A Study of Blended 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 students in UCC faced with using e-learning platforms; 2) to study the relationship between ICT training input and the ability to use e-learning platforms; 3) to develop and determine the efficiency of using an online video-based instruction; 4) to compare students' scores after taking a lesson through the online video-based instruction; and 5) to assess students' satisfaction with learning. The sample of 30 third year students at the University of Cape Coast in the academic year 2021 was obtained utilizing purposive random sampling. A video-based instruction was used in the experiment. The statistics used in the study were means, the chi-squared test of association, and the paired sample t-test. The result indicated that the paired sample *t*-test (dependent), conducted to test the impact of video-based instruction on students' learning achievement, revealed that the students recorded a high post-test score of 24.73 compared to the pre-test score of 17.7. This indicated that the video-based instruction was efficient. The students' satisfaction questionnaire also revealed that the students were delighted with taking the lesson through the blended learning approach.

Keywords: Blended learning, E-learning platform, Continuing education, Covid-19

Introduction

Using technologies such as the internet, email, chat, newsgroups, texts, audio, and video conferencing to provide education to learners at their own pace through computer networks is defined as online learning (Dhull &Sakshi, 2017). Teaching methods have grown and changed dramatically throughout time. Until the early twentieth century, students were solely taught through lectures and literature. Before this time, the only alternative for practical teaching and learning methods was to employ schools and museums (Cockerill et al., 2015). Students were also taken on informative field trips to get a personal look at what they were studying in class. The invention of radio transmission and recording in the 1920s and 1930s ushered in a new era in education. At the time, the "audiovisual instruction movement" which included educational

videos with sound, was a cutting-edge method of teaching and learning. Instructional television began to play a more significant role in classroom education after the formation of public broadcasting stations in the 1950s. Computer-assisted instruction for classroom usage was developed in the 1970s, and education began to focus on "educational technology" by the early 1980s, computers were used in almost all American schools for educational purposes (Reiser, 2001). Today, the Covid-19 pandemic, coupled with the busy schedules of most students, has led to the growing demand for computer-based learning, commonly known as online learning, across the globe.

Ghana, a developing country in West Africa, finds itself in a similar situation. 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 (Edwin & Yaw 2016; Narh et al., 2019).

A few academics have investigated Ghanaian students' opinions of online learning (Edwin & Yaw, 2016; Narh et al., 2019). Edwin and Yaw (2016) conducted a study to investigated the effectiveness of distance and online education in Ghana. They discovered that distance and online education had 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 argued that online education programs 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: ineffective orientation of students by service providers, systems failures, and a lack of resources. In terms of students' attitudes toward online learning, surveys have revealed that most Ghanaian students have negative attitudes toward it (Asunka, 2008; Tagoe, 2012). Asunka (2008) surveyed some university students in Ghana to determine the students' perceptions of online learning and discovered that students have a negative attitude towards online learning primarily based on the collaborative and independent learning approach. Tagoe (2012), however, argued that Ghanaian students preferred hybrid learning approaches such as web-supplemented courses to fully web-dependent or online courses.

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.

Though there have been some studies on the use of e-learning in Ghana, many of these studies have focused heavily on the challenges associated with this new way of learning (Asunka, 2008; Narh et al., 2012; Tagoe; 2012) with little emphasis on the potential for using e-learning to promote education in Ghana a more serious omission in the extant literature is the use of blended learning approaches in Ghana and how this method of teaching and learning can be used to close the educational inequalities in Ghana, especially during the pandemic.

This study, therefore, seeks to fill that gap by surveying some Ghanaian students at the University of Cape Coast (UCC) on their experiences with using e-learning platforms in continuing their education during the pandemic, identifying the challenges they faced, and suggesting ways to promote e-learning in Ghanaian universities by testing the effects of using a blended e-learning approach to teaching specific lessons on the learning achievement of students. To this end, the study seeks to achieve the following objectives; to outline the challenges the University of Cape Coast students faced with using e-learning platforms during the pandemic; to test whether there is a relationship between ICT training input and the ability to use e-learning platforms effectively for learning during the pandemic; to compare students' scores before and after taking a lesson in Public Relations (PR) through a blended e-learning format and assess students' satisfaction with using the blended e-learning format

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

1. What challenges did UCC students face with using e-learning platforms for continuing education during the COVID-19 pandemic?
2. Is there a relationship between ICT proficiency and the ability to use e-learning platforms effectively for learning?
3. What are the differences in students' scores (pre-test and post-test) after taking a lesson in PR through a blended e-learning approach?
4. What was the students' satisfaction level with taking a PR lesson through the blended e-learning format?

