A STUDY OF BLENDED E-LEARNING PLATFORMS FOR CONTINUING EDUCATION DURING THE COVID-19 PANDEMIC IN GHANA

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Thesis Title	A Study of Blended E-learning Platforms for Continuing Education During the COVID-19 Pandemic in Ghana
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ABSTRACT

The current study sought to achieve the following objectives; 1) to outline the challenges University of Cape Coast (UCC) students faced with using e-learning platforms during the pandemic; 2) to test the relationship between ICT training input and the ability to use e-learning platforms effectively for learning during the pandemic; 3) to develop and determine the efficiency of using an online video-based instruction through a blended e-learning method for studying Public Relations (PR) in the UCC; 4) to compare students' scores after taking a lesson through the online video-based instruction based on the blended e-learning concept; and 5) to assess students' satisfaction with learning PR using the blended e-learning approach.

The samples in this study which were 30 third year students studying at UCC in the academic year 2021 was obtained by means of a purposive random sampling. The study revealed that students faced challenges with the cost associated with regularly purchasing internet bundles for their online studies coupled with unstable internet connectivity, lack of physical connection with others, and the inability to navigate the platforms effectively. A video-based instruction was used in the experiment as a blended e-learning approach to learning during the pandemic. The statistics used in the study were means, the Chi-squared test of association as well the paired sample t-test.

The study result indicated that the paired sample t-test dependent which was conducted to test the impact of the video-based instruction on the learning achievement of students revealed that the students recorded a high posttest score of 24.73 compared to the pretest score of 17.7. This indicated that the video-based instruction was highly efficient meeting the 80/80 standard. Finally, the students' satisfaction questionnaire also revealed that the students were generally very satisfied with taking part of their lesson online through a blended e-learning format.

Keywords: blended e-learning, learning platform, continuing education

หัวข้อวิทยานิพนธ์	การศึกษาแบบผสมผสานแพลตฟอร์มอีเลิร์นนิ่งเพื่อการศึกษาอย่างต่อเนื่องในระหว่างการระบาดของโรคโควิด-19 ในประเทศกานา
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ปีการศึกษา	2564

บทคัดย่อ

การวิจัยในครั้งนี้มีวัตถุประสงค์ดังต่อไปนี้ 1) เพื่อหารูปแบบความท้าทายที่นักศึกษามหาวิทยาลัยเคปโคสต์ ต้องเผชิญกับการใช้แพลตฟอร์มอีเลิร์นนิ่งในช่วงการระบาดใหญ่ 2) เพื่อทดสอบว่ามีความสัมพันธ์ระหว่างมีการฝึกอบรมด้านเทคโนโลยีสารสนเทศก่อน และความสามารถในการใช้แพลตฟอร์มอีเลิร์นนิ่งอย่างมีประสิทธิภาพสำหรับการเรียนรู้ในช่วงการระบาดใหญ่หรือไม่ 3) เพื่อพัฒนาและกำหนดประสิทธิภาพของการใช้การเรียนการสอนด้วยวิดีโอออนไลน์ผ่านอีเลิร์นนิ่งแบบผสมผสานสำหรับการศึกษาหัวข้อการประชาสัมพันธ์ในมหาวิทยาลัยเคปโคสต์ 4) เพื่อเปรียบเทียบคะแนนของนักเรียนหลังจากเรียนกับบทเรียนด้วยวิดีโอออนไลน์ ตามแนวคิดการเรียนรู้อีเลิร์นนิ่งแบบผสมผสาน และ 5) เพื่อประเมินความพึงพอใจของนักศึกษาที่มีต่อการเรียนรู้หัวข้อการประชาสัมพันธ์ด้วยแนวคิดการเรียนรู้อีเลิร์นนิ่งแบบผสมผสาน

กลุ่มตัวอย่างที่ใช้ในการศึกษาครั้งนี้ คือ นักศึกษาชั้นปีที่ 3 จำนวน 30 คน ที่กำลังศึกษาที่มหาวิทยาลัยเคปโคสต์ ปีการศึกษา 2564 โดยใช้วิธีการสุ่มตัวอย่างแบบเฉพาะเจาะจง มุ่งตรงศึกษาเรื่องที่นักเรียนต้องเผชิญกับความท้าทายกับค่าใช้จ่ายเพื่อซื้อชุดอินเทอร์เน็ตสำหรับการศึกษาออนไลน์ควบคู่ไปกับการเชื่อมต่ออินเทอร์เน็ตที่ไม่เสถียร จนขาดการเชื่อมต่อทางกายภาพกับผู้อื่นและการไม่สามารถเข้าใช้งานแพลตฟอร์มได้อย่างมีประสิทธิภาพ อย่างไรก็ตามการทดลองโดยใช้วิดีโอเป็นวิธีการเรียนรู้แบบผสมผสานในระหว่างการระบาดใหญ่ สถิติที่ใช้ในการวิจัยเป็นการใช้ค่าเฉลี่ย การทดสอบไคสแควร์ การทดสอบ t-test กลุ่มตัวอย่างแบบจับคู่

ผลการศึกษาพบว่า การทดสอบความแตกต่างค่าเฉลี่ยของกลุ่มตัวอย่าง 2 กลุ่ม ที่ไม่อิสระต่อกันเพื่อทดสอบผลของวิดีโอการสอนที่มีต่อผลสัมฤทธิ์ทางการเรียนของนักศึกษา พบว่า คะแนนหลังการทดสอบสูงกว่าที่ระดับ 24.73 เมื่อเทียบกับคะแนนก่อนสอบ 17.7 และยังพบอีกว่า การเรียนการสอนผ่านวิดีโอมีประสิทธิภาพสูงตามเกณฑ์มาตรฐาน 80/80 ประการสุดท้ายคือ แบบสอบถามความพึงพอใจของนักศึกษา พบว่า โดยทั่วไปนักเรียนมีความพึงพอใจมากที่ได้มีส่วนร่วมในบทเรียนออนไลน์ผ่านรูปแบบการเรียนรู้แบบผสมผสาน

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CHAPTER 1
INTRODUCTION

1.1 Background and Purpose Statement

The purpose of this quasi-experimental quantitative study was to identify the factors that contribute to students ability to use e-learning platforms effectively or otherwise to continue their studies during the covid-19 pandemic by obtaining quantitative data from a survey of 398 students of the University of Cape Coast who had to study online during the closure of schools because of the pandemic and then followed up with a quasi-experimental study of 30 individuals from among the target population to test the effectiveness of the use of a blended e-learning approach to learning on the students' learning achievement. In the first, quantitative, phase of the study, the research questions focused on how internal and external variables such as students' ICT proficiency before studying online during the pandemic influence the students' ability to use e-learning platforms effectively to study. The second, quasi-experimental, phase tested the effectiveness of using a blended e-learning approach to learning during the pandemic on the learning achievement of students by developing an online video-based lesson in Public Relations on YouTube and assessing the effectiveness of the platforms by comparing the pre-test and post-test scores of the students from the online lesson. The third and final phase of the study involved the administration of a satisfaction questionnaire to find out students' level of satisfaction with learning with using the blended e-learning platform.

The Corona Virus pandemic (COVID-19) has compelled governments to close most schools as a preventative measure to reduce the spread of the unique virus. According to the World Bank Education Global Practice (2020), school closures during the early stages of the pandemic resulted in the absence of around 1.6 billion youngsters and children. As a result, most schools throughout the world are using alternative learning methods such as online learning to mitigate the virus's educational effects (UN-Ghana, 2020). During the SARS-COV-2 pandemic, Basilaia and Kvavadze (2020) investigated the shift to online learning. Using a private school as a case study, the paper investigated the country's and population's capacity to continue the education

process at schools via online distance learning. It was discovered that TV School and Microsoft teams were primarily used for public schools, whereas Zoom, Slack, and Google Meet, as well as distance learning platforms, could be used for online education and live communication. The study also presents instances of how they've been used and suggests that other countries affected by the COVID-19 pandemic employ these platforms for continuing education. Hoq (2020) investigated how e-learning might alleviate educational disruptions in Saudi Arabia during the COVID-19 pandemic and discovered that the majority of instructors are in favor of using online learning as an alternate method of learning during the pandemic.

Online learning is defined as the use of a variety of technologies such as the internet, email, chat, new groups and texts, audio and video conferencing to give education to learners at their own pace across computer networks (Dhull &Sakshi, 2017). Over time, teaching methods have evolved and altered dramatically. Students were only educated through lectures and texts until the early twentieth century. The only other technique of practical teaching and learning methods before this time was the utilization of schools and museums (Cockerill et al., 2015). Students were also taken on educational outings to get a firsthand look and feel of what they were learning in the classroom. In the 1920s and 1930s, the advent of radio transmission and recording ushered in a new age in education. The "audiovisual instruction movement," which included educational videos with sound, was the innovative way to teach and learn at the time. Through the establishment of public broadcasting stations in the 1950s, instructional television began to play a larger part in classroom education. In the 1970s, computer-assisted instruction for use in the classroom was being created, and education began to focus on "educational technology." In most American schools by the early 1980s, computers were being employed for educational reasons (Reiser, 2001).

Ghana, a West African country, was in a similar scenario. The entire process of colonial education in what is now Ghana, according to Djamila and Djafri (2011), was a result of the British need to supply their industry with raw materials. The presence of British officials in the Gold Coast may be traced back to 1821. However, the first Europeans to offer western education were primarily businesspeople and missionaries who had established on the West African coast. Djamila and Djafri went

on to say that the colonial masters' education was solely for mulatto (mixed race) children, children of chiefs, and offspring of affluent local businessmen or traders. The Europeans' only goal was to find minerals and natural resources, as well as to find a market for their produced goods. As a result, the Europeans were initially more interested in obtaining raw materials from the Gold Coast than in educating the natives. that education in the Gold Coast, as Ghana was then known, was designed to bring civilization and evangelization together. Initially, it was the Danish, Dutch, and English merchants that established schools in their Forts and Castles, such as the Danish Christianborg Castle in Accra, the Dutch Elmina Castle in Elmina, and the British Cape Coast Castle in Cape Coast, to educate their mulatto children. To aid in the spread of the gospel, the Christian missions founded schools in the colony. The Christian missionaries' action established the groundwork for formal education to be given to native Ghanaians. In the mid-eighteenth century, European merchants and Christian missionaries constructed schools to not only reduce illiteracy but also to spread the gospel to the indigenous people (Djamilla and Djafri, 2011).

Formal education in Ghana, on the other hand, has served a variety of purposes over the years, ranging from preaching the gospel to forming an elite group to administer the country, which was then a British colony. Following Ghana's independence in 1957, the country's education system, which was fashioned after that of the United Kingdom, experienced a series of modifications. Reforms in the 1980s, in particular, shifted the educational system away from being exclusively intellectual and toward being more in line with the nation's workforce needs. According to Adu-Gyamfi et al. (2016), numerous educational reforms have been implemented in Ghana over the years to discover long-term answers to educational issues. The number of years a student is supposed to stay in a second-cycle institution, for example, is not set in stone. The second cycle institution spanned four years during the National Redemption Council in 1974, which was led by Ignatius Kutu Acheampong. However, in 1987, the Provisional National Defense Council altered this period of secondary school study from four to three years. The New Patriotic Party, on the other hand, overturned the decision in the year 2000, returning to a four-year term, only to be reverted to a three-year term under the National Democratic Congress government from 2009 to the

present. Currently, Ghanaian education follows a six-three-three-four (6-3-3-4) framework, with six years of elementary education, three years of junior high school, three years of senior high school, and four years of university education beginning at the age of six (Adu-Gyamfi et al. 2016). Students who pass the West African Secondary School Certificate Examination (WASSCE) can go on to university, polytechnic, college of education, nursing training institutes, or other tertiary institutions to further their studies. Students who pass the West African Secondary School Certificate Examination (WASSCE) can go on to university, polytechnic, college of education, nursing training institutes, or other tertiary institutions to further their studies. Students who fail to gain admission to university due to bad marks frequently retake their exams to achieve direct admission to the university or other tertiary institutions, or they enroll in pre-higher training courses to earn extra credit for their tertiary education.

The various improvements to Ghana's education system have only served to aid in the development of a more successful educational model in Ghana (Quist, 2003). However, observing how teaching and learning are carried out in Ghanaian schools is just as important as observing how education should be mirrored in the country. Ghana, like many other countries, must respond to the growing demand for remote or online education as a means of closing the country's education gap, especially during the current pandemic. Researchers in Ghana are paying attention to online learning. While some scholars have concentrated on the advantages of online learning in Ghana, others have emphasized the difficulties that this new method of teaching and learning presents.

In Ghana, a few academics have looked into students' opinions of online learning (Edwin and Yaw, 2016; Narh et al. 2019). Edwin and Yaw (2016) conducted a study to look into the effectiveness of distance and online education in Ghana. They discovered that distance and online education has improved the quality and accessibility of higher education in Ghana, resulting in significant increases in productivity in both the public and private sectors of the economy over time. They further believe that online education programs typically provide access to postsecondary education, convenience, flexibility, and better knowledge and staff efficiency. Narh et al. (2019) examined the challenges Ghanaian students face when using virtual platforms or e-learning from the perspectives of students' capacities, institutional perspectives, and external factors such

as the environment or context, and found that students face the following challenges when learning on virtual platforms: institutional challenges such as the ineffective orientation of students by service providers, systems failures, and a lack of resources. In terms of Ghanaian students' attitudes about online learning, surveys have revealed that the majority of Ghanaian students have negative attitudes against it (Asunka, 2008 and Tagoe, 2012). Asunka (2008) conducted a study to determine student perceptions of online learning and discovered that students have negative opinions of online learning due to a lack of suitable computer and Internet facilities, as well as the design and delivery style of the online course. Students favored hybrid learning approaches such as web supplemented courses to fully web-dependent or online courses, according to Tagoe (2012).

The impact of COVID-19 on Ghana's educational system has heightened the need to improve online learning in Ghana. According to the United Nations' report on Ghana's response to the impact of COVID-19 on education, shortly after school closures were announced, the Ministry of Education (MOE) and Ghana Education Service (GES) developed the COVID-19 Emergency Support Provision of Distance and Remote Learning Systems Solutions, which was followed by the launch of distance and online learning platforms and the adoption of lessons broadcast on Ghana Learning Television (GLTV) for 1 million students. However, there have been few studies undertaken in Ghana to analyze the usefulness of using such online platforms for learning during the epidemic, particularly in terms of promoting blended e-learning in Ghana. This study, therefore, seeks to fill that gap by surveying some Ghanaian students at the University of Cape Coast (UCC) on the effectiveness of these online platforms in continuing education during the pandemic and promoting blended learning in Ghana.

1.2 Objectives of the Study

To this end, the study seeks to achieve the following objectives.

