UNIVERSITY OF EDUCATION, WINNEBA

EFFECTS OF E-LEARNING IN COLLEGES OF EDUCATION IN GHANA

(CASE STUDY ON NUSRAT JAHAN AHMADIYYA COLLEGE OF

EDUCATION AND McCOY COLLEGE OF EDUCATION)

JOHN ASIBUO BOAKYE

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DECLARATION

STUDENT'S DECLARATION

I, JOHN ASIBUO BOAKYE, declare that this dissertation, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE: ………………………………….

DATE:…………………………………………..

SUPERVISOR'S DECLARATION

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of dissertation as laid down by the University of Education, Winneba.

JOSHUA CALEB DAGADU (PhD.)

SIGNATURE: ………………………………….

DATE:…………………………………………..

DEDICATION

This work is dedicated to the Almighty God and my family for their love, encouragement and support.

ACKNOWLEDGEMENT

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LIST OF ABBREVIATIONS

ADEA--------------------------Association for the Development of Education in Africa

GES---Ghana Education Service

GHS--Ghana Health Service

ICT---Information Communication Technology

IT---Information Technologies

JHS--Junior High School

MoE--Ministry of Education

NTCE---National Council for Tertiary Education

OECD------------------------Organization for Economic Cooperation and Developments

SHS--Senior High School

SPSS---Statistical Package for Social Sciences

T-TEL--------------------------------------Transforming Teacher Education and Learning

TTIs--Teacher Training Institutions

UNESCO----------------United Nations Education, Scientific and Cultural Organisation

WAEC--West African Examination Council

WHO--World Health Organization

ABSTRACT

E-Learning is an electronic technology to access any online educational curriculum outside of the conventional or traditional classroom. In an attempt to contain and control the spread of the Covid-19 virus, the President of Ghana instituted social distancing protocols and directed the closure of schools on the 16th of March 2020. To ensure the continuity of teaching and learning, the president of the Republic of Ghana directed the Ministry of Education and the Ministry of Communication to ensure that they rollout distance and remote learning programmes for all students. The purpose of this study was to assess the effects of e-learning on the Colleges of Education in Ghana using the Nusrat Jahan Ahmadiyya and Mccoy College of Education as case study. The study was a descriptive study which employed a quantitative approach using semi-structured questionnaire designed in Google form to collect data online. The researcher used snowball sampling to recruit a total of 100 students and 101 tutors for the study. The data collected was analysed using SPSS and presented in descriptive statistics. It was found that 47.0% of the e-learning is done with Zoom and the time allocated for eLearning is not enough. Also, there is no enough demonstration during e-lessons (mean values less than 3.0)and lack of computers, mobile phones, etc. To solve the challenges, ensuring a friendly user interface will help solve the challenges in e-learning (mean = 4.13) and tutors may start using e-learning with the assistance of their associates. Also, ICT courses should be made compulsory for tutors to undertake them. The study concludes among others that the time allocated for eLearning is not enough due to the demand of the courses outline. The study therefore recommends among others that there is the need for innovative teaching strategies, course design specific to online education, and the development of good online teaching skills by tutors and these are significant components of quality and effective online education.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Official Public Service Announcement on Coronavirus from the World Health Organization (WHO) has led to the improvement of our educational system in the whole wide world and Ghana as a country. Today, one of the main global challenges facing the education system in the world and Ghana as a whole is e-learning. The Coronavirus (COVID-19) is occurring to have a consequential adverse impact on the global education system. The education directorates around the world are carrying out various pecuniary measures to lighten the adverse effect and provide relief for schools, colleges, and universities across the globe. As of the first week of May 2020, UNESCO estimated that 177 countries have closed schools nationwide, impacting over 1.2 billion learners globally, are classified under children and youth. Closures of School in the milieu of COVID 19 have been important across the globe to slow the spread of the disease and its effects on health systems (UNESCO, 2020).

The education system in Ghana is based on free compulsory basic education (kindergarten, primary school, lower secondary school), secondary education (free secondary school, technical and vocational education) and tertiary education (universities, polytechnics and colleges of education) (Glavin, 2017). The main educational methodology employed in Ghana is face-to-face classroom teaching for almost all basic schools and second cycle institutions and some tertiary institutions such as the colleges of education. However, the universities combine both face to face and online learning. The outbreak of the COVID-19 pandemic has led to the adoption of online learning at all levels of education in the country.

Colleges of Education formally known as a training college have been on existence since affecting the 20th century. The colonial government first established teacher education when it opened Accra Teacher Training College on 8th September 1909 which is one of the oldest training colleges. Teacher Training colleges have upgraded from Cert "A" into diploma and now degree-awarding institutions to improve upon the quality of teachers they turn out. There are forty-six (46) training colleges of education in Ghana. Now all the colleges have been affiliated to all the public universities across Ghana to mentor them.

Education plays an important role in promoting self-development as well as the development of human capital for every country's socio-economic development. Before their re-designation and elevation as tertiary institutions from the then Teacher Training Institutions (TTIs) were basically under the Ghana Education Service (GES).

However, when quality education is a concern for education-focused in Ghana, international organizations, and dominates national debates, teacher quality must equally be a priority. The main role of the colleges is to be the center to produce meek, discipline, and intellectually students to meet the requirement of mankind and the educational structure in Ghana and also requires that his/her educational background must be of the highest quality towards achieving the national educational goal. It was, therefore, a commendation that the government has decided to implement all Colleges of Education in Ghana Act, Act 847, which was established to enforce a strong ruling to the new status of the colleges in 2012. By that Act, All public Colleges of Education in Ghana have been ordered to be supervised by the National Council for Tertiary Education (NTCE), which is the government of Ghana agency responsible for the regulation and transforming of tertiary education institutions in Ghana. Over the past

forty years, teacher education in Ghana has seen many upgrading. These upgrading results of policy changes are supposedly aimed at delivering well-trained teachers to meet the educational needs of the country at various times. As to whether these modifications have produced the needed results is another question we need to answer. These changes though have led to the production of a different cohort of teachers with different types of kinds of certificates in Ghana.