The following hypotheses will also be tested at the end of the study:

i. H_1: Students with less ICT training before studying online during the pandemic will likely need help using e-learning platforms.

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

iii. H_2: Students have a high learning achievement level after learning a Public Relations lesson through the blended e-learning approach.

This study is significant because it aids in determining the efficacy of blended e-learning to improve students' academic achievement in universities in Ghana. The research also contributes to a better understanding of instructional design and encourages teachers to embrace e-learning platforms in the teaching and learning process to improve efficiency. The research also contributes to the body of knowledge on the advantages of e-learning in Ghana's educational system. Finally, the study also serves as a source of reference for future researchers who seek to explore this subject further. In this sense, the findings will add to the data needed

by other educational researchers as they attempt to build interventions to address educational issues, such as the challenges associated with learning via digital technologies.

Literature review

Defining e-learning

E-learning has been defined in a variety of ways by various academics. According to Fry (2001), e-learning is 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 (Dhull & Sakshi, 2017). Given thesis online learning can be defined as education that takes place via the Internet. Online learning is merely one sort of distance learning, 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. According to Dhull and Sakshi (2017), there are two types of e-learning courses, partial online, and fully online learning. Partial online learning, also known as blended learning, combines online learning with certain aspects of traditional classroom learning, In contrast, fully online learning is the practice of conducting an entire class online. Guri-Rosenblit's (2005) description of e-learning as the use of electronic media for various learning goals, ranging from add-on functions in traditional classrooms to total replacement of face-to-face meetings by online interactions, reflects the partial and complete online nature of online learning.

COVID-19 pandemic and online learning

To mitigate the spread of the virus in schools, several schools had to close during the Coronavirus pandemic, and schools in several countries had to find other ways to keep students educated during the crisis (Radha et al. 2020; Hoq, 2020; Basilaia & Kvavadze, 2020). According to Radha et al., (2020), e-learning has become increasingly popular among students worldwide, 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, therefore, argue 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). His research aimed to look at the concept of e-learning and discuss its importance and scope in education, emphasizing how e-learning may help with the disruptions in the education sector caused by the pandemic (COVID-19). His findings reveal that most teachers in the Kingdom of Saudi Arabia had a good attitude toward e-learning, especially as a supplement to traditional face-to-face learning.

Basilaia and Kvavadze (2020) also wanted to investigate Georgia's" capacity to continue the education process at schools through online distance learning. 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 teaching method and learning in the future.

The Ghanaian situation

Ghana's situation is similar to that of other countries heavily struck by the COVID-19 pandemic. Like many other pandemic-affected countries, Ghana has turned to online and distance learning initiatives to ensure that education continues amid the crisis. During the COVID-19 pandemic, a few Ghanaian academics have investigated the use of distant and online learning platforms to continue education. However, most 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) with a few exploring its prospects such as the work of Adzovie et al., (2022)

Aboagye et al. (2020) did a study to investigate the obstacles students in tertiary institutions reported in online learning during the coronavirus pandemic. Their study found that accessibility concerns were the most challenging for students studying online. As a result, they argue that using a blended learning method to enable students to finish their courses during the pandemic would be more beneficial. Henaku (2020) also conducted a study on the experiences of some college students in Ghana and found that the college students faced 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 activities and concluded students preferred a blend between traditional face-to-face instruction and online learning. Owusu-Fordjour et al. (2020), also argue that some students need help to study efficiently from home, rendering the online learning system unproductive. They also noted that parents need help to assist their children in accessing online learning platforms due to their lack of technical knowledge, During the COVID-19 pandemic, most Ghanaian students had limited access to the internet and needed more technical knowledge of these technology gadgets, which made effective online learning difficult.

To explore the prospects of implementing e-learning in higher learning institutions in Ghana during the pandemic, however, Adzovie et al. (2022) conducted a study to assess the future success of e-learning in institutions of higher learning, and also to examine the mediating role of academic innovativeness and technological growth in the successful implementation of this new way of learning during the Covid-19 pandemic. Their findings revealed that the surge in the coronavirus pandemic contributed to academic innovativeness in higher learning institutions in Ghana, increasing the prospects of integrating e-learning in higher learning institutions across the country; however, there is still the need for management of universities in Ghana as well as educational policymakers to develop more innovative ways to ensure continuous education during the pandemic.

The review of previous and current studies on the subject has revealed that e-learning like any other learning innovation has a lot of benefits to offer teachers and students who embrace it, especially during this period of the pandemic. However, to ensure its successful implementation in schools, the issue of internet accessibility and usability issues associated with certain e-learning platforms must be addressed more so in a developing country like Ghana where the concept of e-learning seems not to have gained much support.