1.2.1 To outline the challenges UCC students faced with using such blended e-learning platforms during the pandemic

1.2.2 To test whether there is a relationship between ICT proficiency and the ability to use eLearning platforms effectively for learning

1.2.3 To develop and determine the efficiency of using a blended e-learning format in learning a lesson in Public Relations at the University of Cape Coast

1.2.4 To compare students' learning achievement before and after taking a lesson in Public Relations through a blended e-learning format

1.2.5 To assess students' level of satisfaction with learning PR through the blended e-learning format

1.3 Research Questions and Hypothesis

At the end of the study, the following questions will be answered:

1.3.1 What challenges did UCC students face with the use of e-learning platforms for continuing education during the COVID-19 pandemic?

1.3.2 Is there a relationship between ICT proficiency and the ability to use e-learning platforms effectively for learning?

1.3.3 How efficient is the use of blended e-learning in taking a lesson in Public Relations at the University of Cape Coast?

1.3.4 What are the differences in students' scores (Pre-test and post-test) after taking a lesson in Public Relations on an e-learning platform?

1.3.5 How satisfied are students with learning PR through the blended e-learning format?

1.4 Research Hypothesis

At the end of the study, the following hypotheses will be tested:

1.4.1 H_1: Students with less ICT training before studying online during the pandemic are likely to face challenges with using eLearning platforms for learning.

1.4.2 H_0: There is no significant statistical difference between having prior ICT training and students' ability to study online effectively during the pandemic.

1.4.2 H_2: The values of efficiency achieved with the developed video clip instruction using blended e-learning to enhance the learning of Public Relations among students of the University of Cape Coast meets $E_1/E_2 = 80/80$.

1.4.3 H_3: Students have a high level of learning achievement after learning Public Relations on the blended e-learning platform.

1.5 Theoretical Perspective

The Blended Learning theory serves as the study's theoretical basis. Most academics today recognize that both online and on-air learning has advantages and disadvantages. As a result, academicians have begun to combine components of these two distinct learning environments to maximize the benefits of both teaching modalities while minimizing the drawbacks. Blended Learning is the term for this type of educational delivery (Caner, 2016). Blended learning is a mix of face-to-face and online training that changes depending on the learners' needs (Florian & Zimmerman, 2015). It entails combining traditional face-to-face learning with computer-mediated training.

Blended learning is a natural progression from the increased need for eLearning and online materials, as well as the ongoing requirement for a human component in the learning process. A blended learning method to learning ensures that the student is actively involved and in control of his or her learning. This method also aids in meeting the learners' particular needs. Because most students have different learning styles, a blended approach is more likely to meet their needs than a standard classroom setting. Blended learning has five advantages, according to Walker (2018). Blended learning, according to Walker, promotes learning flexibility. Flexibility for teachers in terms of how they offer material, as well as for students in terms of the pace and range of learning methods they encounter. Blended learning also involves multiple kinds of education from a variety of perspectives, resulting in a successful learning outcome for the majority of students participating. Teachers are also freed up to reach more kids by leveraging technology into classroom instruction. Teachers can wander among the stations or activities, interacting with individuals or small groups of pupils and monitoring their progress. Teachers gain insight into each student's learning through data offered by educational technology tools, allowing them to address gaps. Because most students are surrounded by technology in their daily lives, when technology is used in the classroom, they are more likely to interact with the curriculum. Additionally, when students develop their technical abilities and familiarity with technology, they feel more empowered. Learning activities can be modified to accommodate many learning styles since blended learning involves a variety of teaching methodologies. Moreover, high-quality digital educational tools enable teachers to assess each student's learning

level and deliver activities and lessons that meet the child where they are to provide them with the most appropriate lesson content.

This theory was chosen as the theoretical framework for this study because it will provide the researcher with a framework for analyzing the data. The integrated learning theory is the most effective technique to conceptualize the study that the researcher plans to do.

1.6 Definition of Terms

Blended e-learning is an educational technique that mixes online educational resources and chances for online interaction with live broadcasts from the classroom. It necessitates the presence of both the teacher and the student online or on-air, with some components of student control over the online content's time, place, path, or pace. In this study blended e-learning refers to the mix between online learning technologies (30%) and traditional classroom instruction (70).

Covid-19 Pandemic: The Coronavirus Disease 2019 (COVID-19) is an illness caused by a novel coronavirus now known as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which was first identified in Wuhan City, Hubei Province, China, during an outbreak of respiratory illness cases. It was first reported to the World Health Organization (WHO) on December 31, 2019. The WHO labeled the COVID-19 outbreak a worldwide health emergency on January 30, 2020. COVID-19 was declared a global pandemic by the WHO on March 11, 2020, resulting in the shutdown of schools around the world as a mitigating factor to slow the virus's spread.

UCC: The University of Cape Coast (UCC) was founded as a University College in October 1962 and is affiliated with the University of Ghana, Legon. The University of Cape Coast Act, 1971 [Act 390] and later the University of Cape Coast Law, 1992 [PNDC Law 278] gave the College the status of a full and independent university on October 1, 1971, with the ability to grant its degrees, diplomas, and certificates. The University of Cape Coast presently has a total student population of 74,720, with the following breakdown: 18949 regular undergraduates, 1445 sandwich undergraduates, 1014 regular postgraduate students, and 2773 sandwich postgraduate students. There are 48989 distant undergraduates and 1540 distance postgraduates.

Using an estimated sampling procedure, the researcher intends to sample about 398 students for the survey which is a figure representative of the total population and about 10 participants for the in-depth interview.

1.7 Delimitations and Limitations of the Study

The goal of the research is to see if using blended e-learning platforms to teach during the pandemic is successful and if it has the potential to promote blended learning in Ghanaian colleges. As a result, the study is limited to students at the University of Cape Coast, a Ghanaian public university. The study will be conducted during the first semester of the University of Cape Coast's 2021-2022 academic year. As a result, the researcher was under pressure to complete the study in a short amount of time. This limited the researcher's capacity to gather additional data for the study.

1.8 Conceptual Framework

Below is the conceptual framework model of the entire study. This model encapsulates the main variables to be tested in this study.

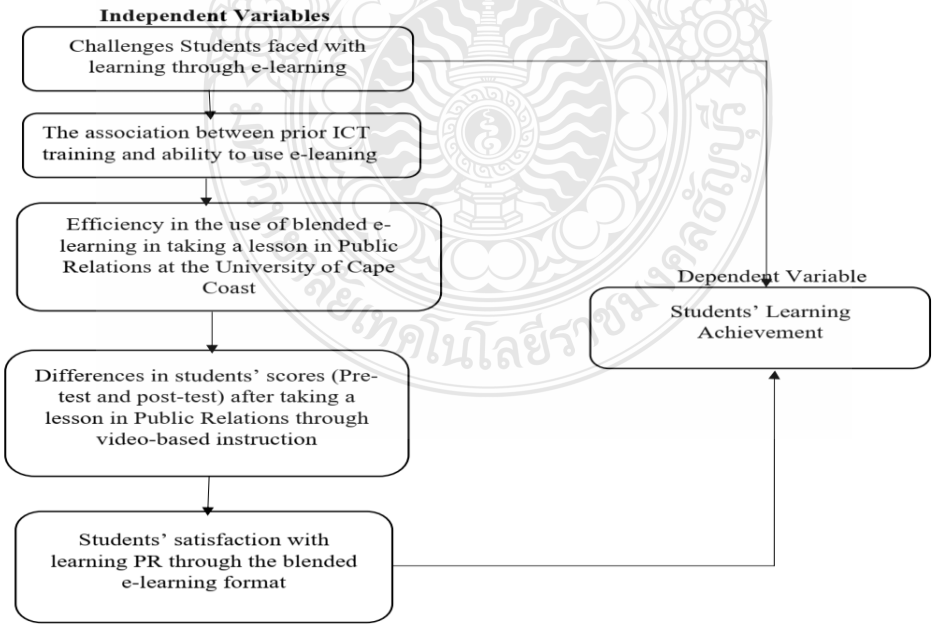

Figure 1.1 Conceptual Framework model of the study by researcher

1.9 Contributions to Knowledge

The significance of this study includes the following:

1.9.1 The research will aid in determining the efficacy of blended e-learning-based teaching and learning to improve students' academic achievement.

1.9.2 The research will also contribute to the body of knowledge on the advantages of blended e-learning in Ghana's educational system.

1.9.3 The research will also contribute to a better understanding of instructional design and encourage teachers to embrace e-learning platforms in the teaching and learning process to improve efficiency.

1.9.4 Finally, the findings will add to the pool of data needed by other educational researchers as they attempt to build interventions to address educational issues like the challenge of learning via digital technologies as a result of the pandemic.

CHAPTER 2
REVIEW OF THE LITERATURE

The literature relevant to the study will be reviewed in this chapter, and web-based training and blended learning approaches to teaching during the pandemic will be presented. The reader is expected to enjoy a thorough description of the following keywords: online learning, blended learning, COVID-19, and online learning. As a result, this chapter is divided into the following sections :

2.1 E-Learning
- 2.1.1 Definitions of E-learning
- 2.1.2 Benefits and Challenges of E-learning
- 2.1.3 E-Learning in Ghana
- 2.1.4 Benefits and Challenges of E-learning in Ghana

2.2 COVID-19 and Online learning
- 2.2.1 COVID-19 and its effects on education
- 2.2.2 The Transition to E-learning During COVID-19
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2.1 E-Learning

2.1.1 Definition of E-Learning

E-learning has been defined in a variety of ways by various academics. E-learning, according to Fry (2001), is described as the use of the internet and other significant technologies to create learning materials, train learners, and manage courses inside an enterprise. E-Learning is also defined as a set of technologies used to deliver education across computer networks, such as the internet, email, chat, new groups and messages, audio and video conferencing, and audio and video conferencing (Dhull & Sakshi, 2017). Online learning, commonly known as e-learning, is education that takes place via the Internet, according to Stem (2020). According to him, online learning is merely one sort of distance learning, which is the umbrella word for all learning that takes place outside of a regular classroom and takes place over a while.

E-learning comes in a variety of forms. There are two types of E-learning courses, according to Dhull and Sakshi (2017). There are two types of online learning: partial online learning and fully online learning. Partial online learning, also known as blended learning, combines online learning with certain aspects of traditional classroom learning, whereas full online learning is the practice of conducting an entire class on an online platform. Guri-(2005) Rosenblit's description of e-learning as the use of electronic media for various learning goals, ranging from add-on functions in traditional classrooms to full replacement of face-to-face meetings by online interactions, reflects the partial and full online nature of online courses.

2.1.2 Benefits and Challenges of Online Learning

Several studies have been conducted to investigate the benefits and challenges of learning online in contemporary times (Arkorful & Abaidoo, 2014; Brittany, 2015; Nguyen, 2015; Sadeghi, 2019; Sakshi, 2017 and Zounek &Sudický, 2012).

Benefits

Concerning the advantages of online education. Several studies have demonstrated that e-learning offers numerous advantages for both students and teachers. Following an exhaustive examination of the literature, Akorful and Abaidoo (2014) found seven advantages of eLearning. The following are some of the advantages:

1) E-learning allows for schedule flexibility. Students have the option of choosing the location and time that is most convenient for them.

2) E-learning improves knowledge efficacy by facilitating access to a vast amount of data.

3) The usage of discussion forums in e-learning facilitates the formation of relationships between students. It encourages pupils to communicate with one another as well as exchange and appreciate opposing viewpoints. It also facilitates communication and strengthens the bonds that support learning.

4) E-learning is a cost-effective method of learning for both students and academic institution administrators.

5) E-learning always takes into account the specific variations of each student. Some students, for example, choose to focus on specific sections of the course while others are willing to go over the full course.

6) E-learning can substitute for academic staff shortages, such as instructors or teachers, facilitators, and lab technicians, among others.

7) Using e-Learning, students can learn at their own pace. The asynchronous method, for example, allows students to study at their own pace and speed, whether slow or fast.

The benefits of eLearning from the perspectives of students and teachers were also explored by Zounek and Sudicck (2012). They asserted that online learning gives students almost unrestricted access to information, knowledge, and learning, provides students with flexibility in their learning, allows students to easily share information and collaborate on a variety of topics and projects, and finally, helps students save money on travel and book purchases, among other things. They also suggested that internet technologies assist teachers in the process of setting up their educational modules by allowing them to use a wide range of freely available, sophisticated online tools. Furthermore, via the use of learning management systems, online learning makes it simple for teachers to fulfill their role of managing teaching and learning resources for students. In addition, they emphasized the significance of online learning in fostering good communication between professors and students in their research. Online learning also makes it possible for teachers to invite field experts

to join in classes to share their experiences with students and it also helps to promote best teaching practices among teachers.

Sadeghi (2019) suggested that online learning has the following advantages. It allows students to learn from any location, at any time. This means that regardless of where a student lives in the country, he or she can enroll in the course and begin learning. Even if the course is offered by an international institution, a student who is a citizen of a different country may have easy access to course materials. Additionally, online learning allows students to save a substantial amount of money. Most distance/online learning choices are far less expensive than traditional programs. As a result, students looking for cost-effective choices should consider a remote learning program. According to Sadeghi, another advantage of online learning is that there is no need to commute (2019). Students who study online avoid the hassles of commuting on packed buses or trains. You'll need a computer at your home with an internet connection, and the entire college will be in your beds, so to speak. Also, learning flexibility. Distance/online learning allows students to choose their learning schedules at their leisure rather than adhering to a rigid schedule. Even if they are disconnected from the learning process, a distance learning program allows them to choose their path of study. Additionally, online learning saves time. Distance/online education is an option for students who do not have enough time on their hands and want to pursue it from the comfort of their own homes. Finally, Sadeghi points out that you can earn money while you learn. Learners can continue to earn a living while still increasing their qualifications since distance/online learning allows them to do both.

Some of the most important benefits of online learning, according to Nguyen (2015), include its effectiveness in educating students, its use as professional development, its cost-effectiveness in combating rising postsecondary education costs, credit equivalency at the postsecondary level, and the ability to provide a world-class education to anyone with a broadband connection. In a similar vein, Brittany (2015) discovered that online is better for students who like self-directed learning because it allows them to devote as much time as they want to the subjects they are learning. Sakshi (2017) further noted that online learning allows for accessibility, personalized learning, the development of students' cognitive capacities, cost-effectiveness, the

promotion of research and computer skills among students, and equal access to education for all.

According to the literature, most research on the benefits of online learning has concentrated on the benefits to students rather than the benefits to teachers. Flexible learning options, cost-effectiveness, simple access to teaching and learning resources, self-paced learning, and opportunities to mix study and work are some of the frequent benefits of online learning for students noted in the literature.

Challenges

Though online learning has several benefits as it has been seen from the literature, it does not come without any challenges. Most of the scholars who have conducted research into the benefits of online learning have also researched its challenges (Arkorful & Abaidoo, 2014; Sadeghi, 2019; Sakshi, 2019 and Zounek & Sudický, 2012).