1.2 Statement of the Problem

The first cases of COVID-19 in Ghana were recorded on March 15th, 2020 (Ghana Health Service [GHS], 2020). In an attempt to contain and control the spread of the virus, the President instituted social distancing protocols and directed the closure of schools on the 16th of March 2020. Initially, the closure excluded both final year Junior High School (JHS) and Senior High School (SHS) students. This was to enable these final year students to prepare for their final examination. However, following the indefinite postponement of the West African Senior School Certificate Examination by the West African Examination Council (WAEC) the final year students were asked to go home (Ministry of Education [MoE], 2020). About 9.2 million and 500,000 learners from the basic and tertiary levels have been affected respectively (MoE, 2020). To ensure the continuity of teaching and learning, the president of the Republic of Ghana directed the Ministry of Education and the Ministry of Communication to ensure that they rollout distance and remote learning programmes for all students (Abdul-Salam, 2020).

As a response to the president's directive, the Ministry of Education (MoE) together with Ghana Education Service (GES) have ensured continues learning through its distance and online learning platform and the broadcasting of lessons on Ghana

Learning Television (GLTV) for 1 million SHS students (MoE, 2020). Digital contents have also been developed for TV, radio and online learning for the basic school and junior high school levels (MoE, 2020). Tertiary institutions have started engaging students using online platforms for teaching and learning (Anaba, 2020; Ashesi University, 2020). At the college level, the NCTE with support from Transforming Teacher Education and Learning (T-TEL), has established a Virtual Learning Taskforce for Teacher Education. The Taskforce together with five mentoring universities have created an online B.Ed curriculum for teachers and students and has enrolled about 85%-90% student teachers on their affiliated universities virtual learning platforms (T-TEL, 2020). On the 27th of April 2020, the colleges of education officially started the second semester on their affiliated universities' online learning platforms. This paper, therefore, explores college students' online learning experience and their perception of online learning.
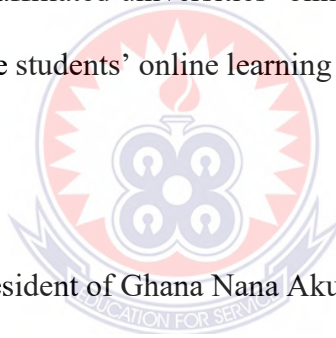
On the 15th of March, President of Ghana Nana Akufo-Addo ordered the closure of all educational institutions in Ghana, affecting some 8.2 million basic school students (kindergarten, primary and junior high schools, senior high school, colleges of education, polytechnics and universities) and if affected 0.5 million tertiary education students. By the 10th of May, Ghana had recorded about 4,710 confirmed cases of COVID-19. Health experts in the country predicted that there will be an increase in the number of confirmed cases in the coming weeks due its increased testing of occupants in the country. This indicates that the closure of all schools, colleges, and universities might extend to a longer period than expected. This occurrence raised a lot of questions more than answers.

Colleges of education officially opened in Mid May 2020, and the mode of learning was e-learning. *E-Learning* is an electronic technology to access any educational format curriculum in Ghana or any part of the world outside of a physical or traditional classroom. In most cases, e-learning refers to a program, degree, or course delivered completely *online.* Moreover is a *learning* experience that is enhanced through utilizing computers and/or the internet both outside and inside the facilities of the educational organization. The instruction most commonly takes place in an online field and its mode of delivery can be done through a website, online application, etc.

1.3 Study Objectives

The aim of the study was to assess the effects of e-learning on the Colleges of Education in Ghana using the Nusrat Jahan Ahmadiyya and Mccoy College of Education as case study. Specifically, the study sought to:

1. Determine the effectiveness of e-learning in the Colleges of Education.
2. Find out the challenges faced by students during e-learning lessons.
3. Find out the challenges faced by tutors in delivering e-lessons.
4. Identify measures to mitigate the challenges faced by tutors and students in e-learning.

1.4 Research Questions

1. How effective is e-learning in the Colleges of Education?
2. What are the challenges faced by students during e-learning lessons?
3. What are the challenges faced by tutors in delivering e-lessons?
4. What are the measures to mitigate the challenges faced by tutors and students in e-learning?

1.5 Significance of the Study

This research will have four significances. First, the research findings can provide insight into different e-learning facilities that students and college authority could use to adopt in the university. Second, this research outcome will help the college authority to identify critical factors that could affect the successful adoption of e-learning. Third, research results can guide students and college authorities on the barriers to successful e-learning experiences. Fourth, the research findings will help the college authorities to clearly identify strategies on how e-learning will address emerging issues.

1.6 Organisation of the Report

The report of the study is presented in chapters with each chapter carrying a detailed description of activities. Chapter one includes the background to the study, the problem statement, the justification of the study, the study objectives, the research questions, the significance of the study and the scope of the study. Chapter two consists of a review of related literature on the topic of study. The literatures include background information on employee turnover, and empirical evidence on the study topic. Chapter three presents the methodology of the study. This includes the design, population, sampling techniques and method of data collection. Chapter four outlines the findings from the research data gathered and analysed. The presentation is in the form of frequency tables, graphs and cross tabulation where applicable. Chapter five which is also the last chapter, which contains the conclusions and recommendations made from the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focuses on providing the relevant literature in the scope of this study. It begins with the paradigm shift from the Traditional learning to e-learning and addresses the importance of deploying e-learning in this 21st century. Then it provides a description of the theory related to information technologies (IT) adoption in general and to e-learning adoption in particular.

2.2 The Concepts of Learning

As per (Atkinson et al., 1993), learning is a generally perpetual change in behaviour that comes from education. It can likewise be said that learning is an individual process of changing personal conduct standards, expanding or adjusting mental models and processes (Tusting, 2003). It is a complex process of gaining information or abilities including the biological characteristics or senses (physiological dimension) of a student; character qualities, for example, consideration, feeling, inspiration, and interest (cognitive dimension); styles of information processing, for example, coherent examination or hunches (cognitive dimension); and individual differences or psychological (psychological dimension) (Dunn, et al.,1989). To get adroit at learning, one must be capable not only to change its institution, because of changing circumstances and necessities; however design and create establishments which are 'learning frameworks', that is, frameworks fit for achieving their own proceeding with change.

