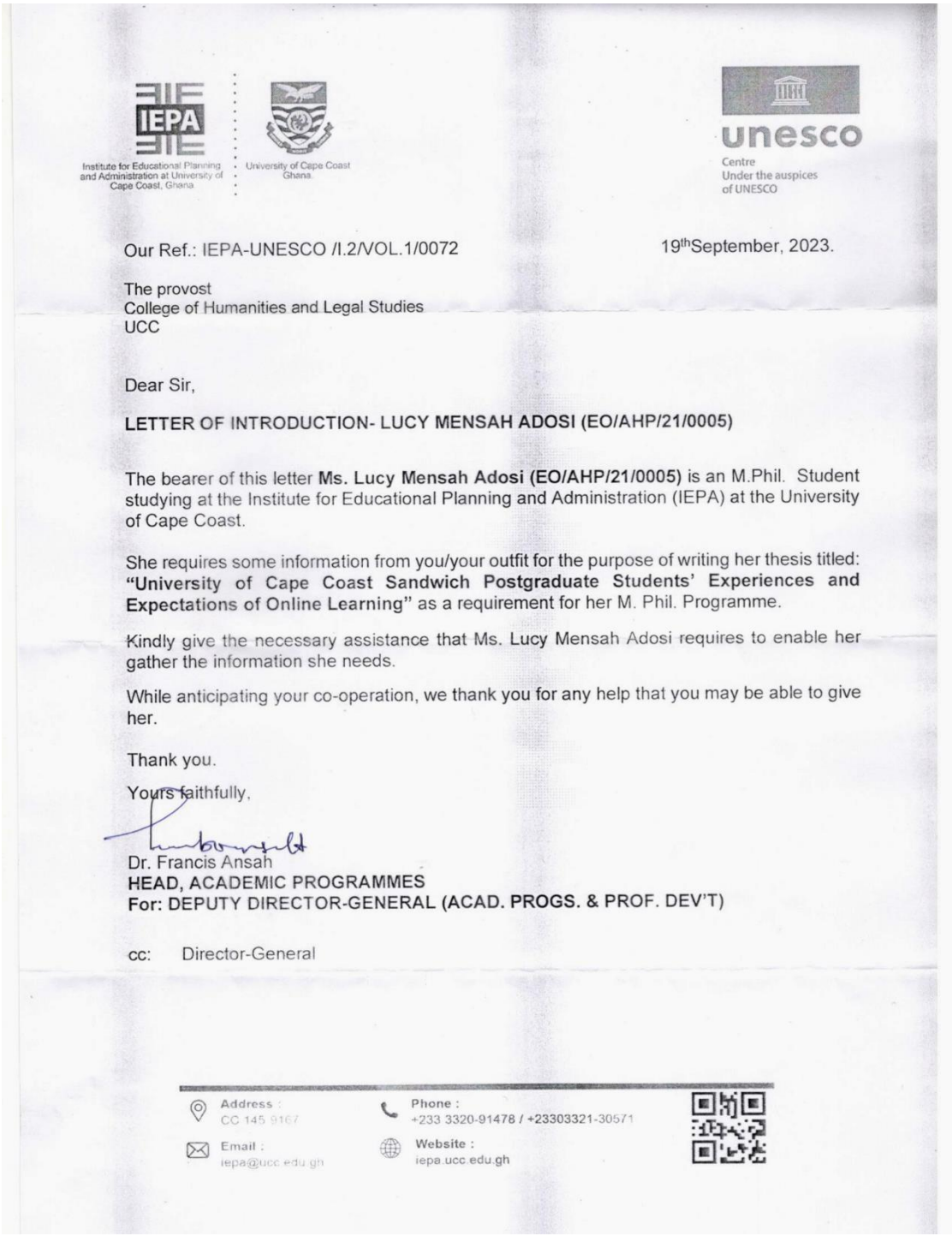
Thank you.