As previously indicated, Akorful & Abaidoo (2014) highlighted eight problems related to online learning. The following were among them: Learners may face a lack of motivation or relationships as a result of using e-learning as a form of education. As a result, it takes a lot of motivation for students to manage their time well. When it comes to gaining explanations or interpretations, asynchronous e-learning is likewise less effective. Furthermore, if students are unable to engage with others, E-learning can result in poor communicative skills. Controlling or regulating negative actions like cheating on e-learning systems can be challenging, if not impossible. E-learning can also be prone to piracy and plagiarism, as well as poor selecting skills and the simplicity of copying and pasting. E-learning has the potential to erode institutions' functions as socialization hubs, as well as teachers' responsibilities as educational process administrators. E-learning isn't appropriate for all subjects of study, either. Academic courses in the pure sciences, which typically include practical sessions, are not suited for online study, although most humanities and social science courses are. Finally, e-learning may cause some websites to become congested or overburdened. This can result in unanticipated costs.

Despite rapid improvements in ICTs and dropping prices of personal computers, laptops, smartphones, tablets, and other gadgets, Zounek & Sudick (2012)

claim that there is still a significant disparity amongst pupils in terms of material equipment and internet connectivity. Furthermore, students' technical knowledge of these technologies may limit their capacity to use them for educational reasons. For pupils with inadequate self-organization skills, e-learning can be a tremendous difficulty. Finally, owing to prolonged usage of the internet or computer, eLearning might cause serious health problems. Eye strain, back pain, lack of movement, and even mental disorders are some of the most common health issues linked with online learning.

Sadeghi (2019) suggested that eLearning might cause high levels of distraction in the learning process, difficulties with technical technology, lack of social interaction with other students, trouble contacting instructors, and lack of acknowledgment of degrees earned online. Sakshi (2017) came to similar conclusions as Sadehi (2017). (2019). According to Sakshi, online learning can result in poor communication between students and teachers, feelings of isolation, a lack of enthusiasm among students, a lack of funding to ensure a consistent supply of internet, a lack of quality, and poor accessibility for students in rural areas.

2.1.3 E-learning in Ghana

Ghana's condition concerning online learning is similar to that of other countries. In Ghana's education system, the necessity for effective online learning programs has become more pressing in higher learning institutions (Asunka, 2008; Awidi, 2008 and Tagoe, 2012). Awidi (2008) conducted research to determine how public universities in Ghana can successfully implement e-learning programs on their campuses. He concluded that for such universities to succeed, they must develop a systems approach by involving all stakeholders, including instructional designers and project leaders, who can define and implement effective eLearning plans. Universities must also have well-defined strategic plans that detail eLearning policies and implementation strategies. This could include forming an eLearning committee that is responsible for putting eLearning programs in place across the university. There should also be an institutional framework in place for funding content production and preserving intellectual property while implementing eLearning programs, taking into account the demands of teachers and students. If these recommendations are followed,

public colleges in Ghana will be able to conduct effective eLearning programs, according to Awidi (2008).

Asunka (2008), on the other hand, did a study to determine students' attitudes about online learning at a Ghanaian university and discovered that the students have negative attitudes toward online learning. He ascribed the problem to a lack of proper access to computer and Internet resources, as well as the online course's design and delivery manner. Students, he suggested, might have responded more positively if the emphasis had been placed less on online discussions and group activities and more on other learning activities, such as individual responses to assignments and exercises, or the use of other outlets for students to express themselves. Tagoe (2012) also performed a study at a Ghanaian university on students' perspectives of integrating e-learning in teaching and learning and discovered that when students attend the university with computer abilities that are crucial to the usage of e-learning, they are more likely to succeed. In the short term, students favored mixed-mode and web supplemented courses over web-dependent and entirely online courses, according to the study. To make e-learning a reality, more methods to improve access to personal computers and internet bandwidth should be implemented. Female students, on the other hand, should be encouraged to use the internet to improve their computing skills.

The literature reviewed here shows that there is a lot of room for improvement in terms of eLearning implementation and utilization in the country's higher education institutions. Students may acquire a more favorable attitude toward eLearning in the country if more colleges design and execute eLearning programs to supplement traditional classroom learning and students are given more exposure to online learning.

2.1.4 Benefits and Challenges with E-learning in Ghana

Despite some Ghanaian students' negative impressions about eLearning, multiple studies have demonstrated that students who enroll in online courses or programs reap numerous benefits (Kwofie & Henten, 2011; Edwin & Yaw, 2016 and Marfo & Okine, 2010). The main advantages of distance/online programs, according to Edwin and Yaw (2016), include access to university education, ease, flexibility, and improved knowledge and staff efficiency. They further argue that distance/online

learning allows people to access accessible and flexible postsecondary education while continuing to work and gaining new skills, information, and abilities.

On the same topic, Marfo and Okine (2010) did a study at KNUST to determine the benefits and drawbacks of eLearning for university students and discovered fourteen benefits of eLearning for students. According to their research, eLearning helps to make courses accessible according to students' schedules, does not require physical attendance of students or lecturers, self-paced learning, availability of courses throughout the day, remove geographical barriers, easy access to materials online for reading or downloading, ability to reuse learning, promote collaborative learning among students through technology tools, promote greater student and lecturer contact, students can learn at their own pace, students can learn at their own pace, students can learn at their own pace, students can learn at their own pace.

According to Kwofie & Henten (2011), e-learning provides for the presentation of information in many forms such as text, sound, and pictures, as well as the storage of information in numerous mediums and formats over lengthy periods and access over great distances. E-learning also provides a lot of flexibility in terms of learning, as well as the ability to learn at a reasonable cost. E-learning also has the potential to absorb the growing number of students in Ghana's educational system, particularly at the tertiary level. E-learning also makes content more re-usable and opens up new channels for human development and educational chances.

According to the literature, the benefits of e-learning in the Ghanaian context are similar to those reported in other countries, and as a result, the use of eLearning as an alternative form of learning to meet Ghana's educational needs should be encouraged, especially during this period of the pandemic when traditional face-to-face teaching and learning appears to be a poor option.

2.2 COVID-19 and Online learning

2.2.1 COVID-19 and Its Effects on Education

At the dawn of the year 2020, the globe was awakened by the breakout of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which eventually became known as COVID-19. Officials in Wuhan, China, were the first to

notice it in people. (World Health Organization, Coronavirus Diseases 2019, 2020). In December 2019, a rising number of persons with pneumonia-like symptoms of unknown origin startled Wuhan health officials, who reported the cases to the World Health Organization (WHO). The pneumonia-like condition was eventually confirmed to be a novel form of coronavirus on January 7, 2020. (Zheng, 2020). COVID-19 was declared a global pandemic by WHO on March 11, 2020, with 118,000 infections in 114 countries and 4,291 deaths at the time (WHO, 2020). Today (at the time of the study), there are just over 30 million COVID-19 infections worldwide, with over 900,000 cases. The new Coronavirus outbreak has had an impact on all parts of life, including schooling. According to UNESCO (2020), over 177 nations had shuttered schools countrywide as of May 6, 2020, affecting over 1.2 billion learners worldwide, the majority of whom are children and youth. Many countries used school closures as a vital mitigating factor to stop the virus from spreading during COVID-19.

2.2.2 The Transition to E-learning Platforms

Due to the closure of schools during the Coronavirus epidemic, several schools have found other ways to keep students educated during the crisis (Radha et al. 2020; Hoq, 2020 and Basilaia & Kvavadze, 2020). According to Radha et al. (2020), E-learning has become increasingly popular among students around the world, notably during the COVID-19 pandemic's lockdown period. Their research looked into the E-learning processes among students who are familiar with web-based technologies, as well as methods to help these students improve their self-study skills, and discovered that E-learning appears to be a growing trend. They claimed that the online learning approach is best for everyone because it allows learners to access up-to-date knowledge whenever they want it.

Hoq (2020) also stated that e-learning should be incorporated into the educational system. "This integration into education represents a shift in instructors' roles from dispensers of learning materials to catalysts of pupils". (See p. 461). The goal of his research was to look at the concept of e-learning and discuss its importance and scope in education, with an emphasis on how e-learning may help with the disruptions in the education sector caused by the pandemic (COVID-19). The majority of teachers in the Kingdom of Saudi Arabia had a good attitude toward e-learning, especially as a

supplement to traditional face-to-face learning, according to the findings. Basilaia and Kvavadze (2020) also wanted to investigate Georgia's capacity to continue the education process at schools through online distance learning using online portals, TV School, and Microsoft teams for public schools, as well as alternatives like Zoom. Using a case study in which the Google Meet platform was utilized for online education in a private school with 950 pupils, the researchers discovered that the swift transition to online education was a success and that it may be used as an alternative method of teaching and learning in the future.

2.2.3 COVID-19 and E-Learning in Ghana

Ghana's situation is similar to that of other countries that were heavily struck by the COVID-19 pandemic. Ghana, like many other pandemic-affected countries, has turned to online and distant learning initiatives to ensure that education continues amid the crisis. During the COVID-19 epidemic, a few Ghanaian academics investigated the use of distant and online learning platforms as a means of continuing education. However, the majority of this research has focused on the difficulties that come with using these platforms (Aboagye et al. 2020; Henaku, 2020; Owusu-Fordjour et al. 2020).

Aboagye et al. (2020) did a study to investigate the obstacles that students in tertiary institutions have reported in online learning during the coronavirus pandemic. Their study found that accessibility concerns were the most major challenge for students studying online, based on a sample of 141 participants and a component factor analysis. Social issues, lecturer issues, academic issues, and general topics follow. As a result, they suggested that using a blended learning method to enable students to finish their courses during the epidemic would be more beneficial.

On the same line, Henaku (2020) discovered that several Ghanaian college students had internet access issues, financial difficulties due to the high cost of internet bundles, device issues, and disruption due to the necessity to participate in home production. According to Owusu-Fordjour et al. (2020), some students are unable to study efficiently from home, rendering the online learning system unproductive. They also noted that due to their lack of technical knowledge, parents are unable to assist their children in accessing online learning platforms. During the COVID-19 pandemic,

most Ghanaian students had limited access to the internet and lacked technical knowledge of these technology gadgets, which made effective online learning difficult. To enhance classroom teaching and learning, they suggested that students be introduced to innovative and offline e-learning platforms.

Quainoo and Pasawano (2020) also conducted a study on the digital media platforms used by students and lecturers at the University of Cape Coast (UCC) in Ghana to continue teaching and learning during the closure of schools following the outbreak of COVID-19 in Ghana and discovered that lecturers at UCC made a quick transition to online learning during the pandemic to enable them to continue teaching and learning despite the closure of schools across the country. Students, on the other hand, had difficulties with the usage of digital platforms for learning and the inability to obtain a consistent supply of internet at a low rate. As a result, they suggested that a more mixed approach to learning during the pandemic might be more appropriate for students in Ghana.

2.3 Learning Achievement

According to Syah (2008, p. 91), learning achievement is the "level of student success in learning the subject matter in schools that are expressed in the form of scores obtained from the results of tests on a particular subject matter". Sincere (2004, p. 75), on the other hand, posited that "learning achievement is the acquisition of knowledge or skills that are developed by subject matter usually indicated by test scores or numerical value which is assigned by teachers". Based on the definitions above, it can be argued that learning achievement is the success rate of students in schools which is expressed in the form of a numerical value.

2.3.1 Factors that Influence Students Learning Achievement

Several studies have been conducted to investigate the factors that contribute to students learning achievement. Most scholars have argued that factors such as learning environment, quality of teachers, access to learning resources, student's learning motivation, and behavior among others contribute to students' having either high or low learning achievement (Kasirye, 2009; Nath, 2012; Tokan and Imaculata, 2019 and Chen et al., 2021).

Kairye (2009) conducted a study to investigate the factors that contribute to primary school students' achievement in Uganda and found that factors such as having well-trained teachers at the primary school and good classroom furnishing such as sufficient tables and chairs can have significant impacts on students' learning achievement. Nath (2012) also argued that school-related factors as well additional educational inputs by parents contribute positively to students learning achievement.

However, a recent study by Tokan and Imaculata (2019) investigated the role of motivation and learning behavior on students learning achievement and also argued that intrinsic motivation has a direct effect on learning behavior and that both directly affect the learning achievement of students. Chen et al. (2021) also investigated the role of learning technology environments (LTE) on students learning achievement and found that technology-supported learning significantly improve students' scientific knowledge and argumentation skills; higher LTEs lead to significantly better learning of scientific knowledge, except for some high-achieving students who can learn equally well in traditional instruction; and higher LTEs lead to significantly better learning of argumentation skills across all students.

2.3.2 Video-Based Instruction and its effects on Students learning Achievement Recent studies on the effects of video-based instruction on students' learning achievement have shown that video-based instruction has the potential to increase students learning achievement (Nadeak and Naibaho, 2020; Sabilic et al., 2021)

Nadeak and Naibaho (2020) conducted a study about video-based learning on improving students' learning output and to find out whether video learning media is effective in enhancing the students' learning output on Anatomy Practicum. At the end of their study, they found that 80% of the students' got improvement in their learning outputs. This improvement was also reflected by the students' satisfaction data collected through an interview that the students find it more exciting and are more facilitated to learn using the video learning media. From their findings, they concluded that video learning media is beneficial in improving the students' learning outcomes.

Sablic et al. (2021) aimed to analyze published work on video-based learning to assist teachers and other educational professionals in widening their

understanding of the educational benefits of video-based learning. Their review papers also aimed at examining how video-based learning helps in increasing students' learning achievement. At the end of their study, they argued that based on the analysis of the articles related to video-based learning and student learning outcomes we find that VBL increases interaction between stakeholders in the teaching process as well as student satisfaction. Videos can attract students' attention, motivate them, and thus increase their learning achievement.

2.4 Blended Learning

2.4.1 Definition of Blended Learning

Several academics have defined blended learning from various perspectives. Laster (2005) describes blended learning as courses that integrate online and traditional face-to-face class activities in a "planned pedagogically valuable manner; and when a portion of face-to-face time is substituted by online activity", as described in Kaur (2012, p. 613). This refers to the use of many media to give instruction. Blended learning is defined by Holden & Westfall (2006), as cited in Kaur (2012, p. 613), as "the integration of instructional media into a regular classroom, or into a distance learning environment". It also encompasses any combination of media that aids instruction, regardless of whether the medium is synchronous or asynchronous". Blended learning, according to Lalima and Dangwal (2017), is an innovative approach that incorporates the benefits of both traditional classroom teaching and ICT-supported learning, including both offline and online learning. Blended learning, as defined by these definitions, is the use of three strategies in the educational process: material, media, and technology. This is exemplified in the manner below (See Figure. 2.1).