The Internet and its applications in schooling and industry have essentially impacted how we educate and learn. This has all happened as an outcome of arising technologies and the requests for online guidance by purchasers. Amidst this environment of quick development, another type of instructional method has arisen called e-learning. The expression "e" is an abbreviation includes to electronic. Electronic is any hardware or interconnected system or subsystem of equipment that is utilised in the creation, transformation, or duplication of information or information. That is, any hardware or interconnected framework or subsystem of gear that is utilised in the programmed obtaining, capacity, control, management, development, control, exchanging, trade, transmission, or gathering of information or information. The term electronic incorporates, however is not restricted to, computer equipment and programming, working frameworks, online information and applications, phones and different broadcast communications items, video equipment and mixed media items, information booths, World Wide Internet destinations, sight and sound, and so forth.

Sun, Tsai, Finger, Chen, and Yeh (2008) characterize e-learning as the utilisation of media transmission technology to convey information for instruction and education". Wan, Wang, and Haggerty (2008) likewise characterize it in a more detailed way as 'a virtual learning environment where a student's collaborations with materials, companions and teachers are intervened through information and communication technologies'. The two definitions cover significant parts of e-learning, similar to ''delivery of information for education" and ''collaborations through technology". As indicated by Hrastinski, (2008) e-learning ought to be characterized basically as learning and showing encouraged online through organization advancements.

The COVID-19 pandemic outbreak has brought about schools, universities and colleges closure across the world. This has influenced in excess of 91% of students universally with more than 1.2 billion kids out of the homeroom and 186 nations influenced by the closure of schools as of 29th Apr 2020 (Li & Lalani, 2020). This circumstance has brought about an adjustment in education around the world. Schools and colleges around the globe have depended on internet based learning (otherwise called e-learning, distance learning or virtual learning) as a methods for containing and halting the spread of the COVID-19 infection (Toquero, 2020). Henceforth, there has been fast redevelopment of schools' educational plan for internet learning and the reception of internet based learning programming and stages by various schools, universities and colleges over the world (Crawford, et al., 2020; Sahu, 2020).

The change to internet based learning by schools, universities and colleges have gotten impressive consideration albeit internet based learning is definitely not another thing. Researchers have brought up issues concerning the readiness of schools, universities and colleges' progress to internet based learning (Houlden & Veletsianos, 2020; Li & Lalani, 2020; OECD, 2020b). The accessibility and limit of schools' current technology, framework and assets to encourage internet learning have likewise been addressed (Lee, 2020). In any case, numerous colleges in developed nations have had the option to change effectively (Wu, 2020; Belle, 2020). Unavoidably, there are a few challenges, for example, students' access to internet connection and computers at home to use for their internet learning. The Organization for Economic Cooperation and Development [OECD], (2020a) information uncovered that in Colombia just 34% of students approach a computer for online investigations at home. The information from OECD (2020a) added that in certain homes, students share a gadget with different kin;

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this hinders a considerable lot of such students in following their exercises on the internet. Additionally, Basilaia and Kvavadze, (2020) found that in Georgia, the entire online instruction might be adversely affected in light of the fact that under half of families in rustic zones approach computers. On the African landmass, the change from face-to-face teaching learning and internet based teaching and learning because of the closure of schools is not that basic as just 24% of the populace approaches internet combined with helpless availability, significant expense of internet bundle and intermittent power interruptions (Tamrat & Teferra, 2020). In addition to these difficulties are infrastructural limitations, shortage of resources and inadequate accessibility of internet based learning content (Association for the Development of Education in Africa [ADEA], 2020). Notwithstanding these difficulties, some African governments have set up measures to guarantee the congruity of teaching and learning. For example, Senegal, Morocco, Kenya, Rwanda and Cote d'Ivoire have founded public internet based learning portals, platforms and broadcasting of course modules on internet platforms for students at various levels to guarantee that academic work persistent (ADEA, 2020).

2.2.1 Traditional versus Online Learning

Lockee, Moore, and Burton (2001) accept that there is no huge distinction that exists between conventional learning and distant technology learning that does not warrant them as similarly good or bad. The incredible bit of leeway of using technology in educating and learning is that it expands adaptability where both instructing and learning can happen whenever and anyplace (Liaw, 2008). Jasperson, Carter, and Zmud (2005) guarantee that the use of another technology is fundamental to implementation achievement and its long term use will yield a long term advantage from interest in e-learning technology.

Bhat (2001) also stresses that the achievement of a technology relies upon its continuance use. Different analysts likewise upheld the possibility of continuation utilisation of a technology being a critical predecessor in e-learning (Roca & Gagné, 2008). Be that as it may, educators' absence of readiness to use e-learning past the underlying reception may prompt the underutilisation by students which could diminish learning result (Albirini, 2006; Mahdizadeh et al., 2008). US National Library of Medicine (2004), states that technology, which is comprehensively characterized as the use of scientific information (including tools, techniques, products, processes, and methods) to practical undertakings (is universal in most cultural settings inside the United States and most other industrialized nations). The utilization of technology has become a basic segment of education, work, communication, and amusement.

2.2.2 The Utilization of Technology in Education

The internet is presently pervasive and with internet entrance rates going between as low as 5.6% in Africa and up to 74.4% in North America (Internet World Stats, 2009). Any organisation that does not grasp this technology will be truly is advantaged. Truly, not just the internet that is picking up fame in instruction around the world, a wide range of ICTs, for example, versatile advancements are likewise setting up vigorous momentum in a similar field.

Technology is making a society progressively interconnected in what many have come to call the "connected Age". About 10 years back, access to technology was restricted and wiring schools was one of the most noteworthy education needs (Hitlin & Rainie, 2005) For an age of youngsters, technology, especially the internet, has expected a significant stake in their social and academic lives (Lenhart, Rainie & Lewis 2002).

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Casonato and Morello, (2002) and Morello (2003) asserted that people seek after their own task and should join specialized abilities with a scholarly tool kit enhanced with costly jobs, group building, and information. ICT proficiency reflects the requirement for the students to create learning aptitudes and empower them to think basically, communicate, analyse information, work together, and solve problems, and the basic job that technology plays in understanding these learning abilities in the present information based society (Kay & Honey, 2005).

Students can gain from computers where technology used basically as tutors and serves to expand students' essential abilities and information; and can learn with computers where technology is used as a device that can be applied to an assortment of objectives in the learning process and can fill in as an asset to help create higher order thinking, imagination and exploration aptitudes (Ringstaff & Kelly, 2002).