Yours faithfully,

Dr. Francis Ansah
HEAD, ACADEMIC PROGRAMMES
For: DEPUTY DIRECTOR-GENERAL (ACAD. PROGS. & PROF. DEV'T)

cc: Director-General

Address : CC 145 9167
Phone : +233 3320-91478 / +23303321-30571
Email : iepa@ucc.edu.gh
Website : iepa.ucc.edu.gh



IEPA
Institute for Educational Planning and Administration at University of Cape Coast, Ghana

University of Cape Coast Ghana

unesco
Centre
Under the auspices of UNESCO

Our Ref.: IEPA-UNESCO /I.2/VOL.1/0072

19th September, 2023.

The provost
College of Humanities and Legal Studies
UCC

Dear Sir,

LETTER OF INTRODUCTION- LUCY MENSAH ADOSI (EO/AHP/21/0005)

The bearer of this letter **Ms. Lucy Mensah Adosi (EO/AHP/21/0005)** is an M.Phil. Student studying at the Institute for Educational Planning and Administration (IEPA) at the University of Cape Coast.

She requires some information from you/your outfit for the purpose of writing her thesis titled: **"University of Cape Coast Sandwich Postgraduate Students' Experiences and Expectations of Online Learning"** as a requirement for her M. Phil. Programme.

Kindly give the necessary assistance that Ms. Lucy Mensah Adosi requires to enable her gather the information she needs.

While anticipating your co-operation, we thank you for any help that you may be able to give her.

Thank you.

Yours faithfully,

Dr. Francis Ansah
HEAD, ACADEMIC PROGRAMMES
For: DEPUTY DIRECTOR-GENERAL (ACAD. PROGS. & PROF. DEV'T)

cc: Director-General

Address : CC 145 9167
Phone : +233 3320-91478 / +23303321-30571
Email : iepa@ucc.edu.gh
Website : iepa.ucc.edu.gh

Appendix C

UNIVERSITY OF CAPE COAST
INSTITUTE FOR EDUCATIONAL PLANNING AND ADMINISTRATION

CONSENT FORM

Introduction

The researcher for this study is Lucy Mensah Adosi, an MPhil (Administration in Higher Education) Student at the Institute for Educational Planning and Administration (IEPA) at the University of Cape Coast (U.C.C.). You are invited to participate in this research, which focuses on ascertaining the learning conditions that the University of Cape Coast sandwich postgraduate students experience during their online classes and how they expect online learning to be carried out if they are to reaccess it in the future.

Explaining the research and its rationale

- This research instrument is designed to ascertain information about the University of Cape Coast Sandwich Postgraduate students' Experiences and Expectations of Online learning.
- In particular, the researcher would like you to answer questions regarding the online conditions you experienced during the online classes; this will be in terms of the technological infrastructure, including internet connectivity and how suitable the tools adopted by U.C.C. are. You will also be asked to indicate any benefits you gained from U.C.C. online learning and any challenges you might have encountered. Finally, you will be required to specify how you wish U.C.C. online learning to be if you are to access it in future. Your candid responses will help improve online education in the U.C.C.
- The discoveries of this study will help the Universiy of Cape Coast to offer its students, especially sandwich postgraduate students, the best of services, particularly in online delivery. Also, the research findings will be relevant to educational institutions, the government, and other

stakeholders involved in the designing, development, and delivery of education through online means.

Confidentiality and Anonymity

This research will be anonymous. Any information recorded remains confidential to the researcher except the research supervisor and officials from the University of Cape Coast Institutional Review Board (UCCIRB), who will have access to the data. The researcher will ensure to keep every data strictly confidential. Under no circumstance will your identity be disclosed.

Your Rights as a research respondent/participant

To decide to be part of this research relies on you. Participation is entirely voluntary, and you can choose to stay in the study or withdraw at any point in time without any penalty.

Contact for Additional Information

Lucy Mensah Adosi
IEPA, UCC
0246008617
lucymensahadosi@gmail.com

Consent

I have read the above document describing the benefits, risks and procedures for the research title University of cape Coast Sandwich Postgraduate Students' Experiences and Expectations of Online Learning. I have been given an opportunity to ask any question about the research, which has been answered to my satisfaction. I agree to participate as a volunteer.