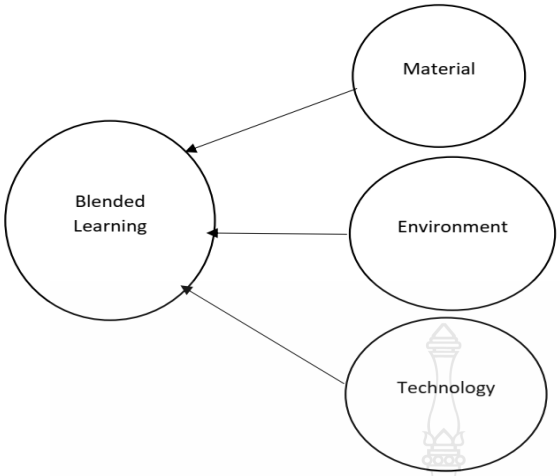

Figure 2.1 Model of the Components of Blended Learning

2.4.2 History of Blended Learning

According to Pappas (2015), long before the computer was developed, Sir Isaac Pitman launched the first remote education course. Although there were other iterations of the concept before Pitman's debut, he came close to establishing distance learning as we know it today. Shorthand was the focus of his course. Pitman would send his students shorthand texts via mailed postcards, which they had to return to be evaluated and corrected. Even though computers and mobile devices had not yet been invented, effective feedback and assessments were still an important component of the process.

In the 1960s, on mainframes and minicomputers, technology-based training arose as an alternative to traditional face-to-face or instructor-led instruction (K12academics, 2021). The origins of modern computer-based training may be traced back to the 1960s and 1970s minicomputer and mainframe instruction. It was the first time that training could be distributed to a large number of employees without relying on printed materials or face-to-face instruction. Employees may obtain the information by simply logging in to their character-based terminals. Plato, developed by Control Data and the University of Illinois in 1963, was one of the most notable systems. However, due to interface limitations, mainframe-based training gave way to satellite-based live video in the 1970s. The advantage here was that you could serve those who didn't know how to use a computer. The cost of producing this work was a significant

challenge. CD-ROMs became popular in the early 1990s as a way to provide technology-based learning without using internet bandwidth. However, the use of CD-ROMs for learning was limited in terms of tracking coursework completion. As a result, learning management systems were created to make progress tracking easier.

Blended training methodologies and applications evolved in line with technological advancements. Schools and organizations eventually began to use CD-ROMs to give more interactive learning experiences, such as video and sound. This delivery style was perfectly suited for distance learning since it could carry bigger amounts of material. Computer-based courses may now provide a rich and comprehensive learning experience for the first time in the history of eLearning. It even took the place of face-to-face training in some circumstances. The first Learning Management Systems (LMS) were introduced around this time, albeit they didn't have the same capability as today's alternatives. These technologies helped monitor eLearning course completion, enrollment statistics, and user performance within the CD-ROM network, allowing organizations to track learner progress and enhance online training courses (Pappas, 2015). Companies eventually started using video networks to train their personnel. To train new hires or broaden the skill sets of existing staff members, the instructor no longer needed to be physically present. The instruction became more dynamic and interesting as a result of this. Learners were able to chat with one another, watch the instructor on TV, and even send questions and concerns by mail. Consider it the forerunner to webinars and video conferencing. The Stanford University Interactive TV network is one of the most effective satellite-based training case studies. Stanford invested heavily in their video network in the 1970s and 1980s so that instructors could hold classes simultaneously in numerous places across San Francisco, and it is still operational today. Instead of mailing or couriering assignments to professors, students can now submit their work for approval online.

With the first generation of web-based education in 1998, blended and E-learning have undergone fast improvements in the last two decades. Computers were no longer just for businesses and elites, but for the general public as well. More and more people began purchasing personal computers for their families, while businesses began making PCs available to all employees. Then computers began to provide more

interactivity. Graphics, sound, and video became more immersive, while browsers improved connection speeds and made internet learning materials available to almost everyone. Rather than distributing CD-ROMs to students, organizations could simply post materials, evaluations, and assignments to the web, which students could access with a single mouse click. Many CD-ROM creators initially attempted to simply upload their eLearning courses to the internet without making any changes. They rapidly discovered, however, that their previous online content, such as big video files that took minutes to download, needed to be fine-tuned to match the needs of web-based learners (Pappas, 2015).

We are currently living in an exciting period for blended learning. Technology is continually evolving, and an increasing number of businesses and private educational institutions are recognizing the advantages of a blended learning strategy. Learners today have access to a wide selection of digital tools and applications, from interactive classroom scenarios to webinars and online tutorials. Companies may teach their staff from anywhere at any time, and online learners can participate in online communities and interactive eLearning courses from any location. Gradually, the combination of traditional face-to-face instruction with technology-based learning is yielding new and innovative approaches to enhance the educational experience and make learning more enjoyable, exciting, and beneficial. Blended learning has a track record of successfully integrating traditional classrooms into the technologically advanced twenty-first century.

2.4.3 Advantages of Blended Learning

According to most researchers, blended learning is more effective than traditional face-to-face or online programs (Szadziewska & Kujawski, 2017 and AlKhaleel, 2019). Blended learning strategies can also lead to higher levels of student achievement than traditional methods. Students can work on their own with new topics utilizing a blend of digital and conventional face-to-face training, freeing teachers to circulate and support specific students who may require specialized attention. Blended learning proponents say that combining asynchronous Internet communication technology into higher education courses allows students to learn independently and collaboratively at the same time. This is a significant factor in student satisfaction and

success in such classes. Students' attitudes toward learning have been demonstrated to improve when information and communication technologies are used. Communication between lecturers and part-time students has improved as a result of incorporating information technology into class projects, and students have been able to better evaluate their understanding of course material through the use of computer-based qualitative and quantitative assessment modules (K12academics, 2021).

Although some argue that blended learning is generally less expensive than traditional classroom learning, it has the potential to lower educational costs. Blended learning reduces expenses by bringing courses online, and it essentially substitutes expensive textbooks with electronic devices that students frequently bring to class. E-textbooks, which may be accessible via the internet, may also assist reduce textbook costs. The ability to collect data and customize training and evaluation are two primary benefits of blended learning, according to proponents. Software that automatically collects student data and assesses academic achievement is frequently included in blended learning, giving teachers, students, and parents precise student data. Tests are frequently scored automatically, providing quick feedback. Schools that provide blended learning programs may decide to reallocate resources to improve student achievement. Educational technology is used by students with particular talents or interests outside of the existing curricula to enhance their skills or to get around grade constraints. Blended learning replaces the traditional classroom paradigm, in which a teacher stands in front of the class and everyone is expected to work at the same pace. "Blended learning allows students to work at their own pace and ensure that they thoroughly comprehend new concepts before progressing." To succeed in a blended learning classroom, learners must display more autonomy, self-regulation, and independence. Before adopting blended learning methodologies, teachers should provide some type of first program orientation to help students feel more secure in navigating the various components and establishing a stronger sense of independence.

To create a digital classroom, several online institutions use web conferencing technologies to connect students with professors. Many of the innovations that have promoted online courses at the university level are borrowed by these schools. Under the general notion of educational technology, several benefits of blended learning

can be seen, notably at the kindergarten to grade 12 levels of education. It's also one of the most efficient ways to deliver tailored learning to a large number of people. Standards are supported in blended learning as a tool to manage quality and simplicity of use. This includes a variety of standards, including interoperability standards such as A4L's SIF specification and IMS Global Consortium's Learning Tools Interoperability specification, as well as academic standards such as state standards and Common Core State Standards, which encourage the integration of technology into a variety of subjects.

The benefits of blended learning are proportional to the quality of the programs used. "Facilitating student learning, effectively expressing ideas, demonstrating an interest in learning, organizing well, showing respect for students, and judging progress equitably" are some indicators of great blended learning programs.

2.4.4 Disadvantages of Blending Learning

Blended learning may have technical disadvantages if it is not well designed and implemented, as it is heavily reliant on the technological resources or tools used to deliver the blended learning experience. For these tools to have a meaningful impact on the learning experience, they must be dependable, simple to use, and up to date. IT literacy can be a big barrier for students trying to access course materials, so having access to high-quality technical help is critical. Because of the issues with management in an online setting, group work is another part of blended learning that can be tough. According to reports, using lecture recording devices can cause students to lag in their studies. Only half of the students watched lecture videos regularly, according to research conducted at four separate universities, while roughly 40% of students watched several weeks' worth of films in one session. This has ramifications for the educator in terms of how many online resources should be made available to students, as well as ensuring that they are at the appropriate level for the intended learner.

In comparison to traditional (e.g. paper-based) assessments, it has lately been noticed that providing appropriate feedback takes more time (and thus costs more) when using electronic media. Using e-learning platforms might take longer than traditional techniques and come with additional costs, as e-learning platforms and

service providers may charge instructors for using their services. Access to network infrastructure is another significant issue. Even in their classrooms, many kids do not have a widespread Internet connection, although the digital gap is shrinking as the Internet becomes more pervasive. This must be taken into account in any attempt to implement blended learning methodologies into an organization's pedagogical plan. To ensure that this issue is addressed, learning centers are created with robust wi-fi connections.

2.4.5 Blended Learning Models

The term "blended learning" has a lot of different definitions. According to several academic investigations, it is a redundant term. Some researchers and educational think tanks, however, have proposed distinct blended learning methods. The face-to-face driver is one of these approaches, in which the teacher is in charge of the training and uses digital resources to supplement it. Students rotate through an individual online study plan and face-to-face classroom time. Flexibility - The majority of the curriculum is given online, and teachers are available for face-to-face conversation and support. Labs - The entire curriculum is provided through a digital platform, but in the same physical location each time. In this paradigm, students frequently take traditional classes as well.

Self-blend Students use online coursework to supplement their traditional education. Students complete an entire course online, with the possibility of teacher check-ins. All content and instruction are provided through a digital platform, with face-to-face meetings scheduled or made available as needed. It's worth noting that even mixed learning models can be blended, and many implementations use a combination of them as part of a larger blended learning approach. For the most part, these models are not mutually exclusive. A blended learning model can include "instructor-delivered content, e-learning, webinars, conference calls, live or online sessions with instructors, and other media and events, such as Facebook, e-mail, chat rooms, blogs, podcasting, Twitter, YouTube, Skype, and web boards", as well as "instructor-delivered content, e-learning, webinars, conference calls, live or online sessions with instructors, and other media and events, such as Facebook, e-mail".

CHAPTER 3
RESEARCH METHODOLOGY

The purpose of this study is to look into the use of blended e-learning platforms for continuing education at the University of Cape Coast in Ghana during the Covid-19 Pandemic. The numerous parts of the research approach that the researcher used are discussed in this chapter. It contains a thorough description of the research design, population, sampling methodologies, research instruments, and data collection and analysis procedures. This chapter will be presented in the following sections:

3.1 Research Design

In this investigation, a quasi-experimental quantitative design was adopted. To better understand the perspectives of participants on the usage of e-learning platforms for continuing education during the pandemic, a descriptive survey was undertaken first with 398 students from the University of Cape Coast. This was followed by a quasi-experimental study of 30 individuals from the target population to determine the effectiveness of blended e-learning on students' learning achievement. Internal and external variables such as students' ICT proficiency before studying online during the pandemic and the quality of internet accessibility in Ghana and its influence on students' ability to use e-learning platforms effectively to study during the pandemic were investigated in the first phase of the study. At the end of the study, a model summarizing the steps of the study was developed.

For the quasi-experimental phase, the researcher carried out the study on the population and sample groups by applying pre-test and post-test (One Group Pre-test – Post-test Design) as follows:

Sample	Pre-Test	Activities	Post-Test
E	O_1	X	O_2

E Sample Group

O_1 Measurement of pre-test score

X Instructional activities using video-based instruction through blended-e-learning to enhance teaching PR in the University of Cape Coast

O_2 Measurement of post-test score

The second phase of the research took the form of a quasi-experimental study which was to test the effectiveness of learning from online resources and examining the impact of such blended e-learning approaches on students' learning achievement by creating a video lesson on YouTube and evaluating students' achievement from the lesson by comparing the means of their pretest and posttest scores. In this phase, the quasi-experimental one-group pre-test post-test design was adopted. The experimental group was the only one that received the pretest and post-test. As a result, just one group was employed in this stage of the research. Individuals who volunteered for participation in this experiment were put together on a Google Classroom and WhatsApp group page. The details of the research were explained again to all participants on the group page and participants were given the chance to leave the page if they did not wish to continue participating in the study. First, a link to the pre-test questions which were made up of 10 questions and had been developed on Google Forms was sent to the participants to assess their prior knowledge on the subject to be taught.

After all, participants had successfully, submitted their pre-test scores, the link to the video clip lesson on YouTube was shared with participants on the group page. After watching the video clip lesson, participants were then given the link to the post-test questions which were also made up of 10 questions similar to the pre-test questions.

Participants then answered the post-test questions and submitted their scores. Participants' scores were then recorded and saved for analysis. At the end of the experiment 30 participants were recorded for both pretest and post-test. Therefore, the analysis of the findings from the quasi-experiment is based only on the scores from the 30 participants who completed both the pretest and post-test. This was then followed up with the satisfaction questionnaire to measure participants' satisfaction with learning the lesson on YouTube. Participants after submitting their post-test scores were then sent the final link which was the link to the satisfaction questionnaire made up of 10 questions. Participants' satisfaction questionnaire was then analyzed for results.

3.2 Research Site

The research took place at the University of Cape Coast. This location was chosen because the researcher was an undergraduate student residing in the University of Cape Coast's immediate vicinity, making it simple to deliver questionnaires. Using the university as the study site was also the most convenient and cost-effective option to collect data for the study because the researcher has easy access to the university. In October of 1962, the University of Cape Coast was formed as a University College, with a special link with the University of Ghana, Legon. By an Act of Parliament, the College became a full and independent university on October 1, 1971, with the right to issue its degrees, diplomas, and certificates. The University of Cape Coast now has a total student population of 74,720, with the following breakdown: 18,949 regular undergraduate students, 1,445 sandwich undergraduate students, 1,014 regular postgradduate students, 2,773 sandwich postgraduate students, 48989 distance undergraduate students, and 1,540 distance postgraduate students.

3.3 Population and Sampling Procedures

The study's population included all students at the University of Cape Coast. The survey participants were chosen using simple random and purposeful selection approaches. The survey participants were chosen using a basic random sample technique. The researcher planned to sample roughly 398 students for the survey, which is a figure indicative of the entire population, and about 30 participants for the quasi-experimental study. Due to the coronavirus and safety protocols, both the survey and experiment were conducted online. A link to the survey was shared on several UCC students' chat platforms. Students were encouraged to fill the forms out of their own volition. The sample size calculation was based on the finite population formula as postulated by Yamane (1967). See the figure below.

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

Where
n = corrected sample size
N = population size and
e = margin of error (MoE), e= 0.05 based on the research conditions

Figure 3.1 Finite sample size formula (Yamane, 1967).

Given that the population is 74, 720. At 5% MoE, then the sample size will be:

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

$$n = \frac{74,720}{(1 + 74,720\ (0.05)^2)}$$

$$n = \frac{74,720}{(1+186.8)}$$

$$n = 398.0820 = 398$$

Figure 3.2 Finite sample calculation results

3.4 Research Instrument Development and Evaluation

Closed-ended questions were designed to elicit responses from University of Cape Coast students about their experiences with using blended e-learning during the pandemic. The quasi-experiment part of the study entailed the development of a Video Clip lesson on YouTube. Participants in the experiment were required to complete a lesson in Public

Relations on YouTube and data on students' learning achievement were collected using pretest and post-test scores. Finally, the study's final stage, which included administering a satisfaction test involved the rolling out of a new questionnaire via Google Forms to assess students' level of satisfaction with watching the video clip lesson on YouTube.