New improvements in the internet give people different chances of customizing the tools and services, and performing self-coordinated learning in an open and social setting with their own learning surroundings (Klamma, et al., 2007). Students can independently consolidate different tools, material-and human resources into individual learning conditions and enter with their own environments to different learning exercises and courses (Pata &Väljataga, 2007; Fiedler and Pata, 2009). New post-modern associations will be disaggregated (Snyder, 2006) and not based on monolithic industrial knowledge-management systems. Fast improvements in economy and social circle will broadly depend on configuration orientated, information-rich small inventive organisations that work in another adaptable method of creating social products and ventures, and drive the innovation (Fasche, 2006). The quickly changing business and

social conditions require the development of continually learning and innovative, free, capable and self-sufficient individuals. With the expanded utilisation of social instruments in learning and work measures, social forming of these devices will turn out to be more equitable and dependent of individuals (Burns & Light, 2007).
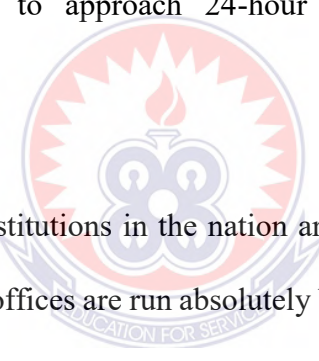
Colleges have received technology in their learning environment through which a scope of instructive and authoritative devices are offered for college educating and learning (Coates, James & Baldwin, 2005). Technology has made the world a genuinely global community, where students' preparation for this global community and technology has a basic piece of its center. A technology rich education empowers students to connect social and topographical distances around explicit assignments, ventures, information get-together and relationship building. It makes all subjects more important to students and all the more satisfactorily sets them up for the world wherein they will live and work.
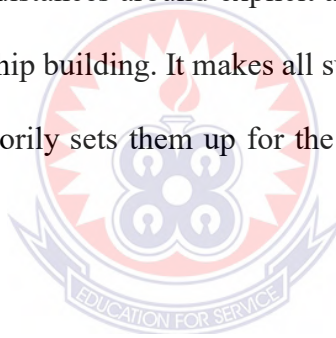
Access information has been made conceivable by technology, effectively to instructors and students and offered occasions to work with an uncommon exhibit of valid materials and state-of-the-art information that would not in any case discover their way into homerooms. Information access in a real sense gives all schools irrespective of their geography or economy, the possibility to have libraries of unparalleled collections and connections with the very materials that colleges have (Honey et.al., 1996). Teachers can individualize exercises by incorporating technology into their educational plan and customise it to the requirements of individual students to accomplish their latent capacity.

2.2.3 E-learning in Ghana

In spite of the fact that technology has empowered online education in numerous nations, the circumstance is virtually not equivalent in Ghana. The Ghanaian tertiary instruction area is the most exceptional in the organisation and utilisation of ICT in the nation. Colleges in Ghana have gained some ground in building net-working system with securing of computers, however the integration of the technology into the educating and learning measure has been a test. This has made the instructional delivery being teacher driven with a restricted or nonattendance of electronic collaboration among students and instructors. All the nation's significant state funded colleges have their own different ICT strategy, which incorporates an ICT demand for students. This could empower students to approach 24-hour computer labs with broadband connection.

Anyway not all tertiary institutions in the nation are similarly supplied and there are cases where the computer offices are run absolutely by the private sector as cyber cafes nearby. Colleges in Ghana think that it is extremely hard to keep up their ICT foundation because of the quantum of assets (human and money related) needed for the upkeep of the offices. Localised trials and pilot tasks to abuse Information and Communication Technologies (ICTs) for instructive purposes in Ghana have been occurring for a long time, especially at tertiary level. In any case, there has been a long growth period for the advancement of a public approach in this field. In spite of being distinguished as a critical objective in the Ghana Poverty Reduction Strategy Paper, in the Education Sector Strategic Plan for 2003-2015 (Ministry of Education, Youth and Sports, 2003) and in the ICTs for Accelerated Development Policy Ministry of Education, Youth and Sports, 2003, pp. 24 and 37-39), an arrangement record on ICTs

in Education was in the end settled in November 2008 and distributed the next January. The arrangement distinguishes seven key topical territories that must be tended to using the accessible technologies throughout the education system.

Nonetheless, an examination did in the interest of InfoDev and the World Bank (Mangesi, 2007, pp. Ghana-8) portrayed the condition of improvement in 2007. As indicated by this examination, various factors were found to suppress the widespread utilisation of new technologies learning which includes the following:

- Access to ICTs in schools is lacking and uneven, with urban predisposition.

- There is an absence of capacity to utilise the available technology, as most instructors do not have satisfactory skills.

- Collaboration between the Ministry of Education, the Ghana Education Service and other organisations for implementations should be improved.

- The private sector should be involved as a potential accomplice in giving the vital infrastructure.

Additionally, a study by the International Telecommunication Union (2007, pp. 91 and 93) uncovered that "only 38 out of every 1000 Ghanaians use the Internet, while as few as one in every thousand has a broadband subscription." This factor excessively influences those with lower earnings who normally form majority of public school students.

As the costs of hardware and Internet connectivity decline, the number of families equipped for getting to online resources is probably going to increase. Be that as it may, for the present, it is important to strengthen public school students in Ghana with a scope of elective alternatives for getting to and using learning content.

Distance schooling is not new to Ghana. In the colonial period, numerous specialists and experts overhauled their capabilities through communication courses, however the expense of partaking in such projects was frequently restrictive. This custom of Distance education was restored during the 1980s to serve public labour improvement needs, including activities, for example, the Modular Teacher Education Program through which more than 7,500 unqualified teachers had the option to acquire certificates. During the mid-1990s, the Ministry of Education supported various researches to investigate the potential for Distance schooling in Ghana and assess educational requirements. Emerging from these, four openly financed colleges consented to build up a set number of courses for delivery through the Distance education mode. Nonetheless, as a result of subsidizing limitations, it was distinctly in 1996 that the University of Education, Winneba (UEW) started offering a Bachelor of Education degree program through its Institute for Educational Development and Extension. The University of Cape Coast and the University of Ghana took action accordingly by dispatching Distance education programs in the 2001/02 scholarly year (Mallet, 2005, pp. 1-2). A research by Harve (2003) on the progresses in Information and Communication Technologies (ICTs) by way of improved computer power, quicker rates of data transfer and orderly bringing down of costs, combined with the fact that the viable combination of these technologies into the educational plans has been shown to effectively affected students' learning. Technology empowered guidance, particularly internet based learning, has arisen as the most possible and financially solid methods for growing access to quality advanced education. Internet based learning is accordingly being quickly received by institutions worldwide as a strengthening method of schooling delivery, and in reality, has been proclaimed as the next democratizing power in education, especially in advanced education (Jones, 1997).