Participant's Name: ……....

Participant's Signature: ……..

Date: **……**

Appendix D

UNIVERSITY OF CAPE COAST

INSTITUTE FOR EDUCATIONAL PLANNING AND ADMINISTRATION

INTERVIEW GUIDE FOR CLASS REPRESENTATIVES OF SANDWICH POSTGRADUATE STUDENTS

Thesis Topic:

University of Cape Coast Sandwich Postgraduate Students' Experiences and Expectations of Online Learning

The rationale for the study:

1. This interview guide is designed to elicit the views of the University of Cape Coast Sandwich Postgraduate Students on what they encountered with the online learning provided by the University of Cape Coast and how they expect it to be.
2. The researcher aims to explore the learning conditions experienced by the University of Cape Coast Sandwich Postgraduate Students, the benefits they derived from the online learning they accessed, whether they encountered any challenges, and how they expect the online learning to be.
3. The researcher hopes this data will help the University of Cape Coast to identify gaps or lapses in its online learning that need to be addressed.

Confidentiality:

1. I assure you that every data I gather in this interview will remain **confidential** and will not be shared with anyone.
2. Your identity will not be revealed if any information you provide is quoted in the research report. You will remain completely **anonymous**.
3. The responses from this interview will be recorded and transcribed. Every information you provide will be kept in a secure place, and only the researcher will access them.
4. You can opt out of this interview at any point in time. However, do not talk about sensitive issues if you are not comfortable.

Consent:

1. I have a consent form to ensure your confidentiality; it indicates everything I have explained.
2. You must append your signature on this form; it will not be used to identify you but will be kept in a safe place.
3. Please voice it if you have any queries regarding the interview or your rights as a researcher.

Ground rules:

1. I assure you that this interview is not a test, so there are no wrong answers, and you will not be judged.
2. I would want to record the interview if that is okay with you. The entire interview session should last for about 25 minutes.
3. Please feel at ease to speak about your concerns, opinions and issues.

QUESTIONS:

1. Please tell me about the online learning you accessed from the University of Cape Coast before coming to campus for the face-to-face classes; could you easily log on to the learning platform to access your courses?
   (*Probing: if yes, how easy was it? If not, how was it*?)
2. Were you able to partake actively in the class after logging on to the platform?
   (*Probing: if yes, how easy was it? If not, how was it*?)
3. Can you describe how comfortable you were with the online learning you accessed?
4. How beneficial was the online learning you accessed before reporting to campus for face-to-face classes to you?
5. What types of challenges did you encounter in your online learning?
6. How frequent was the occurrence of the challenges?
7. Considering the current online delivery you have accessed from the University of Cape Coast, please describe what you think an ideal online course delivery process should be.
8. Please tell me how you think the University of Cape Coast can improve the online learning experiences among its sandwich postgraduate students.

Thank you so much for your time and detailed responses to my questions. If needed, I will contact you again shortly to clarify any ambiguities in this interview. Have a pleasant day.

Appendix E

UNIVERSITY OF CAPE COAST

INSTITUTE FOR EDUCATIONAL PLANNING AND ADMINISTRATION

QUESTIONNAIRE FOR UCC SANDWICH POSTGRADUATE STUDENTS

This questionnaire explores the University of Cape Coast Sandwich Postgraduate students' experiences and expectations of online learning to inform practice. Kindly provide answers as candidly as possible.