The research instruments are therefore defined as follows:

3.4.1 Opinion questionnaire for students in the University of Cape Coast on their experiences with using e-learning to continue learning during the pandemic.

3.4.2 Video-based instruction posted on YouTube to enhance the teaching of Public Relations among undergraduate students of University of Cape Coast, Ghana

3.4.3 Opinion questionnaire for the experts concerning the development of video-based instruction

3.4.4 Achievement test for undergraduate students who learned from video-based instruction in Public Relations

3.4.5 Satisfaction questionnaire for undergraduate students who have learned from video-based instruction to enhance the teaching of Public Relations at the University of Cape Coast.

3.5 Validity and Reliability of Research Instruments

Validity involves the amount to which the research tests what it is designed to test, according to Cohen et al. (2007, pg.432). To ensure validity, the questionnaire and interview guide were shared with specialists who reviewed them for biases and inaccuracies to ensure that the study is both valid and reliable. In addition, before being used in the main study, both the questionnaires and interview items were piloted for accuracy. Additionally, both the pre-test and post-test were based entirely on the lesson

taught in the video clip. Pre-test and post-test questions did not include any questions that were not irrelevant to the subject matter that was discussed.

Pre-test and post-test questions were also submitted to specialists in the field of Public Relations, such as teachers and practitioners, to get their feedback on the questions' validity. On the other hand, reliability refers to the level of trust that can be placed in the outcomes and data, which is frequently determined through statistical calculations and subsequent test redesigning. Given this, both pre-test and post-test questions were structured with care to avoid making it easy for participants to complete.

3.6 Ethical Procedures

Ethics is a field of philosophy concerned with making decisions and determining what is right and wrong (Fouka & Mantzorou, 2011). Professional codes and legislation have been developed to prevent scientific abuses of human life during research, according to Fouka and Mantzorou (2011), and the Nuremberg code (1947) which is the main code for all subsequent codes made to protect human rights in research. To avoid severe ethical concerns when doing research, Fouka and Mantzorou argue that researchers must follow professional rules such as informed consent, the right to withdraw from studies, and protection from bodily and emotional harm.

According to Family Health International, informed consent is a process for ensuring that individuals understand what it means to participate in a specific study so that they can make an informed decision about whether or not they wish to participate. Consent might be given verbally or in writing. For trials with low risk, an oral agreement is usually sufficient. As a result, participants in this study will be informed of the safeguards in place to ensure their identity and confidentiality. When a participant's identity cannot be linked to their comments, anonymity is preserved.

Given this, participants in the current study were informed of their right to withdraw from the study whenever they see fit or feel uncomfortable. Participants were also assured that their privacy will be maintained, which means that no private information about them was to be shared with others without their knowledge or consent.

3.7 Data Analysis Procedures

Descriptive statistics, Chi-squared Test of Association, and Paired Sample T-test (Dependent T-test) were used to analyze the quantitative data collected. The initial survey's quantitative data, as well as the satisfaction comments, was coded, and the IBM® Statistical Package for Social Sciences (IBM SPSS version 22) was used for analysis and interpretation of the results. Statistical summaries, means, and standard deviation was also used to analyze the data from the second and third phases of the study, which entail the administration of the intervention (Video clip lesson on YouTube) and study satisfaction feedback. The population's arithmetic means and standard deviations are displayed with descriptive statistical data in the form of tables and arithmetic mean charts.

The average scores were obtained from the formula below.

$$\overline{X} = \frac{\sum_{i=1}^{N} X_i}{N}$$

with $\overline{X}$ is arithmetic mean

X_i is the value of the data of the population i

i is the order of the population i by i = 1,2,3,…,N

N is the total number of people interested in studying

Standard Deviation

$$S^2 = \frac{\sum_{i=1}^{N} (x_i - \overline{X})}{N-1}$$

with *S.D.* is standard Deviation

$\overline{X}$ is Arithmetic mean

X_i is the value of the data of the population i

i is the order of the population i by i = 1,2,3,…,N

N is the total number of people interested in studying

CHAPTER 4

RESEARCH RESULT

This chapter reports the descriptive analysis of the responses from the survey and development of video-based instruction using blended e-learning to enhance the learning of Public Relations among final year Communication Studies students of the University of Cape Coast. The findings are presented as follows:

4.1 Model of Blended e-learning

4.2 Analysis of Expert Results

4.3 Descriptive Statistical Analysis from Experiment

4.1 Model of blended e-learning

The researcher studied and synthesized from electronic documents and summarized core ideas to create a model on the blended e-learning phase of the study (see figure 4.1).

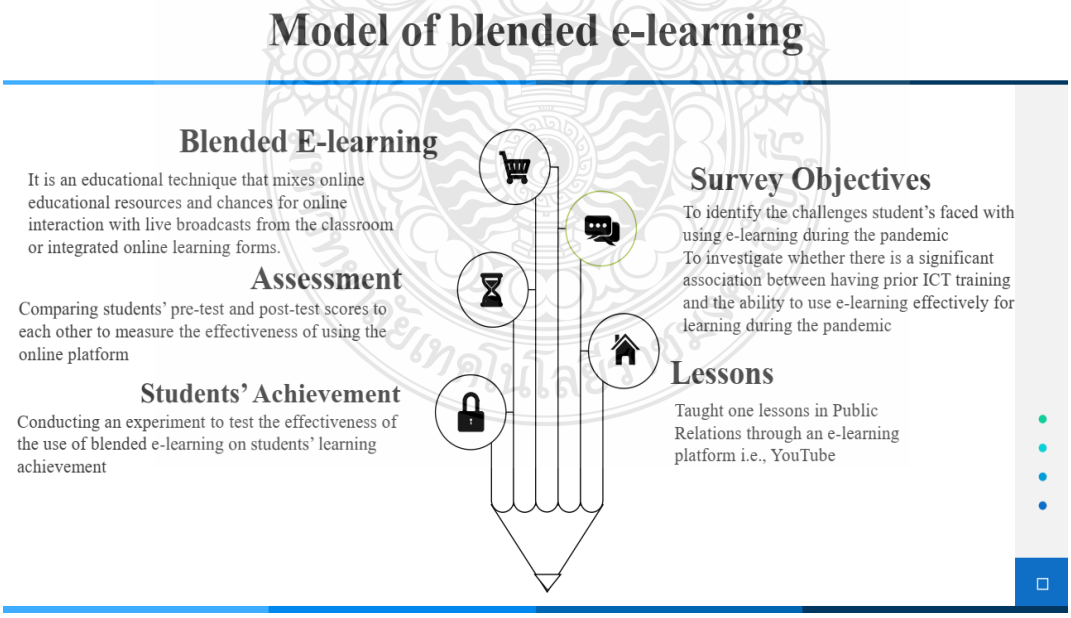

Figure 4.1 Model of a blended e-learning approach to continue learning during the pandemic

4.1.1 Descriptive Statistical Summaries from Survey

The purpose of the first phase of the study was to better understand the perspectives of students in the University of Cape Coast on the usage of e-learning platforms for continuing education during the pandemic. Here, the research questions focused on how internal and external variables such as students' ICT proficiency before studying online during the pandemic and the quality of internet accessibility in Ghana influence the students' ability to use e-learning platforms effectively to study during the pandemic. Also, the survey brings to bear the challenges students faced with using this alternative platform to study during the pandemic and how to improve the situation. At the end of the survey, a total of 400 participants were recorded, however, only responses from 398 participants were used in the analysis as this figure was representative of the entire population. The table below is a summary of the demographic details of the participants. (See Table 4.1)

Table 4.1 Participants Demographic Information

Variable	Category	Frequency	Percentages
Gender	Male/	218	55
	Female	180	45
Age	18-22	300	75
	23-25	82	20
	26-30	16	5
Level	100	43	11
	200	28	7
	300	120	30
	400	207	52

Source: Field Data (2021)

RQ.1 What challenges did UCC students face with the use of these E-learning platforms for continuing education during the COVID-19 pandemic?

The objective here was to find out from students at the University of Cape Coast whether they faced any challenges with using these alternative platforms for

learning during the pandemic. From participants' responses, it was realized that the majority of the respondents reported having faced some challenges with using these alternative learning environments during the pandemic. To further understand the nature of the challenges participants faced in their use of these online resources for learning during the pandemic, participants were made to indicate their level of agreement to some statements about the challenges they might have faced in their online learning. Participants' responses to these statements are captured in the table below (See Table 4.2)

Table 4.2 Descriptive statistics on the challenges of using e-learning during the pandemic

Statement	N	Min	Max	Mean	Std. Deviation
1. Learning online is more expensive compared to learning in a traditional classroom.	398	3	5	4.39	.700
2. I am unable to connect with friends when studying online.	398	2	5	3.95	1.083
3. Lack of strong internet connectivity makes learning online difficult.	398	2	5	4.76	.684
4. The cost of frequently purchasing internet data for studying online is worrisome.	398	1	5	4.49	.990
5. I have low IT skills; so, it is difficult to study on E-learning platforms without assistance from others.	398	1	5	2.68	1.558
6. Learning online is more expensive compared to learning in a traditional classroom.	398	2	5	4.39	.700

Table 4.2 Descriptive statistics on the challenges of using e-learning during the pandemic (Cont.)

Statement	N	Min	Max	Mean	Std. Deviation
7. I am unable to connect with friends when studying online.	398	2	5	3.95	1.083
8. Lack of strong internet connectivity makes learning online difficult.	398	2	5	4.76	.684
9. The cost of frequently purchasing internet data for studying online is worrisome.	398	1	5	4.49	.990
10. I have low IT skills; so, it is difficult to study on E-learning platforms without assistance from others.	398	1	5	2.68	1.558
11. Studying online is not suitable for practical courses.	398	3	5	4.50	.802
12. Studying online takes away the human connections that comes with traditional classroom learning.	398	1	5	4.40	0998
13. Lack of advance devices such as smart phones, computers and tablets can make studying online difficult.	398	1	5	4.27	1.128
14. Because I have low IT skills, I am unable to use online platforms for learning effectively.	398	1	5	3.33	1.419

Table 4.2 Descriptive statistics on the challenges of using e-learning during the pandemic (Cont.)

Statement	N	Min	Max	Mean	Std. Deviation
15. I find the transition to online learning during the pandemic frustrating due to my inability to navigate the platforms effectively.	398	1	5	3.69	1.159
Total 4.05					

Note: 5 Strongly Agree, 4 Agree, 3 Neutral, 2 Disagree, and 1 Strongly Disagree,

Table 4.2 presents participants' responses to their level of agreement on 10 statements concerning the challenges they faced with learning on e-learning platforms during the pandemic. To begin with, participants were asked to indicate their level of agreement with the statement that "Learning online is more expensive compared to learning in a traditional classroom" with a mean value of 4.39 participants expressed a strong agreement to this statement. A strong indication that the cost involved in using e-learning platforms to continue their studies during the pandemic was a real challenge for them. Secondly, participants were also asked to indicate their level of agreement to the statement that "I am unable to connect with friends when studying online". Here also, participants with a mean value of 3.95 indicated their agreement to this statement. In other words, participants felt that the absence of physical human connection when studying online was a problem for them. Additionally, participants had to indicate their level of agreement to the statement that "The cost of frequently purchasing internet data for studying online is worrisome". Again, participants strongly agreed with this statement with a mean value of 4.49. Further proving that online learning to them was more costly.

However, with a mean value of 2.68 participants indicated their disagreement with the statement that "I have low IT skills; so, it is difficult to study on E-learning platforms without assistance from others". Moreover, Participants strongly agreed with the statement that "Studying online is not suitable for practical courses" with a mean value of 4.50. Again, the issue of human connection was raised in the form

of a different statement that “Studying online takes away the human connections that come with traditional classroom learning” and here again participants strongly agreed with the statement with a mean value of 4.40. Reiterating the challenge of lack of physical connection that comes with online learning. The issue of lack of advanced devices being a challenge was also posed to participants in the form of this statement “Lack of advance devices such as smartphones, computers, and tablets can make studying online difficult”. Here also, participants indicated their agreement to the statement with a mean value of 4.20. To further verify the relationship between IT skills and participants' ability to use e-learning platforms effectively, participants were asked to indicate their level of agreement to the statement that “Because I have low IT skills, I am unable to use online platforms for learning effectively”. Participants’ responses indicated that they were neutral to this statement with a mean value of 3.33. Prove that they were unsure about their IT skills affecting their ability to use online platforms effectively for learning. Finally, participants had to indicate their agreement to the statement that “I find the transition to online learning during the pandemic frustrating due to my inability to navigate the platforms effectively”. Here participants had a mean score value of 3.69 indicating that they had challenges with navigating the online platforms that were used in continuing their studies during the pandemic making their overall experience frustrating. In all, participants with a mean value of 4.05 generally agreed to have faced challenges with studying online during the pandemic.

RQ.2. Is there a relationship between ICT proficiency and the ability to use eLearning platforms effectively for learning?

Here the objective was to find out whether there is a significant relationship between having prior ICT training before the pandemic and the ability to use e-learning platforms with fewer challenges. To achieve this the participants were asked whether or not they received ICT training before studying online during the pandemic. Participants’ responses revealed though that majority of the 58% reported having received ICT training before studying online during the pandemic whereas 42% indicated that they did not. Participants were also asked whether or not they faced any challenges with studying online during the pandemic. Responses revealed that the majority of participants 71% responded “Yes” to the question whereas only about 29%

responded “No”. An indication that more participants reported having faced challenges with using e-learning platforms even though the majority indicated that they had received ICT training before learning online during the pandemic.

To properly understand the relationship between having prior ICT training and the ability to use e-learning platforms effectively among students of the University of Cape Coast, a Chi-Square Test of association was conducted to test the hypothesis (H_1 and H_0) which are as follows:

H_1: Students with less ICT training before studying online during the pandemic are likely to face more challenges with using e-learning platforms for learning.

H_0: There is no significant statistical association between having prior ICT training and students’ ability to study online effectively during the pandemic.

The Chi-Square test was used to examine the association between the two categorical variables. The results showed that there is a significant statistical relationship at a 5% significance level between having prior ICT skills and the ability to use e-learning platforms effectively during the pandemic ($X^2 = 5.87$, df= 1, p = 0.016). Hence, H_1 was supported and H_0 was rejected.

4.2 Analysis of Expert Reports

The results of the evaluation of the video-based instruction from three experts in the educational curriculum are presented in the Table below (See Table 4.3).

Table 4.3 Results of evaluation of video-based instruction for learning Public Relations by three experts in educational curriculum

Evaluation Items	$\overline{X}$	S.D.	Result Interpretation
1. Standard and Indicators			
1.1 Conciseness	5.00	.00	Very Good
1.2 Wording	4.33	.57	Good

Table 4.3 Results of evaluation of video-based instruction for learning Public Relations by three experts in educational curriculum (Cont.)