In Ghana however, and Sub-Saharan Africa, the pace of internet access and use is basically low, it is assessed that every 1 out of 250 individuals approach the Internet as against the worldwide normal of 1 of every 15 (UNESCO Institute for Statistics, 2007). Internet based learning in advanced education represents an extraordinary test as this method of delivery depends exclusively on the accessible information and communication technology infrastructure. There is an incredible test of collapsing infrastructure, brain drain and waning monetary assets, while under expanding strain to provide food for bigger student populaces (Saint, 1999), and overburdened instructing, learning, and residential facilities notwithstanding financial weights to make schooling available to all (Awidi, 2008).

Because of the technology limitations in the advanced education, Ghana is more acquainted with the conventional lecture method of instruction delivery, while the presence computerized content that is lined up with educational program systems is known to be restricted in Africa (Farrell, Isaacs & Trucano, 2007a).

2.3 Theoretical Framework

There are a couple of speculations that explain the usage and appointment of development in establishments. These fuse the development affirmation model, the bound together speculation of affirmation and use of advancement, the scattering of information theory, the speculation of orchestrated direct or the united speculation of usage, affirmation of advancement, the Rogers Model and the protection motivation theory. This examination embraced the theory of Diffusion of Technology Theory proposed by Everett Rogers (1995) and the Technology Acceptance Model by Fred Davis and Richard Bagozzi (1989).

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2.3.1 Diffusion of Technology Theory

The Diffusion of Innovation hypothesis is ascribed to Everett Rogers, who propounded the hypothesis to clarify the take-up of development by and large (and innovation specifically) by people and institutions (Tagoe, 2013). Rogers (1995, p. 5) characterizes advancement as "a thought, practice, or item that is seen as new by an individual or another unit of appropriation" and dispersion as "the process by which a development is conveyed through specific channels after some time among the individuals from a social framework". Accordingly, the Innovation Diffusion Theory contends, "potential clients settle on choices to embrace or reject a development dependent on convictions that they structure about the advancement" (Agarwal, 2000, refered to in Lee, Hsieh and Hsu, 2011, p. 9). Subsequently, individual and institutions' appropriation of innovation depends on development choice model, which Roger (2003) characterized as "the process through which an individual or any dynamic unit passes from increasing beginning information on an advancement, to shaping a mentality toward the advancement, to settling on choice to embrace or reject, to execution of the novel thought and to the affirmation of this choice" (Shea, McDall & Ozdogru, 2006; refered to in Tagoe, 2013, p. 58).

As per Rogers (2003) the development choice, as outlined above, lists the means people or organizations take in their appropriation of advancements. It begins from staying alert or knowing about the advancement, to framing mentalities about the development, which in the end prompts a choice whether to receive or dismiss. After a choice is reached, the individual/organization at that point actualizes the choice and affirms it. In any case, the author noticed that the familiarity with the development could be encouraged by specific qualities of the individual, for example, financial status, character type and communication conduct. Essentially, the influence or the demeanor

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arrangement stage is affected by five factors – relative preferred position, similarity, perceptibility, trialibility and intricacy of the development. Different author have supported Rogers' contention, through their experimental discoveries, that these components decide the probable of selection rate (Bates, Manuel and Oppendheim, 2007; Tagoe, 2013). Robinson (2009) and Tagoe (2013) depict the factors as follows:

Relative Advantage: According to Robinson (2009), the degree to which a development is seen to be superior to the current one, the faster is it liable to be received. Henceforth, e-learning usage in Ghana has the general preferred position to the manual or conventional framework where the undertakings of clinics and facilities are overseen through manual methods. This may, along these lines, support health directors and experts in receiving the e-learning idea.

Compatibility: This is how much an advancement is seen as being predictable with the qualities, past encounters, and needs of expected adopters (Tagoe, 2013). This, at that point, recommends that a thought that is consistent with ones' qualities, standards or practices has more prominent odds of being received after its usage.

Observability: Robinson (2009) recommends that, the more people, groups or foundations can vision or depict an advancement; the more probable they are to receive it. For example, appropriation of e-learning by health experts may appear to be all the more encouraging in contrast with reception by the conventional Ghanaians since they may have not experienced how accommodating or gainful the advancement might be. It is, consequently, recommended that health experts handle actualizing e-learning innovation in different hospitals and centers and champion its course among others to upgrade its selection.

Trialibility: According to Rogers (2003), trialibility speaks to the degree to which an advancement could be tested inside a more limited time period. Subsequently, an advancement that is offense inside a brief period presents less vulnerability to the individual thinking about it and thusly, probability for its reception increments.

Complexity: This is how much a development is seen as hard to comprehend and utilize (Tagoe, 2013). This infers that novel thoughts that are less difficult to comprehend are quickly received than advancements that require the adopter to grow new aptitudes and understandings. It is, along these lines, proposed that e-learning innovation be evaluated for its relative preferred position, similarity, perceptibility, trialibility and intricacy for its simple selection among Ghanaians and long haul supportability.

2.3.2 The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is an information system hypothesis created by Davis (1989). The model surveys how clients come to acknowledge and utilize innovation. The model holds that various elements decide the choice about how and when to utilize new innovation, with the striking ones being seen handiness and Perceived convenience. While saw helpfulness speaks to how much an individual accepts that utilizing a specific framework would improve their occupation execution, the apparent usability speaks to how much an individual accepts that utilizing a specific framework will require less exertion (Davis, 1989). These are anyway affected strongly by perspectives toward the innovation being presented, the social aim to utilize such and its genuine use.

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Cap has been condemned by Chuttur (2009) as having faulty heuristic worth, restricted logical and prescient force, technicality, and absence of any reasonable worth. These reactions prompted a later adjustment of the hypothesis into the new Unified Theory of Acceptance and Use of Technology (UTAUT) model.