Blended learning model

Several academics have defined blended learning from various perspectives. Laster (2005 Cited in Kaur, 2012, p. 613) 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 this refers to the use of many media to give instruction. Blended learning is also defined by Holden & Westfall (2006), as cited in Kaur (2012, p. 613), as "the integration of instructional media into a regular classroom or a distance learning environment," It also encompasses any combination of media that aids instruction, regardless of whether the medium is synchronous or asynchronous". According to Lalima and Dangwal (2017), Blended learning is an innovative approach that incorporates the benefits of both traditional classroom teaching and ICT-supported learning, including offline and online learning. Blended learning, as defined by these definitions, uses three strategies in the educational process: material, media, and technology. Studies on online learning show that most students prefer blended learning approaches because it is more effective than traditional face-to-face or online programs (Szadziewska & Kujawski, 2017; AlKhaleel, 2019). It is for this reason that this model is adopted in this study.

Methodology

Research design

In this investigation, a quasi-experiment, as well as a quantitative survey, was employed. To better understand participants' perspectives on using e-learning platforms for continuing education during the pandemic and their challenges. The study was conducted in three phases. 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 among the target population to test the effectiveness of a blended e-learning approach on students' learning achievement.

The second phase of the research, which took the form of a quasi-experimental study, was aimed at testing the effectiveness of learning online through a blended e-learning approach and examining the impact of this learning method on students' learning achievement. This was done by creating a lesson on Google Classroom and YouTube and evaluating students' achievement from the lesson by comparing the means of their pre-test and post-test scores. In this phase, the quasi-experimental one-group pre-test post-test design was adopted. One group was employed in this research stage, and this group was the experimental group. Individuals who volunteered to participate in this experiment were put together on a WhatsApp group page.

The research details were explained again to all participants on the group page, and participants were given a chance to leave the page if they did not wish to continue participating in the study. First, a link to the pre-test questions, made up of 10 questions, was sent to the participants to assess their prior knowledge of the subject matter to be taught. After all, participants had successfully, submitted their pre-test scores, participants were then made to register to the Google Classroom created explicitly for the lesson to get access to all learning materials used for the lesson. Then 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 given the link to the post-test questions which were 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. This was followed up with a satisfaction questionnaire to measure participants' satisfaction with learning the lesson through the blended e-learning approach. This was the third and final phase of the study.

Population and sample

The study's population included all students at the University of Cape Coast. According to the University's official website, 74,720 regular students registered at the University of Cape Coast at the time of the study. The survey participants were chosen using a simple random technique, whereas participants for the experiment were sampled using a purposive sampling approach. The researcher planned to sample roughly 398 students for the survey, a figure indicative of the entire population. The sample size calculation was based on the finite population formula, as Yamane (1967) postulated. 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 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 2 Finite sample calculation results

However, participants for the quasi-experiment were selected among Communication Studies students at the University of Cape Coast who took a course in Public Relations and had received ICT skills before the shift to online studies. Participants for this experiment were limited only to Communication students reading Public Relations because the Video-Clip and Google Classroom lessons were based on a lesson they had already been taught in class through traditional face-to-face instruction before the pandemic. The aim was to test the effectiveness of the blended e-learning approach to teaching this lesson and verify if having prior ICT skills while studying online can increase students' ability to use e-learning effectively.

Research instruments

Data was collected directly from participants using questionnaires and pre-test and post-test questions, all developed using Google Forms. The study's first phase took the shape of an online survey using Google Forms. The questionnaire consisted of 20 closed-ended questions designed to elicit responses from students from the University of Cape Coast about their experiences with using e-learning during the pandemic. The quasi-experiment part of the study entailed the development of a Video Clip lesson on YouTube and a virtual class on Google Classroom. Participants in the experiment were required to complete a lesson in Public Relations by first enrolling in the Google Classroom to get access to all study materials and watching the main lesson on YouTube, Data on students' learning achievement were collected using pretest and post-test questions developed using Google Forms. Finally, the study's final stage, which included administering a satisfaction test, involved rolling out a new questionnaire via Google Forms to assess students' level of satisfaction with watching the video clip lesson on YouTube. Due to the coronavirus and safety protocols, both the survey and experiment were conducted online. The link to the initial survey was shared on several UCC students' chat platforms, and the students were encouraged to fill out the forms of their own volition. On the other hand, the links to the pre-test, post-test, YouTube video lesson, and satisfaction survey were only shared with the 30 volunteers for the experiment.