Evaluation Items	$\bar{X}$	S.D.	Result Interpretation
2. Lesson Objectives			
2.1 Congruent with the standards and indicators	5.00	.00	Very Good
2.2 Wording	5.00	.00	Very good
3. Contents			
3.1 Congruent with the lesson objectives	5.00	.00	Very Good
3.2 Wording	4.33	.57	Good
3.3 Organized content effectively	4.33	.57	Good
4. Materials			
4.1 Congruent with the teaching-learning process	5.00	.00	Very Good
4.2 Adequate to support the lesson contents and objectives	5.00	.00	Very Good
5. Teaching Process			
5.1 Congruent with the contents, objectives of the lesson, and procedure of the teaching method	5.00	.00	Very Good
5.2 Evaluation of students' achievement, congruent with the teaching process, objectives of the lesson plan, and procedure of the teaching method	5.00	.00	Very Good
5.3 Wording	4.33	.57	Good
Total	4.77	0.19	Very Good

Table 4.3 presented the result of the video-based instruction evaluated by three experts in the educational curriculum. The average mean score of 4.77 indicated the considerable improvement in the video-based instruction to teaching and learning of Public Relations among undergraduate students at the University of Cape Coast.

4.2.1 Evaluation of video-based instruction from three media experts

The items of evaluation were adopted from a form issued by the Department of Curriculum and Instruction Development for use in this study. A 5-point rating scale is utilized in this section to represent the media experts' opinions. Each criterion rating is identified as illustrated in the table below. (See Table 4.4)

Table 4.4 Results of evaluation of video-based instruction for learning Public Relations by three experts in media

Evaluation Items	$\overline{X}$	S.D.	Result Interpretation
1. Contents			
1.1 The video lesson content structure is clear and each content shows structural relationships	5.00	.00	Very Good
1.2 The demonstrated contents of instruction cover the learning objectives defined	4.66	.57	Very Good
1.3 Language use is appropriate and correct	4.33	.57	Good
1.4 The learning content is appropriate for the students' grade level	4.66	.57	Very Good
2. Instructional Design			
2.1 The objectives and the student's grade level are identified	4.33	.57	Good
2.2 The sequence of content presentation is appropriate according to the media used	4.66	.57	Very Good
2.3 Presentation techniques are attractive to students	4.33	.57	Good
2.4 The video-based instruction is creatively designed	4.66	.57	Very Good
2.5 The video-based lesson is effective	4.66	.57	Very Good
2.6 Instructional design improves the ability of students to control their pace of learning properly	4.33	.57	Good

Table 4.4 Results of evaluation of video-based instruction for learning Public Relations by three experts in media (Cont.)

Evaluation Items	$\bar{X}$	S.D.	Result Interpretation
3. Screen Design			
3.1 The video design catches students' attention, and facilitates ease of use	5.00	.00	Very Good
3.2 Choices of font type, size, and color facilities are easy to use and are appropriate for students	4.66	.57	Very Good
3.3 Choices of color are appropriate and are applied consistently to specific types of on-screen information	4.66	.57	Very Good
3.4 Images presented are consistent with instructional content	4.66	.57	Very Good
3.5 Text display and visual messages are properly established and convey a very clear and correct message to the viewers	4.66	.57	Very Good
Total	4.61	0.49	Very Good

The average mean score of the video-based instruction evaluated by three experts in media is 4.61, which was at a very good level. However, following the result, some issues had to be improved before the implementation. These items were then improved before the implementation of the intervention.

4.3 Descriptive Statistical Analysis from Experiment

4.3.1 Find the efficiency of video-based instruction using blended e-learning to enhance teaching Public Relations for undergraduate students at the University of Cape Coast.

4.3.2 Compare the score of the achievement tests before and after learning Public Relations through video-based instruction using blended e-learning.

4.3.3 Analyze the satisfaction score of undergraduate students who learned Public Relations through video-based instruction using blended e-learning.

4.3.1 Finding the efficiency of video-based instruction using blended e-learning to enhance teaching Public Relations for undergraduate students in the University of Cape Coast.

RQ.3. How efficient is the use of blended e-learning in learning a lesson in Public Relations at the University of Cape Coast?

In this stage, the researcher shows the steps in finding the effectiveness of web-based instruction as follows:

4.3.1.1 Individual Trial

The experiment was performed by conducting a trial on undergraduate students of the University of Cape Coast, Ghana. The trial was conducted with 3 students who studied in the second semester of the academic year 2021. Those students were obtained by choosing one student having the highest score, another one with an average score, and the other one with the lowest score respectively in the classroom. This trial was proceeded to check the insufficient items in the content, accredit the usefulness of the activities, and web-based instruction.

4.3.1.2 Small Group Trial

A small group tryout was done on 10 students. The suggestions offered by the students were incorporated into the instructional material for improvement. The researcher conducted the instructional activities as planned, and the efficiency of engaging skills was according to the standard criteria E_1E_2 = 80/80.

4.3.1.3 Field Testing

For experimentation, purposive random sampling was adopted to ensure the availability of undergraduate students. The researcher introduced 30 final-year students to the video-based instruction in the classroom after which the students were put on a WhatsApp page where they receive links to the tests and online video-lesson.

To find the efficiency of the video-based instruction based on blended e-learning to enhance learning of PR among undergraduate students according to E_1/E_2 = 80/80 (Brahmawong 2013). (E_1) is the percentage of the average or means of

all scores the students earn from their activities or assignments, such as drills, exercises, project works, etc. or other types of formative evaluation, and (E_2) is the percentage of the average or means of all scores the students earn from their post-test, final examinations, and other summative evaluation. Below are the results (See Table 4.5)

Table 4.5 Evaluation of the effectiveness of the Video-based instruction

Items	n	$\bar{X}$	Percentage	S.D.	Standard	E_1/E_2
Ongoing score	100	82.0	82.0	.846	80	82.0
Post-test score	30	24.73	82.43	.583	80	82.4

The average mean score of the ongoing score was 82.0 and the mean score of post-test was 82.4, which indicated a substantial improvement upon the video-based instruction for learning Public Relations among undergraduate students at the University of Cape Coast. The result revealed that the value of efficiency of E_1/E_2 is 82.0/82.43. To summarize, these video-based instruction lessons are developed according to the standard criteria 80/80 defined. These results also help the researcher to test the hypothesis (H_2) which is quoted below:

H_2: The values of efficiency achieved with the developed video-based instruction using blended e-learning to enhance the learning of Public Relations among students of the University of Cape Coast meets E_1/E_2 = 80/80.

Based on the results from the E1/E2 product development testing model which shows that the development of the video-based instruction meets the criteria set it can be said that H_2 can be accepted.

4.3.2 Comparing the score of the achievement tests before and after learning Public Relations through video-based instruction using blended e-learning

RQ.4. What are the differences in students' scores (Pre-test and post-test) after taking a lesson in Public Relations on a blended e-learning platform?

This section presents data from the quasi-experiment. Here, the quasi-experimental one-group pre-test post-test design was adopted. The one group pre-test post-test quasi-experimental method was employed in this stage of the research and this group. Individuals who volunteered for participation in this experiment were put

together on a Google Classroom due to the covid-19 pandemic. The details of the research were explained to all participants on the page and participants were given the chance to leave the page if they did not wish to continue participating in the study. Then, a link to the pre-test questions which were made up of 10 questions and had been developed on Google Forms was sent to the participants to assess their prior knowledge on the subject to be taught. After this, the participants were sent a link to the YouTube video lesson which all participants watched. After watching the video lesson, participants were then supplied the link to the post-test questions which were the same as the pretest questions but with different question ordering. At the end of the end experiment, participants' pre and post-test results were recorded and the means were compared to each other by a Paired-Sample T-test analysis, and the results are presented in the table below. (See Table 4.6)

Table 4.6 Comparison of participants' average score before and after taking a lesson in Public Relations on YouTube

Items	n	$\bar{X}$	S.D.	t-test	Sig. (2-tailed)
Pre-test	30	17.7	1.76	20.44	.000
Post-test	30	24.73	.583		

Table 4.6 presented the efficiency of the development of video-based instruction in enhancing the learning of Public Relations among final-year undergraduate students at the University of Cape Coasts. Participants' mean score on the pre-test was 17.7 and the score of standard deviation (S.D.) was 1.76. After applying the video-based instruction in teaching the lesson in Public Relations a substantial improvement in students' achievement was observed which translated into a high post-test mean score of 24.73 and the standard deviation (S.D.) was .583. The t-test analysis before and after the treatment was 20.44 with p= .000 which demonstrated that there was a considerable statistical difference between the pretest and posttest scores of the participants at the 0.05 level. The Paired Sample T-test was also conducted to test the hypothesis ($H_{3)}$ which is as follows:

H_3: Students have a high level of learning achievement after learning Public Relations on the blended e-learning platform.

Based on the results from the T-test analysis which shows that students recorded high levels of achievement on the post-test then the Pre-test "H_3" can then be accepted.

4.3.3 Analyze the satisfaction score of undergraduate students who learned Public Relations through video-based instruction using blended e-learning

Following the completion of the quasi-experiment participants in the experiment were asked to fill and submit a satisfaction questionnaire to measure their level of satisfaction with using the online media herein YouTube video lesson in Public Relations. The table below is a summary of participants' responses to statements about their level of satisfaction with the learning media (See Table 4.7).

Table 4.7 Participants' satisfaction report on using the video-clip lesson on YouTube

Statement	$\bar{X}$	S.D.	Result Interpretation
1. The instructional video on understanding the public in PR was well presented	4.50	.630	Strongly Agree
2. The material was very well designed	4.40	.675	Strongly Agree
3. The subject was very well covered by the instructional video	4.70	.466	Strongly Agree
4. I was able to understand the subject better after watching the instructional video	4.67	.661	Strongly Agree
5. The instructional video was very interesting to watch	4.37	.651	Strongly Agree
6. The instructional video was not too short nor was it too long for the lesson	4.83	.379	Strongly Agree
7. The pictures, sound, and graphics of the video matched the narration	4.30	.596	Strongly Agree
8. The pictorial examples made it easier for the lesson to be understood	4.50	.509	Strongly Agree

Table 4.7 Participants' satisfaction report on using the video-clip lesson on YouTube (Cont.)

Statement	$\bar{X}$	S.D.	Result Interpretation
9. found learning this lesson through instructional videos better than traditional face-to-face instructions	3.93	.740	Agree
10. I would like to take more lessons through this medium in the future	3.90	.607	Agree

Note: 5 Strongly Agree, 4 Agree, 3 Neutral, 2 Disagree, and 1 Strongly Disagree,

Based on Table 4.7 the mean score ranged between 4.83 and 3.90, which was between averages to high levels. The item which had the highest mean score of (4.83) was "The instructional video was not too short nor was it too long for the lesson" and the item that recorded the lowest mean score of (3.90) was "I would like to take more lessons through this medium in the future". The overall average mean of the students' satisfaction reports was 4.41, which showed that students had very high satisfaction with taking a lesson in Public Relations online through blended video-based instruction.

CHAPTER 5
DISCUSSION AND RECOMMENDATION

The current study sought to 1) outline the challenges students in the University of Cape Coast faced with using e-learning platforms during the pandemic; 2) test whether there is a relationship between students' prior ICT proficiency and their ability to use eLearning platforms effectively for learning. 3) to develop and determine the efficiency of using a blended e-learning platform as an alternative way for learning at the University of Cape Coast and 4) to compare students' scores after taking a lesson through a blended e-learning format. The first phase of the study had a sample of 398 students from the University of Cape Coast who were surveyed on their experiences with using e-learning platforms to continue their studies during the closure of schools. The second phase contained a total of 30 final-year students who were selected by using purposive random sampling for an experiment. The tools for data collection comprised a survey questionnaire, Pretest, and Posttest questions, as well as a satisfaction questionnaire The conclusion, discussion and suggestions for future studies, are as follows:

5.1 Discussions

5.2 Conclusions

5.3 Recommendations for Teachers

5.4 Recommendations for Developers and Policy Makers

5.1 Discussions

At the end of the study, it was seen that the University of Cape Coast like several other universities in Ghana employed the use of online learning to ensure the continuation of teaching and learning during the closure of schools in Ghana. However, students at the University of Cape Coast faced some challenges with using e-learning platforms to continue their studies during the pandemic. The main challenges according to participants' responses included the cost associated with using e-learning platforms, lack of stable internet connectivity, lack of physical connection with others, and the inability to navigate the platforms effectively. These findings are in harmony with

previous literature that found that Ghanaian students often faced challenges with internet connectivity and navigation issues when using online learning (Aboagye et al. 2020; Henaku, 2020; Owusu-Fordjour et al. 2020). The challenges students faced with using online learning could be further categorized into external and internal factors. External factors here refer to those factors that are beyond the control of the participants and affect their ability to use e-learning platforms effectively. These included factors such as Lack of stable internet supply, cost of internet connectivity in the country, and lack of physical human connection whereas internal factors here refer to those factors that reside with the participants which might have contributed to their inability to use e-learning platforms effectively for learning. These include poor IT skills and inexperience with some using some e-learning platforms making navigation of the platforms difficult for them. However, it can be seen from participants' responses that external factors that have to do with cost and supply of internet were the major challenges they faced with using e-learning platforms to continue their studies during the pandemic.

Additionally, the study also sought to investigate the association between students' having prior ICT training and their ability to use e-learning platforms effectively to learn Using a Chi-Squared Test of Association to investigate this it was seen that there is an association between students having prior ICT training and their ability to use e-learning platforms effectively for learning. Though the majority of the students reported having faced challenges with using e-learning platforms for learning during the pandemic, the Chi-Squared test revealed that the majority of those who faced these challenges had no ICT training before the shift to online studies by the University. Thus, a major factor contributing to their inability to use these platforms effectively to study. Thus, from the test, it was seen that there is a significant statistical relationship at a 5% significance level between having prior ICT skills and the ability to use e-learning platforms effectively during the pandemic ($X^2 = 5.87$, df= 1, p = 0.016).

The second phase of the study sought to develop and test the use of online video-based instruction in the form of an experiment on students' learning achievement to be used based on the blended e-learning concept. The development of the video-based instruction was aimed at enhancing the teaching and learning of Public Relations

among final-year undergraduate students at the University of Cape Coasts. Using pre-test and post-test as a means of assessing students' learning achievement before and after being exposed to the intervention (video-based instruction), it was seen that the mean score on the pre-test was 17.7 and the score of standard deviation (S.D.) was 1.76. After applying the video-based instruction in teaching the lesson in Public Relations a substantial improvement in students' achievement was observed which translated into a high post-test mean score of 24.73 and the standard deviation (S.D.) was .583. Showing that there was a significant improvement in students' learning achievement after being exposed to the intervention (video-based instruction). Therefore, it can be concluded that the use of video-based instruction can be used as a blended learning approach to teaching some lessons during the pandemic. The participants also took a satisfaction questionnaire after having watched the online video-based instruction and results showed that the participants were highly satisfied with learning using this technique. This was in line with the results of studies reported in the literature (Dejthongpong, 2002; Duangjai, 2006; Motiwalla & Tello, 2000; Oliver & Omari, 2001 and Waraporn, 2004). Two-thirds (2/3) of students in these studies perceived learning through web-based instruction with high satisfaction.