2.4 Empirical Review

2.4.1 Effectiveness of e-learning in the Colleges of Education

A few efficient surveys and meta-studies on the effectiveness of e-Learning are considered inside the setting of medical care or language learning. These surveys essentially incorporate quantitative examinations dependent on specific standards, for example, sample size (Veneri, 2011), statistical information transparency (Grgurovic, Chapelle & Shelley, 2013; Means et al, 2013) or homogeneity of the respondents and predefined result measures (Rosenberg, Grad and Matear, 2003). Just a single significant meta-review, which included both qualitative and quantitative investigations for an integrative review, assessing the result of distance learning for nursing instruction, was discovered (Patterson, Krouse & Roy, 2012).

Inspiration to learn and draw in with the e-Learning arrangement is critical to effectiveness, particularly when effectiveness is characterized as the time spent using the item. 'Results suggest the importance of motivation to learn and workload in determining aggregate time spent in e-learning courses' (Brown, 2005, p. 465). In any case, when tasks are characterized as 'blended e-Learning', time spent may not generally be a decent pointer of whether learning occurred: "beyond the impact of extrinsic-related perceptions, social and personal motivations are important drivers of discussion forum usage in an e-learning context. It is concluded that even for adult learners, social interaction with instructors and collaborative interaction with peer

students are important in enhancing learning and active participation in online discussion" (Jung et al, 2002: 153). Accordingly as in conventional learning, inspiration is not just founded on singular variables.

For the e-Learning arrangement and process, the key elements are 'interaction' and 'practice'. The significance of these elements was resolved because of the coding of the elements that impact viability just as the codes including the reasons that e-Learning was or was not successful. Interrelated elements, for example, 'instructional platform', 'demonstrating' and 'support ', were consolidated into a solitary factor, 'connection'. Despite the fact that e-Learning is frequently viewed as similarly or more compelling than up close and personal learning, collaboration is commonly viewed as basic to the effectiveness of e-Learning. Students usually value the interaction with the tutor as a significant factor in internet learning. New students had a superior achievement rate in teacher-led online courses than in individual-study online courses. Matured students need demonstrating and framework to be effective in an online environment (Jiang, Parent & Eastmond, 2006). Different studies have indicated evidence from studies across the world for example, '…the supported training group had a significantly higher program completion rate than the independent group' (Bennett-Levy et al, 2012); and 'Results indicate teachers attributed improved student learning to technology use; online communication with peers and experts reduced teacher isolation, enhanced professional practice and gave access to perspectives and experiences otherwise unavailable; but the additional workload discouraged several teachers. The last related article likewise addresses the contextual factors as it underscores the need to consider both the time accessible to the students and the normal remaining workload of the e-Learning (Noesgaard, 2014).

E-learning and internet based learning have been demonstrated to show various expected preferences over numerous conventional strategies for learning. It is more affordable and quicker to convey, gives great opportunities from anyplace and whenever, promotes self-efficacy, and gives students more command over their learning measures, (Cantoni et al., 2004; Smith & Rupp, 2004).

As indicated by the 2004 "Teacher Talk Tech" overview led by CDW Government, Inc., a main supplier of technology to governments and instructors in the USA, 81% of educators revealed that information technology in schooling builds the academic performance of students. Majority of the instructors said that information technology is an important teaching tool for all core scholarly skills.

A study by Rother (2004) concluded that just 15% of the respondents nonetheless, demonstrated that the nature of accessible programming for students' learning is "superb", and 52% of them stated, is "poor" or just "OK". Saint (1999, p. 9-11) noticed the developing utilisation of ICT in distance learning in Africa, where Ghana, has officially pronounced a double mode to be national policy.

Morgan (2001) in reference to Fortune Magazine's assessment in May 2000 indicated that internet based learning business sector will reach US $22 billion by 2003. These figures appear to propose a splendid market for e-learning. The interest and utilisation of options in the typical classroom setting has been continuous for over a long time from communication courses in paper structure through video and computer access (Young, 2003). Improving the appropriation of e-learning in the colleges would encourage educating and learning in the colleges. E-learning is basically the computer

and network-enabled transfer of abilities and information. The applications and process include Internet-based learning, classroom opportunities, computer based learning and advanced cooperation. Content is conveyed by means of the Internet, sound or video tape, satellite TV, intranet/extranet and CD ROM. It very well may act self-paced or instructor-led and incorporates media as text, picture, animation, real time video and sound. Remenyi et al. (1997) defined flexible learning in terms of its flexible "entry, course components, modes of learning and point of exit', which offer the learner 'control and choice regarding the content, sequence, time, place and method of learning, including flexible assessment."

While e-learning might be viewed as a type of flexible and distance learning, not all flexible and distance learning, fundamentally includes e-learning (Rosenberg, 2001). With the current advances in Information and Communication Technologies (ICTs) by method of improved computer power, quicker information move rates, and orderly bringing down of costs, combined with the way that the compelling incorporation of these technologies into instructive educational programs has been exhibited to effectively affect students' learning (Harvey, 2003), technology empowered guidance, particularly internet based learning, has arisen as the most doable and financially stable methods for extending access to quality advanced education. Internet based learning is along these lines being quickly embraced by educational institutions worldwide as an order or reciprocal method of schooling delivery, and surely has been proclaimed as the following democratizing power in education, especially in advanced education (Jones, 1997). Nonetheless, Ghanaian colleges have not yet completely built up the utilization of E-learning among employees and students, comparable to educating and learning.

2.4.2 Challenges faced by students during e-learning lessons

According to Dearnley (2003), one disadvantage of e-learning is that students must approach a computer just as the Internet. They need to have computer aptitudes with programs, for example, Internet browsers, email and word processing. Without these aptitudes or capacity and software it is not likely for the student to prevail in e-learning. E-students must be truly open to using a computer. Out-dated computers or Internet connections that are slow may make access to course materials troublesome. This may make the students get debilitate and surrender. Another trouble of e-learning is the management of computer documents and internet learning software. For students with apprentice level computer skills it can in some cases appear to be mind boggling to keep their computer records coordinated. Without great computer skills to organise files, students may lose reports making them lag in submitting tasks. A portion of the students additionally may experience difficulty introducing software that is needed for the class. E-learning additionally requires the same amount of time for going to class and finishing tasks as any conventional classroom course. This implies that students must be profoundly energetic and capable on the grounds that all the work they do is all alone. Students with low inspiration or bad study behaviours may fall behind. Another downside of e-learning is that without the normal structures of a conventional class, students may get lost or confounded about course exercises and deadlines making the student fail or do badly. Also, students may feel distant or disengaged from the instructor. Guidelines are not generally accessible to support the student so students need to have control to work autonomously without the help of the tutor or any other person (Khan, 2005). E-learners likewise need to have great communication and writing abilities. At the case when tutors and students are not meeting face-to-face, it is conceivable to misinterpret what was implied.