Validity and reliability of instruments

Validity involves the amount to which the research tests what it is designed to test (Cohen et al., 2007). To ensure validity, the questionnaire and interview guide were shared with specialists who reviewed them for biases and inaccuracies to ensure that the study was both valid and reliable. In addition, before being used in the main study, both questionnaires were piloted for accuracy. Additionally, the pre-test and post-test were based entirely on the lessons taught in the video clip and Google Classroom. Pre-test and post-test questions did not include any questions that were not irrelevant to the subject matter that was discussed. The 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, the study employed sound statistical formulas to test the variables and hypotheses set out at the onset of the study.

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 suggested that researchers must follow professional rules such as informed consent, the right to withdraw from studies, and protection from bodily and emotional harm. Given this, an official letter was submitted to the management and ethics committee of the University of Cape Coast requesting permission for the study to be carried out. Participants in the current study were informed of their right to withdraw from the study whenever they saw fit or felt uncomfortable. Participants were also assured that their privacy would be maintained, which means that no private information about them was to be shared with others without their knowledge or consent. All participants in the study were kept anonymous.

Data analysis procedures

Descriptive statistics, a Chi-Square Test of Association, and a Paired Sample t-test were used to analyze the quantitative data collected. The initial survey's quantitative data, and the satisfaction comments were coded, and the IBM® Statistical Package for Social Sciences (IBM SPSS version 22) was used for the results to analyze and interpret for the analysis. Statistical summaries mean, standard deviation and the Paired Sample t-test, were also used to analyze the data from the second, third phases of the study, which entail the administration of the intervention (Video clip lesson on YouTube and Google Classroom lessons) and study satisfaction feedback.

Results and discussions

This section reports the descriptive analysis of the responses from the survey and development of Google Classroom and the video-based instruction based on the blended e-learning approach to enhance the learning of Public Relations among Communication Studies students of the University of Cape Coast. The findings are presented as follows.

Survey participants' demographic information

The purpose of the study's first phase was to get insight from students at the University of Cape Coast on their usage of e-learning platforms for continuing education 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, 400 participants were recorded; however, only responses from 398 participants were used in the analysis, as this figure was considered representative of the entire population. The table below is a summary of the demographic details of the participants (See Table 1)

Table 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 using 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 online platforms for learning during the pandemic. From participants' responses, it was realized that most respondents reported facing challenges with using these online learning environments during the pandemic. To further understand the nature of the challenges participants faced in using these online resources for learning during the pandemic, participants were made to indicate their level of agreement with some statements about the challenges they might have faced in their online learning experience. Participants' responses to these statements are captured in the table below (See Table 2).

Table 2 Descriptive statistics on the challenges of using e-learning during the pandemic

	Statement	N	Min	Max	Mean	S.D.
1.	Learning online is more expensive compared to learning in a traditional classroom.	398	3	5	4.39	0.70
2.	I am unable to connect with friends when studying online.	398	2	5	3.95	1.08
3.	Lack of strong internet connectivity makes learning online difficult.	398	2	5	4.76	0.68
4.	The cost of frequently purchasing internet data for studying online is worrisome.	398	1	5	4.49	0.99
5.	I have low IT skills, so it is easy to study on e-learning platforms with assistance from others.	398	1	5	2.68	1.55
6.	Studying online is not suitable for practical courses.	398	3	5	4.50	0.80
7.	Studying online takes away the human connections that come with traditional classroom learning.	398	1	5	4.40	0.99
8.	The lack of advanced devices such as smartphones, computers, and tablets can make studying online easier.	398	1	5	4.27	1.12
9.	Because I have low IT skills, I cannot use online platforms for learning effectively.	398	1	5	3.33	1.41
10.	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	1.15

From the table, participants with a mean value of 4.05 generally agreed that they faced challenges with studying online during the pandemic. In other words, the University of Cape Coast students faced some challenges using e-learning platforms to continue their studies during the pandemic. According to participants' responses, the main challenges included the cost associated with using e-learning platforms, lack of stable internet connectivity, lack of physical connection with others, the inability to navigate the platforms effectively. These challenges could be further categorized into external and internal factors. External factors here refer to those factors beyond the participants' control 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. In contrast, 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 using some e-learning platforms, making navigation difficult. However, it can be seen from participants' responses that external factors that have to do with the cost and supply of the internet were the major challenges they faced with using e-learning platforms to continue their studies during the pandemic.

R.Q.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 was a significant statistical association 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 they received ICT training before studying online during the pandemic. Participants' responses revealed that most (58%) reported having received ICT training before studying online during the pandemic, whereas (42%) indicated that they did not. Participants were also asked whether they faced any challenges navigating e-learning platforms when studying online during the pandemic. Responses revealed that most participants, (71%) responded "*Yes"* to the question, whereas only a few (29%) responded "*No*." An indication that more participants reported having faced challenges with navigating 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 navigate 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 will likely need help navigating e-learning platforms for learning.