The construction of the experiment on video-based instruction using blended e-learning to enhance the teaching of Public Relations among undergraduate students of the University of Cape Coast was divided into 3 stages to test if the value of efficiency of E_1/E_2 according to the 80/80 efficiency criteria could be achieved before the implementation. The first stage was the individual tryout where the online video-based lesson was trialed with 3 students. The second stage was the small group tryout. After this, the content of the video-based instruction was revised and improved, the last stage called field testing was conducted. This was conducted with 30 students. The results revealed that the value of efficiency of E_1/E_2 was 82.0/82.43. The findings of this experiment concurred with several related studies. Boonnark (2003) conducted a study of web-based instruction on the theory of mass communication for undergraduate students, and the result showed that the value of the efficiency of E_1/E_2 was 80/81.80. In addition, the study on courseware development on research methods in educational technology through web-based instructional systems conducted by Jirasathidpornpong

(2004) also demonstrated that the efficiency of E_1/E_2 was 80/80. Saitakham (2010) developed a web-based instructional model for English vocabulary learning ability, and the result displayed that the level of the efficiency of E_1/E_2 was 83.50/84.25 which met the standard criterion. Finally, the students' satisfaction survey also revealed that students were highly satisfied with learning PR through video-based instruction.

5.2 Conclusions

The following are the conclusions drawn from the study:

5.2.1 Results from the students' survey of students from the first phase reveal that the University of Cape Coast like several other universities in Ghana employed the use of online learning to ensure the continuation of teaching and learning during the closure of schools in Ghana due to the. However, students at the University of Cape Coast faced some challenges with using e-learning platforms to continue their studies during the pandemic.

5.2.2 The Chi-Squared Test of Association used to investigate whether there was an association between students having prior ICT training and their ability to use e-learning platforms effectively for learning revealed that there is a significant statistical relationship at a 5% significance level between having prior ICT skills and the ability to use e-learning platform effectively during the pandemic ($X^2 = 5.87$, df= 1, p = 0.016).

5.2.3 The effectiveness of video-based instruction on Public Relations demonstrated that the coefficient of E_1/E_2 as the score during the learning process (E_1) was equal to 82.0, and the score of performance (E_2) was equal to 82.43, which was higher than the standard criteria 80/80 defined. It clearly showed that video-based instruction using self-directed learning to enhance the teaching of Public Relations of undergraduate students of the University of Cape Coast had adequate efficiency for teaching.

5.2.4 The result of students' learning achievement which was received from the video-based instruction using blended e-learning to enhance teaching and learning of Public Relations in the University of Cape Coast illustrated that students' scores on post-test were higher than that of pre-test at a significant level of 0.05.

5.2.5 The result of the students' satisfaction score presented a high level of satisfaction towards the video-based instruction with an average mean score of 4.41, especially in terms of gaining access to educational content and involving with other learning resources which made it more appropriate to study.

5.3 Recommendation for Teachers

In this research, the researcher has suggested that the results of the study should be applied as follows by teachers in universities:

5.3.1 The development of online video-based instruction should be conducted step-by-step based on best practices in a field since it would enable the teacher to achieve the objectives of constructing online video-based instruction lessons which result in higher efficiency and more successful implementation.

5.3.2 Public Relations which was the subject used for the study can be successfully taught using video-based instruction so that the technique shall be further studied for the learning and teaching of other related subjects within this field.

5.3.3 Regarding students' different learning styles, they should be offered the opportunity to decide whether they wish to work on their own or in small groups when utilizing video-based instruction. This would prosper cooperative learning skills and peer correction.

5.4 Recommendations for Developers and Policy Makers

Based on the summary and discussions of the study, the researcher has several suggestions for further studies and educational policymakers:

5.4.1 More motion graphics including sound should be added to develop the online video-based instruction to make it more interesting and attractive to students.

5.4.2 Other subjects within the Humanities in which students are interested should be developed through the use of video-based instruction.

5.4.3 There should be further studies on applying video-based instruction using other teaching methodologies and learning methodologies such as self-directed learning and collaborative learning.

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APPENDIX

APPENDIX A

- List of experts reviewing research instruments

- Invitation to experts to examine research instruments

List of experts who reviewed research instruments

Content Specialists

1. Dr. Michael Yao Wodui Serwornoo (Ph.D.)
   Department of Communication Studies, University of Cape Coast
   michael.serwornoo@ucc.edu.gh
2. Prof. William Kodom Gyasi (Ph.D.)
   Department of Communication Studies, University of Cape Coast
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3. Mrs. Sandra Freda Wood (M.phil)
   Department of Communication Studies, University of Cape Coast
   sandra.wood@ucc.edu.gh

Media Specialists

1. Dr. Vitus Nanbigne (Ph.D.)
   Department of Film and Theatre Studies, University of Cape Coast
   vnanbigne@ucc.edu.gh
2. Dr. Promise N. Nyatuame (Ph.D.)
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3. Dr. Daniel Edem Adzovie (Ph.D.)
   Department of Communication Studies, University of Cape Coast
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Assessment Specialists

1. Asst. Prof. Dr.Nattakorn Papan
   Faculty of Education, Chandrakasem Rajabhat University
2. Asst. Prof. Direk Akkahard
   Faculty of Education, Bansomdejchaopraya Rajabhat University
3. Dr. Kittisak Paen-Ngam
   Nakhonnayok Primary Educational Service Area Office
   University Vice Chancellor

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3 December, 2021

Dear Dr. Michael Yao Wodui Serwornoo (Ph.D)

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Mr.Michael Asante Quainoo, Master of Education Program in Educational Technology and Communications Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled "A study of Blended E-learning Platforms for Continuing Education During The COVID-19 Pandemic in Ghana". under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Mr.Michael Asante Quainoo, on the e-mail: kofiasante22445@gmail.com or via mobile number +66 0815445575.

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education

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3 December, 2021

Dear Prof. William Kodom Gyasi (Ph.D

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Mr.Michael Asante Quainoo, Master of Education Program in Educational Technology and Communications Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled "A study of Blended E-learning Platforms for Continuing Education During The COVID-19 Pandemic in Ghana". under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Mr.Michael Asante Quainoo, on the e-mail: kofiasante22445@gmail.com or via mobile number +66 0815445575.

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
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3 December, 2021

Dear Mrs. Sandra Freda Wood (M.phil)

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Mr.Michael Asante Quainoo, Master of Education Program in Educational Technology and Communications Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled "A study of Blended E-learning Platforms for Continuing Education During The COVID-19 Pandemic in Ghana". under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Mr.Michael Asante Quainoo, on the e-mail: kofiasante22445@gmail.com or via mobile number +66 0815445575.

Yours sincerely,

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3 December, 2021

Dear Dr. Vitus Nanbigne (Ph.D.)

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

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If you have any questions or need further information, please feel free to contact Mr.Michael Asante Quainoo, on the e-mail: kofiasante22445@gmail.com or via mobile number +66 0815445575.

Yours sincerely,

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3 December, 2021

Dear Mr. Daniel Edem Adzovie (MA)

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Mr.Michael Asante Quainoo, Master of Education Program in Educational Technology and Communications Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled "A study of Blended E-learning Platforms for Continuing Education During The COVID-19 Pandemic in Ghana". under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Mr.Michael Asante Quainoo, on the e-mail: kofiasante22445@gmail.com or via mobile number +66 0815445575.

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education

MHESI 1501.7/2021

Office of the Dean, Faculty of Technical Education Rajamangala University of Technology Thanyaburi Klong Luang, Pathum Thani 12110 Thailand
Tel:+66-2-549-4710 Fax:+66-2-577-5049

3 December, 2021

Dear Asst.Prof.Dr.Nattakorn Papan

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Mr.Michael Asante Quainoo, Master of Education Program in Educational Technology and Communications Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled "A study of Blended E-learning Platforms for Continuing Education During The COVID-19 Pandemic in Ghana". under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

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Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education

MHESI 1501.8/2021

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3 December, 2021

Dear Asst.Prof.Direk Akkahard

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Mr.Michael Asante Quainoo, Master of Education Program in Educational Technology and Communications Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled "A study of Blended E-learning Platforms for Continuing Education During The COVID-19 Pandemic in Ghana". under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Mr.Michael Asante Quainoo, on the e-mail: kofiasante22445@gmail.com or via mobile number +66 0815445575.

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education

MHESI 1501.9/2021

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3 December, 2021

Dear Dr.Kittisak Paen-Ngam

Subject: Respectfully Requesting for letter of Invitation of Experts for M.Ed.Thesis

I am writing to request your assistance as an honorary external research reviewer in evaluating the research instruments of Mr.Michael Asante Quainoo, Master of Education Program in Educational Technology and Communications Rajamangala University of Technology Thanyaburi, who has been working on the thesis titled "A study of Blended E-learning Platforms for Continuing Education During The COVID-19 Pandemic in Ghana". under the supervision of Assistant Professor Dr. Tiamyod Pasawano. In this regard, I would like to request your valuable time to evaluate the research instruments as I strongly believe that your expertise will be of great value in improving the research instruments.

If you have any questions or need further information, please feel free to contact Mr.Michael Asante Quainoo, on the e-mail: kofiasante22445@gmail.com or via mobile number +66 0815445575.

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education

MHESI 1501/2021

Office of the Dean, Faculty of Technical Education Rajamangala University of Technology Thanyaburi Klong Luang, Pathum Thani 12110 Thailand
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3 December, 2021

Dear Prof. Johnson Nyarko Boampong
The Vice Chancellor
Thru: Mr. Jeff Teye Emmanuel Onyame
The Registrar
University of Cape Coast, Cape Coast, Ghana

Subject: Request cooperation to collect research data

Mr. Michael Asante Quainoo, with student number 116370201010-4 and currently enrolled in the second year of Master of Education in Educational Technology and Communications. Also in the process of conducting a research study for his thesis title "A study of Blended E-learning Platforms for Continuing Education During The COVID-19 Pandemic in Ghana". Under advice from Assistant Professor Dr. Tiamyod Pasawano is his advisor.

In this regard, I write to humbly request for the participation of students and teacher in conducting the study. The result of the research study will lead to better understand the effectiveness of online and on air Blended E-learning and its difference with modular setting during the pandemic.

We look forward to hearing from you soon, if you have any question please do not hesitate to contact us Mr. Michael Asante Quainoo, e-mail: kofiasante22445@gmail.com

Yours sincerely,

(Assistant Professor Arnon Niyomphol)
Dean of Faculty of Technical Education

APPENDIX B

- Questionnaire for Survey

- Satisfaction Questionnaire

QUESTIONNAIRE

RAJAMANGALA UNIVERSITY OF TECHNOLOGY THANYABURI

FACULTY OF TECHNICAL EDUCATION

DEPARTMENT OF EDUCATIONAL TECHNOLOGY AND COMMUNICATIONS

A study of blended e-learning platforms for continuing education during the covid-19 pandemic in Ghana: The case of UCC

Hello, I am a final year student of the Rajamangala University of Technology, Thanyaburi (RMUTT), Thailand, studying for an M.Ed. in Educational Technology and Communications, I am currently conducting research on the use of blended e-learning in continuing education during the pandemic by exploring students' experiences with the use of E-learning platforms for teaching and learning during the COVID 19 pandemic and how it can be used to promote blended learning in Ghana. I would be grateful if you could take some time to fill out this questionnaire for me. Your responses to these questions will be used solely for academic purposes. You are, therefore assured of confidentiality and anonymity. Thank you for participating.

Please check [×] box to answers which apply.

Section A. Demographics

1. What is your gender? (Please tick only one response)

   [ ] Male
   [ ] Female
2. What is your age?
   [ ] 18-22
   [ ] 23-25
   [ ] 26-30
   [ ] 31 and above
3. What is your level of study? (Please tick only one response)
   [ ] 100
   [ ] 200
   [ ] 300
   [ ] 400
   [ ] Above 400

4. What is your program of study? (Please indicate in the space below)

   _____

5. What is the name of your university? (Please indicate in the space below)

Section B
The use of E-learning platforms for learning during COVID-19

This section seeks to find out from participants their experiences with E-learning platforms for learning during the COVID 19 pandemic.

6. Did your university use any E-learning platforms for teaching and learning during the COVID 19 pandemic?
   Yes [ ]
   No [ ]
7. If answer to question 7 above is "Yes", which E-learning platforms did your university use for learning during the COVID 19 pandemic? (Tick as many as apply)

   Zoom Cloud Meeting [ ]
   Google Meet [ ]
   MS Teams [ ]
   Moodle [ ]
   Other [ ]
   If other specify_____

8. If answer to question 7 above is "No", please explain why

   _____

9. Which of these E-learning platforms did you find most effective for learning during the COVID 19 Pandemic? (Tick only one)

   Zoom Cloud Meeting [ ]
   Google Meet [ ]
   MS Teams [ ]
   Moodle [ ]
   Other [ ]
   If other, specify_____

10. Did you study ICT as a preparatory course in your current programme prior to studying online? (Please tick only one response)

    [ ] Yes

    [ ] No

11. Did you find any challenges with using e-learning platforms for studying during the Pandemic?
    [ ] Yes
    [ ] No

Section C

Challenges associated with using E-learning platforms for teaching or learning during the pandemic

This section seeks to find out the challenge's participants faced with using E-learning in teaching and learning during the COVID 19 pandemic. How they overcame such challenges and how they benefited from using these technologies for teaching or learning during the pandemic. Please select the option which best describes your response.

SN	Statement	SD	D	N	A	SA
12.	Learning online is more expensive compared to learning in a traditional classroom.					
13.	I am unable to connect with friends when studying online.					
14.	Lack of strong internet connectivity makes learning online difficult.					
15.	The cost of frequently purchasing internet data for studying online is worrisome.					
16.	I am not IT savvy; so, it is difficult to study on using E-learning platforms without assistance from others.					
17.	Studying online is not suitable for practical courses.					
18.	Studying online takes away the human connections that comes with traditional classroom learning.					

SN	Statement	SD	D	N	A	SA
19.	Lack of advance devices such as smart phones, computers and tablets can make studying online difficult.					
20.	I do not have sufficient basic ICT skills to be able to use online platforms for learning effectively.					
21.	I find the transition to online learning during the pandemic frustrating due to my inability to navigate the platforms effectively.					

Satisfaction Questionnaire

Instructional Video on Understanding Publics in PR

Please indicate the extent to which you agree to the following statements. Respond to the following questions by checking the most appropriate response to the following statements. Response key to the statements: Strongly Disagree (SD), Disagree (D), Neutral (N) Agree (A), Strongly Agree (SA).