Wong (2008) recommends that E-learning challenges are found in three essential areas which comprise of personal issues, technological and functional related limitations. Kathawala et al., (2003) show that the technological constraints comprise of absence of equipment, restricted internet infrastructure and low bandwidth. Dearnley (2003) clarifies that personal issues include the absence of skills in technology to encourage or enable the process of learning. Wong (2008) prompts that E-instructors ought to have the option to offer guidance to new E-students to improve their confidence to use E-learning facilities adequately. Rivera and Rice (2002) recommends that the independent nature of E-learning could be a type of hindrance since E-learners are required to be self-motivators and also self-discipline as to finish their tasks or schoolwork on schedule. Smith and Rupp (2004) likewise show that since E-learning is text based, E-students are needed to be fit in communications similarly as having bad writing aptitudes might be a weakness to impart appropriately. Wong (2008) in this manner contends that the absence of conveying proficiently may bring about misconception during E-learning exercises, for example, chats and discussion forum. This implies that E-students ought to have the option to acquire the required skills to have the option to work inside the E-learning environment.

Boondao et al., (2008) underscore unequivocally that it is important to recognize the impact of culture inside the E-learning environment. Khan (2005) proposes that the impact of culture cannot be disregarded because of the way that E-students from various parts of the world may show distinctive learning patterns. Boondao et al., (2008) accordingly clarifies that the powerlessness to recognize social concerns might be a significant obstruction to the fruitful execution of the E-learning system.

Wong (2008) proposes that a portion of the technological hindrances to effective E-learning experience might be identified with network, and absence of essential technological knowhow. Mungania (2003) clarifies that absence of technological abilities could bring about the loss of information, failure to spare or move information which could be baffling to the E-student. Khan (2005) demonstrates that the appearance and usefulness of the web page ought to be easy to explore for information. Wong (2008) clarifies that flexible user friendly interface have the ability to attract E-students while then again poor user interface may distract which could bring about E-students losing interest. This implies that the planning of the E-learning interface could add to the achievement or disappointment of the E-learning experience.

2.4.3 Challenges faced by tutors in delivering e-lessons

Salmon (2000) demonstrates that the impact and function of an e-educator is one of the vital segments required for the e-learning experience to occur. Along these lines one may advocate that the expanding prominence of e-learning has directed the re-appraisal of the part of the instructor inside e-learning environment (Walters-Coppola et al., 2002). Wallhaus (2000) set forward that one of the most remarkable distinction between e-learning and the traditional method of learning is that physical attendance is not fundamental. Williams (2002) goes further to clarify that while traditional method of learning is predetermined by the time constrains inside the institution, e-students settles on their choice with respect to an time to study dependent on their timetable and necessities. Likewise Walters-Coppola et al., (2002) gives more consideration to the way that the conventional educator can practice both verbal and non-verbal methods for communication while e-learning depends on the composed verbal type of communication. In these circumstances, the function of e-learning educator turns out to

be exceptionally basic to the achievement of any type of computer interceded communication (Williams, 2002).

2.4.3.1 Learning Style and Cultural Challenges

Everybody has their own learning style alongside their cultural impacts; the ones who are taught using their own learning style considering the aspect of their culture will perform better academically (Sywelem et al., 2012). To accomplish the best learning result it is attractive to have a comprehension of students' learning styles. Online students' learning styles can be unclear and this has some implication on how tutors develop learning material. A few students learn through associating, some favour learning through visual introduction, and some by listening to instructions and using composed notes. This test has implications on the learning results and represents a significant issue for tutors to really understand the learning styles of their students in an e-learning environment.
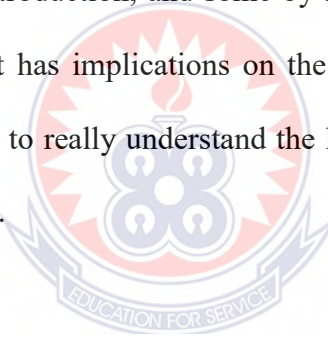
There are different teaching styles; outstanding methodologies are facilitative, didactic, and socratic and the experimental method (Banning, 2005). The didactic is the traditional strategy which mainly includes lecturing and it is a lot of educator focused where learning is included fundamentally through note taking and listening to instructors. Traditional techniques for instructing keep on using the lecture as a method for educating and an economical one where one academic can spread information to enormous crowd (Walkin, 2000). Didatic can mean full obligation of teaching on tutors as it is firmly instructor focused; the educator is the knowledge expert and all the knowledge and learning articles streams from the instructor.

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The facilitative learning moves from the solid educator focused learning what exactly is known as self-coordinated realising, where the cademic uses different techniques by recognizing students past experience and learning styles to urge learners to become autonomous students. To be an academic that is competent to be a facilitator they must have certainty, be skillful in their knowledge base, be empathic to students' needs and individual learning style and authoritative.

The Socratic strategy is vigorously learner orientated learning so students can think freely and different systems can be used by tutors, for example, tests, discussion, strong group work sessions with strong emphases on communicating with peers, self-assessment and research for the purposes of enabling student develop into critical thinkers. However, not all students may be able to arrive at this situation of critical thinking without appropriate guidance, nurturing and encouraging. The effort and time spent nurturing students can be huge (Banning, 2005).
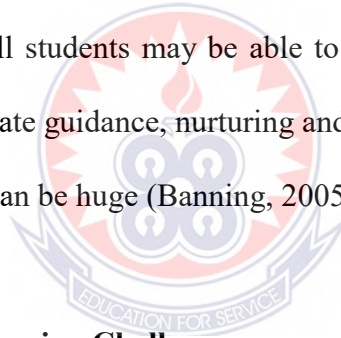
2.4.3.2 Pedagogical E-learning Challenges

Pedagogy method is about empowering the most ideal approach to accomplish learning (Teo, 2006); in the event that this method is not considered, the ideal learning result will not be accomplished. Fruitful instructional method requires the educator to see how students learn then develop and convey course materials, and mentor students suitably, so information and abilities are passed on. By this, e-learning will create the degree of profitability. Teaching method should be the foundation to any e-learning technology; without principals of academic, learning will be hampered.