H0: There is no significant statistical association between having prior ICT training and the ability to navigate e-learning platforms effectively.

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

RQ.3. What are the differences in students' scores (Pre-test and post-test) after taking a lesson in Public Relations with the blended e-learning approach?

This section presents data from the quasi-experiment. Here, the quasi-experimental one-group pre-test post-test design was adopted. One group was employed in this research stage, and this group was the experimental group. Individuals who volunteered to participate in this experiment were put together on a WhatsApp group page and enrolled in a Google Classroom to get access to all the learning materials for the lesson. The research details were explained to all participants on the WhatsApp group page, and participants were given a chance to leave the page if they wished to stop participating in the study. Then, a link to the pre-test questions, which were made up of 10 questions developed on Google Forms, was sent to the

participants to assess their prior knowledge of 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 the same as the pretest questions but with different question ordering. At the end of the experiment, participants' pre and post-test scores 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 3)

Table 3 Comparison of participants' average score before and after taking a lesson in Public Relations on YouTube

Items	**n**	$\overline{X}$	**S.D.**	**t-test**	**Sig. (2-tailed)**
Pre-test	30	17.7	1.76	20.44	0.00
Post-test	30	24.73	0.58		

Remark: 0.05 level of Significance

Table 3 presents 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 standard deviation score (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 .58. The t-test analysis before and after the treatment was 20.44 with p= 0.00, which demonstrated 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_2), which is as follows:

H_2: Students have a high learning achievement level after learning a Public relations lesson through the blended e-learning approach. Based on the Paired Sample t-test analysis which shows that students recorded high levels of achievement on the post-test, then pre-test "H_2" can then be accepted.

R.Q. 4 What is the student's satisfaction level with taking a PR lesson through the blended e-learning format?

Following the completion of the quasi-experiment, participants in the experiment were asked to fill out 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 summarizes participants' responses to statements about their level of satisfaction with the learning media (See Table 4 below).

Table 4 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	0.63	Strongly Agree
2. The material was very well designed.	4.40	0.67	Strongly Agree
3. The instructional video-was very interesting to watch.	4.70	0.46	Strongly Agree
4. I was able to understand the subject better after watching the instructional video.	4.67	0.66	Strongly Agree
5. The instructional video was very interesting to watch.	4.37	0.65	Strongly Agree
6. The instructional video was not short enough for the lesson.	4.83	0.37	Strongly Agree
7. The pictures, sound, and graphics of the video matched the narration.	4.30	0.59	Strongly Agree
8. The pictorial examples made it easier for the lesson to be understood.	4.50	0.50	Strongly Agree
9. I found learning this lesson through instructional videos better than traditional face-to-face instructions.	3.93	0.74	Agree
10. I would like to take more lessons through this medium in the future.	3.90	0.60	Agree

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

Based on Table 4 the mean score ranged between 4.83 and 3.90, between averages and 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.

Conclusions and recommendations

At the end of the study, it was seen that the University of Cape Coast, like several other universities in Ghana, employed 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 e-learning platforms to continue their studies during the pandemic. According to participants' responses, the main challenges 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 face with online learning could be further categorized into external and internal factors. External factors here refer to those factors beyond the participant's control 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, In contrast, 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 the cost and supply of the internet were the major challenges they faced with using e-learning platforms to continue their studies during the pandemic.

The study also sought to investigate the association between students'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 most 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.

The second phase of the study sought to develop and test the use of online video-based instruction as an experiment on students' learning achievement to be used based on the blended e-learning concept. The development of 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 a standard deviation (S.D.) was .583. Showing a significant improvement in students' learning achievement after exposure to the intervention (video-based instruction). Therefore, it can be concluded that video-based instruction can be used as a blended learning approach to teaching some lessons during the pandemic. After watching the online video-based teaching, the participants completed a satisfaction survey, with the results indicating that they were extremely satisfied with their learning experience. This corresponded to the findings of investigations published in the following works of literature (Fynn et al, 2022; Boateng et al, 2016) who found that Ghanaian

students perceive the use of video based instruction as aiding in their comprehension of the learning material.

Recommendation for teachers

Based on the findings of these studies, the following recommendations are suggested for teachers in higher education and future researchers:

Public Relations, the subject used for the study, can be successfully taught using video-based instruction, so the technique should be further studied for the learning and teaching other related subjects within this field.

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.

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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