SN	Statement	SD	D	N	A	SA
1.	The instructional video on understanding publics in PR was well presented.					
2.	The material was very well designed.					
3.	The subject was very well covered by the instructional video.					
4.	I was able to understand the subject better after watching the instructional video.					
5.	The instructional video was very interesting to watch.					
6.	The instructional video was not too short neither was it too long for the lesson.					
7.	The pictures, sound and graphics of the video matched the narration.					
8.	The pictorial examples made it easier for the lesson to be understood.					
9.	I found learning this lesson through instructional videos better than traditional face-to-face instructions.					
10.	I would like to take more lessons through this medium in the future.					

APPENDIX C

- Pretest/Post Questions

- Pre-test/Post-test Questions

Understanding Publics

Please answer the following questions by selecting the correct answer to each question

---

1. A group that can directly influence your organization's abilities to achieve its goals is known as_____
    a. A secondary public
    b. A primary public
    c. A latent public
    d. An intervening public
2. A public is defined as a group of individuals or organizations who_____
    a. Work for the same company
    b. Have a relationship with an organization
    c. Use the same products
    d. Are boycotting corporation
3. A group can become one of an organization's _____ when it recognizes an issue related to an organization and has an interest in that issue.
    a. Publics
    b. Problems
    c. Rivals
    d. customers
4. International publics are those publics outside the country within which the organization may be found.
    a. True
    b. False
5. Which of the following are intervening publics?
    a. Government
    b. Financiers
    c. Media
    d. Activist groups
6. A group that has a long-standing relationship with an organization can be known as its _____ public?
    a. Primary
    b. Secondary
    c. Traditional
    d. Non-traditional
7. When a public is aware of their relationship with a brand and acts on it we can refer to that public as an _____ public?
    a. Aware
    b. Active
    c. Intervening
    d. Latent

8. Activist groups, regulators and government are examples of which kind of publics?
    a. Latent publics
    b. International Publics
    c. Domestic Publics
    d. Secondary Publics
9. An organizations employees, shareholders and board members are examples of its external publics.
    a. True
    b. False
10. Understanding publics helps organizations to know who to direct their communication efforts to at every point in time.
    a. True
    b. False

APPENDIX D

Expert Assessment Reports Quality Assurance for Experts

Table app1.1 Show comments on measurement and evaluation experts to find the Index of consistency: IOC skills exercises during class and after learning.

Item	Opinion of an Experts			IOC	Result
	Expert1	Expert2	Expert3		
1	1	1	1	1.00	Usable
2	0	1	1	0.67	Unusable
3	1	1	1	1.00	Usable
4	1	1	1	1.00	Usable
5	1	0	1	0.67	Unusable
6	0	1	1	0.67	Unusable
7	1	1	1	1.00	Usable
8	1	0	0	0.33	Unusable
9	1	1	0	0.67	Unusable
10	0	1	1	0.67	Unusable
11	1	1	1	1.00	Usable
12	1	0	1	0.67	Unusable
13	0	1	1	0.67	Unusable
14	1	1	1	1.00	Usable
15	1	1	1	1.00	Usable

Table app1.2 Show comments on the satisfaction of media experts

Evaluation Items	$\bar{X}$	S.D.	Result Interpretation
1. Contents			
1.1 The video lesson content structure is clear and each content shows structural relationships	5.00	.00	Very Good
1.2 The demonstrated contents of instruction cover the learning objectives defined	4.66	.57	Very Good
1.3 Language use is appropriate and correct	4.33	.57	Good

Table app1.2 Show comments on the satisfaction of media experts (Cont.)

	Evaluation Items	$\bar{X}$	S.D.	Result Interpretation
1.4	The learning content is appropriate for the students' grade level	4.66	.57	Very Good
2.	Instructional Design			
2.1	The objectives and the student's grade level are identified	4.33	.57	Good
2.2	The sequence of content presentation is appropriate according to the media used	4.66	.57	Very Good
2.3	Presentation techniques are attractive to students.	4.33	.57	Good
2.4	The video-based instruction is creatively designed	4.66	.57	Very Good
2.5	The video-based lesson is effective	4.66	.57	Very Good
2.6	Instructional design improves the ability of students to control their pace of learning properly	4.33	.57	Good
3.	Screen Design			
3.1	The video design catches students' attention, and facilitates ease of use.	5.00	.00	Very Good
3.2	Choices of font type, size, and color facilities are easy to use and are appropriate for students.	4.66	.57	Very Good
3.3	Choices of color are appropriate and are applied consistently to specific types of on-screen information.	4.66	.57	Very Good
3.4	Images presented are consistent with instructional content.	4.66	.57	Very Good
3.5	Text display and visual messages are properly established and convey a very clear and correct message to the viewers	4.66	.57	Very Good
	Total	4.61	0.49	Very Good

Table app1.3 Show comments on content experts' satisfaction

Evaluation Items		$\bar{X}$	S.D.	Result Interpretation
1. Standard and Indicators				
1.1	Conciseness	5.00	.00	Very Good
1.2	Wording	4.33	.57	Good
2. Lesson Objectives				
2.1	Congruent with the standards and indicators	5.00	.00	Very Good
2.2	Wording	5.00	.00	Very good
3. Contents				
3.1	Congruent with the lesson objectives	5.00	.00	Very Good
3.2	Wording	4.33	.57	Good
3.3	Organized content effectively	4.33	.57	Good
4. Materials				
4.1	Congruent with the teaching-learning process	5.00	.00	Very Good
4.2	Adequate to support the lesson contents and objectives	5.00	.00	Very Good
5. Teaching Process				
5.1	Congruent with the contents, objectives of the lesson, and procedure of the teaching method	5.00	.00	Very Good
5.2	Evaluation of students' achievement, congruent with the teaching process, objectives of the lesson plan, and procedure of the teaching method	5.00	.00	Very Good
5.3	Wording	4.33	.57	Good
Total		4.77	0.19	Very Good

Table app1.4 Shows performance determination based on percentage scores of activities during testing. And the percentage score of the post-test test. E1/E2 Small group of 10 people

item	Percentage points Pre-test scores E2	Percentage points In-class quiz scores E1
1	75.00	83.00
2	75.00	83.00
3	73.00	76.00
4	80.00	83.00
5	80.00	83.00
6	74.00	80.00
7	72.00	76.00
8	80.00	83.00
9	80.00	83.00
10	74.00	80.00
E1/E2	E2 = 76.30	E1 = 81.00

Table app1.5 Shows performance determination based on percentage scores of activities during testing. And the percentage score of the post-test test.E1/E2 large small group of 30 people

item	Percentage points Pre-test scores E2	Percentage points In-class quiz scores E1
1	83.00	80.00
2	83.00	83.00
3	84.00	86.00
4	82.00	80.00
5	82.00	83.00
6	82.00	86.00
7	82.00	83.00
8	82.00	80.00
9	83.00	80.00
10	84.00	83.00
11	83.00	83.00
12	84.00	80.00
13	84.00	83.00
14	82.00	80.00
15	82.00	83.00
16	83.00	80.00
17	83.00	83.00
18	84.00	83.00
19	82.00	83.00
20	82.00	83.00
21	82.00	83.00
22	82.00	83.00
23	82.00	83.00
24	83.00	80.00

Table app1.5 Shows performance determination based on percentage scores of activities during testing. And the percentage score of the post-test test. E/1E 2large group of 30 people (Cont.)

item	Percentage points Pre-test scores E2	Percentage points In-class quiz scores E1
25	84.00	83.00
26	83.00	80.00
27	84.00	80.00
28	84.00	80.00
29	82.00	83.00
30	82.00	83.00
E1/E2	E2=82.00	E1= 82.43

Table app1.6 Show test scores for learning measurements during and after classes e-learning platform at University of Cape Coast

Who	Pre-test	Post-test	D	D^2
1	15.00	24.00	9	81
2	14.00	25.00	11	121
3	16.00	26.00	10	100
4	16.00	24.00	8	64
5	12.00	25.00	13	169
6	18.00	26.00	8	64
7	18.00	25.00	7	49
8	18.00	24.00	6	36
9	20.00	24.00	4	16
10	20.00	25.00	5	25
11	18.00	25.00	7	49

Table app1.6 Show test scores for learning measurements during and after classes e-learning platform at University of Cape Coast (Cont.)

Who	Pre-test	Post-test	D	D^2
12	18.00	24.00	6	36
13	18.00	25.00	7	49
14	18.00	24.00	6	36
15	18.00	25.00	7	49
16	18.00	24.00	6	36
17	20.00	25.00	5	25
18	18.00	25.00	7	49
19	16.00	25.00	9	81
20	18.00	25.00	7	49
21	18.00	25.00	7	49
22	20.00	25.00	5	25
	18.00	25.00	7	49
23	18.00	24.00	6	36
24	18.00	24.00	6	36
25	18.00	25.00	7	49
26	18.00	24.00	6	36
27	18.00	24.00	6	36
28	18.00	25.00	7	49
29	20.00	25.00	5	25
30	18.00	25.00	7	49

Table app1.7 Shows learners' satisfaction with e-learning platform for 30 students At University of Cape Coast

Statement	$\bar{X}$	S.D.	Result Interpretation
1. The instructional video on understanding the public in PR was well presented.	4.50	.630	Strongly Agree
2. The material was very well designed.	4.40	.675	Strongly Agree
3. The subject was very well covered by the instructional video.	4.70	.466	Strongly Agree
4. I was able to understand the subject better after watching the instructional video.	4.67	.661	Strongly Agree
5. The instructional video was very interesting to watch.	4.37	.651	Strongly Agree
6. The instructional video was not too short nor was it too long for the lesson.	4.83	.379	Strongly Agree
7. The pictures, sound, and graphics of the video matched the narration.	4.30	.596	Strongly Agree
8. The pictorial examples made it easier for the lesson to be understood.	4.50	.509	Strongly Agree
9. I found learning this lesson through instructional videos better than traditional face-to-face instructions.	3.93	.740	Agree
10. I would like to take more lessons through this medium in the future.	3.90	.607	Agree

APPENDIX E
Example of Media for E-learning

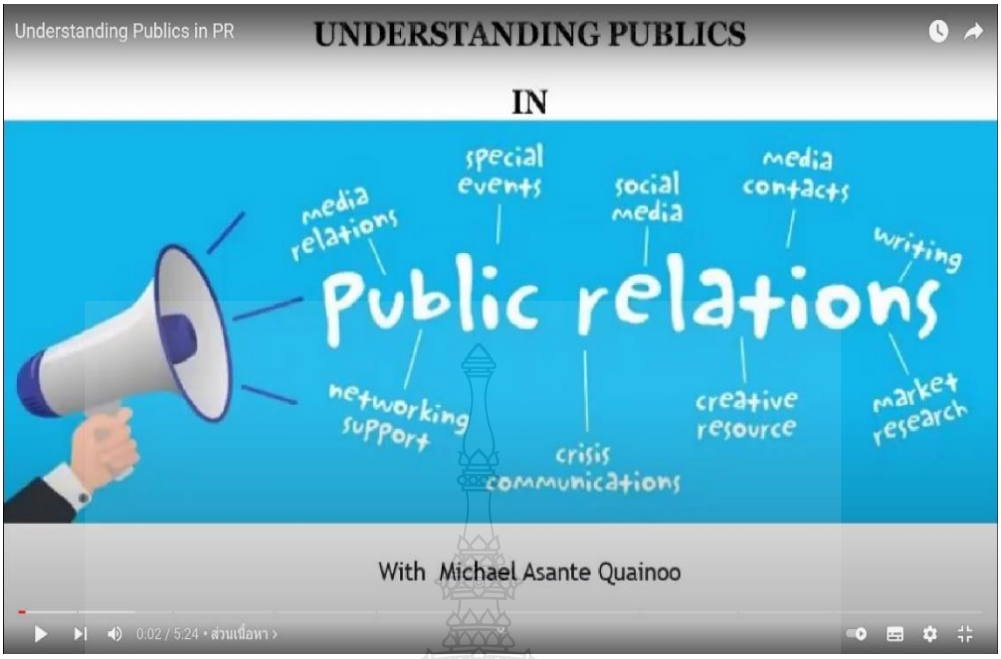

Figure app5.1 Beginning of media content

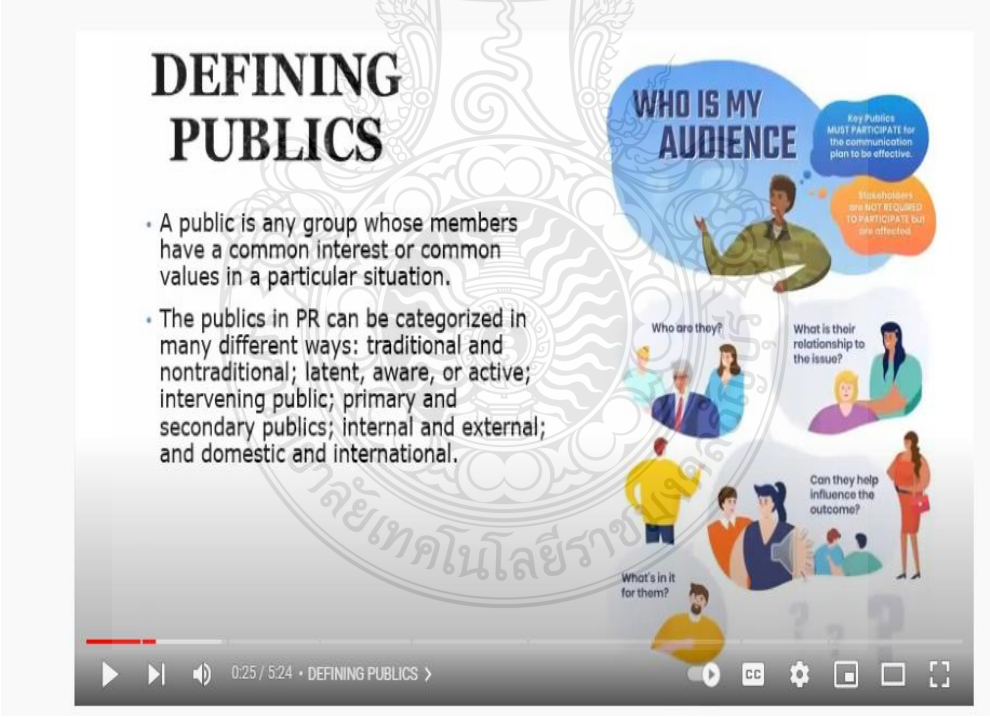

Figure app5.2 Definition of Publics

Figure app5.3 Video Lesson showing difference between active and intervening publics

Figure app5.4 Video Lesson showing difference between primary and secondary publics

Figure app5.5 Video lesson summary and highlighting the importance of understanding publics in PR

Biography

Name - Surname	Mr. Michael Asante Quainoo
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Education	Bachelor Degree's in Communication Studies University of Cape Coast, Ghana Master of Education (M.Ed.) in major of Educational Technology and Communications Rajamangala University of Technology Thanyaburi Pathum Thani province, Thailand
Experiences Work	Part time of English Teacher at Durra Institute in Accra, Ghana Languages (2021 to Present) Teaching and Research Assistant at the University of Cape Coast, Department of Communication Studies (2019 – 2020)
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