SECTION ONE: DEMOGRAPHIC CHARACTERISTICS

Please tick (√) the appropriate boxes for* items *1-4

1. GENDER:
   a. Male [ ]
   b. Female [ ]
2. COLLEGE OF STUDY:
   a. College of Agricultural and Natural Sciences [ ]
   b. College of Education Studies [ ]
   c. College of Health and Allied Sciences [ ]
   d. College of Humanities and Legal Studies [ ]
3. WHICH OF THE FOLLOWING APPLIES TO YOU?
   a. On full-time study leave (Employed but has been relieved to study[ ]
   b. On part-time study leave (Going to work and schooling at the same time [ ]
   c. Full-time student (Not working at all) [ ]

SECTION TWO: ONLINE LEARNING CONDITIONS YOU EXPERIENCED

4. How would you rate your access to a reliable internet connection?

   a. Excellent [ ]

   b. Good [ ]

   c. Fair [ ]

   d. Poor [ ]

5. How often do you receive technical support when encountering issues with online learning platforms or tools?

   a. Always [ ]

   b. Often [ ]

   c. Occasionally [ ]

   d. Rarely [ ]

   Never [ ]

6. Are you satisfied with the technical support you received for online learning?

   a. Very satisfied [ ]

   b. Satisfied [ ]

   c. Neutral [ ]

   d. Dissatisfied [ ]

   e. Very dissatisfied [ ]

7. Do you have a dedicated study space for online learning?

   a. Yes [ ]

   b. No [ ]

SECTION THREE: BENEFITS YOU DERIVED FROM THE ONLINE LEARNING

8. For each of the following statements, please **tick** *(√)* the degree to which you agree or disagree with the benefits you derived from the online learning you have accessed at the University of Cape Coast. SA=Strongly Agree, A=Agree, D=Disagree, and SD=Strongly Disagree

Benefits	**SA**	**A**	**D**	**SD**
a. Interactive communication with lecturers fosters course engagement				
b. Effective virtual interaction with colleagues, despite physical distance				
c. collaborative group assignments facilitate shared perspectives				
d. Flexibility to study at apersonalised pace and schedule				
e. Access to courses without the need to relocate to campus				
f. Organized online tutorials				
g. Enhanced learning environment				
h. Orientation program for better understanding of online learning				
i. Application of concepts to real-life situations				

Please indicate if there are any other benefits you derived from the online learning you accessed at UCC but were not in the above statements…….

SECTION FOUR: CHALLENGES YOU ENCOUNTERED WITH THE ONLINE LEARNING

9. Please indicate by **ticking** *(√)* the extent to which you agree or disagree with the challenges you faced with the UCC online learning. SA=Strongly Agree, A=Agree, D=Disagree, and SD=Strongly Disagree

Challenges	**SA**	**A**	**D**	**SD**
a. My colleagues and I could not assist each other when one needed help in any of the courses.				
b. The internet connectivity of my lecturers was not stable.				
c. My internet connectivity was frequently interrupted.				
d. I hardly access the internet from my location.				
e. I found it challenging to afford the high cost of data.				
f. I always felt isolated whenever I joined the online class because of the lack of physical presence.				
g. I always got frustrated during the online class.				
h. I sometimes felt reluctant to join the online class.				
i. I was sometimes distracted by factors such as social media, email notifications and house chores.				

Please indicate any other challenges you encountered with the online learning

……

……..……

……..

SECTION FIVE: YOUR EXPECTATIONS FOR FUTURE ONLINE LEARNING

10. What online activities or experiences do you expect to have that will enhance your online learning?

    a. Quality engagement in live interactions in real-time [ ]

    b. Participation in effective virtual group discussions and collaborative activities [ ]

    c. Increase the content of special education [ ]

    d. Implementation of an intelligent monitoring and feedback system to enhance learning [ ]

    e. Integration of an intelligent recommendation system learning resources [ ]

    f. Other (please specify)

    ……

    ……

    ……

    ……

11. What measures would you suggest for the improvement of the online learning you accessed at the University of Cape Coast……..……

    ……..……

    ……

    ……

Thank you for your time, patience, and detailed responses to my questions. Have a pleasant day.

Appendix F

Reliability Test Result

Item 8: Benefits of UCC's Online Learning Reliability

Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.85	.780	9

Item 9: Challenges of UCC's Online Learning Reliability

Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.82	.880	9