E-learning requires an alternate way to deal with instructional method particularly in areas, for example, individual and group communication and online appraisal. However, these abilities are not new to all, distance schooling has been around for quite a long time using TV, postal service and telephone. As e-learning is presently broadens, tutors who are not prepared actually to deal with improvements of materials and delivering internet modules are hampering progress, and they require broad skills development (Ellis, O' Reilly & Debreceny, 1998).

Nonetheless, not exclusively are the specialized abilities an issue but content ought to be designed appropriately for online learning; it is not just about "dumping large amounts of text onto a website" as this is inefficient" (Leask, 2004: p.347). With the goal for tutors to successfully make the progress to become online educators they have to accomplish something other than grow new ICT skills; it should be teaching method based (Morley, 2010).
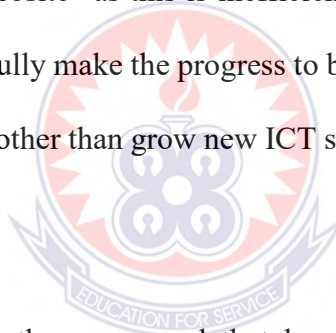
Some researchers also further expressed that learning different pedagogical online methodologies by educators is not adequate in an internet based learning environment, it ought to incorporate tutors effectively interpreting online written text of students, understanding group dynamics with the needs of the individual. This will at that point make internet based learning more effective (Turvey, 2008; Loveless, 2011). Having a well-planned course that is pedagogically focused, and tutors understanding the various procedures of internet based learning with the understating of diversity, group dynamics and context, is not sufficient, all require the organization management marketing the educational advantages of internet based learning with education models that tutors can identify with so they are urged to use the e-learning technology (Jackson & Fearon, 2013).

2.4.3.3 Technological Challenges

Technological challenges are issues concerning development, for example, the speed, the bugs, the mistakes, features and functions not accurately working or do not work as per what tutors require. In e-learning literature review, there are different reactions of the nature of the e-learning systems as of now being used. Issues have been raised that include: convenience issues, poor performance, organizations being not able to customise as per their prerequisites and in some cases reprimanded for having an instructor focused system as opposed to student focused system (Chua & Dyson, 2004). A study done in Australia discovered Blackboard to be mainstream among educational establishments (Paulson, 2002). However, Blackboard "is limited to its environment" (Farmer, 2004, p. 5), this is alluding to the features of Blackboard limited to its own environment. It does not permit conversation, notices, updates and different other informing within blogs and topics from various sellers, and it does not permit discussions forums to be directed to the personal e-mail of the students which is a weakness to learners engagement. This restricts the tutors and students to a specific environment regardless of whether they are inexperienced with it or do not care for it. Technical help to tutors is deficient in contrast with the craving of learning achievement and the significant utilisation of e-learning technology. "The great desire is met with insufficient investment in infrastructure and technological assistance" (Reeder et al., 2004, p. 91-92). Institutions have an assortment of utilisations and computer working systems for different uses, for example, the registration system for students, and application support for reasearch, for example SPSS. Every one of these applications must be blended and connected within one e-learning environment to make it available and empower focal help; be that as it may, this requires the combining and connecting of different applications. This creates increased network traffic to help the centralised

system, subsequently it ought to be strong and have enough limit and capacity to deal with the academic communication of students. This is a mind boggling measure particularly where old and new applications meet, and is a difficult process affecting tutors who need to utilise the system (Nielsen et al., 2011).

Technical errors, slowness and bugs are critical if tutors are to utilise the system and is basic to the achievement of the e-learning technology, in the event that the system does not work accurately, at that point the technology will not be used and pessimism will emerge in using e-learning technology, which has a major repercussion for institutions as they have contributed enormously so the technology ought to be used successfully for the return in investment.

2.4.3.4 Technical Training Challenges

Training challenge includes to the training necessity that will empower tutors to get familiar with the e-learning highlights and capacities accurately and to utilize them adequately. In looking into e-learning writing, there are different reactions of helpless education gave by organizations to tutors. There have been issues that incorporate inadequate training, insufficient training and training styles being used that do not fit tutors individual inclinations, absence of hands on education, and furthermore how to make materials agreeing the instructive prerequisite was absent from the training situation.

Volery and Lord (2000) clarify the three necessities required for powerful e-learning achievement as Technology, Instructor attributes and Student attributes. Technology needs to improve; notwithstanding, the educator's qualities and knowledge of technology are generally significant as far as having an effective learning experience.

Educators who are persuaded and have an empowering demeanour towards the e-learning technology will empower a positive learning result. Volery and Lord (2000, p. 218) state that it is "significant that the teacher has great control of technology and can perform fundamental investigating undertakings (for example adding a student finally, adjusting student's secret phrase, changing course settings)".

Volery and Lord (2000) additionally express that the educator must be able to propel students, show sympathy, resolve crisis issues and react to messages quickly. An inspirational demeanour to e-learning relies upon how sure they feel about the technology; in the event that one of the necessities is the capacity to investigate essential issues in the e-learning framework, at that point tutors would possibly not feel sure as they are not prepared to investigate, nor change passwords or course settings quit worrying about purpose crisis technical issues.

Student attributes, for example, motivation, intelligence and computer abilities are pivotal to the achievement of internet learning. It is no possible that all students will get into college with computer experience as students might be beginners or middle at using computers (Smith & Morris, 2003). Salmon (2000) argued that educators do not have adequate education to make them effective and beneficial to online students. Gerrard (2002) states the need of tutors is perceived as technological aptitude development, for example, how to make a superior introduction and how to transfer it on e-learning systems instead of learning new e-instructing abilities to improve and help student learning.

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As per Taylor (2002) tutors are just good as long as they can adjust to the new technology; this is a test for most tutors. There is not generally the technical issue but additionally time management, occupied timetables and not everything substance can be introduced well in an e-learning environment. As indicated by Gerrard (2005) two sorts of trainings are needed for online educators. First is in-depth education for the individuals who invest most of their time in teaching by using e-learning technology and the second is a more limited course for educators who will use the technology together with face-to-face learning.

A research by Cornelius and Macdonald (2008) states tutors that teach distance learning programs for the Open University in Scotland, who are not founded nearby, neglect to recognize the requirements of distance learning as far as education and supporting. The Open University is one of the main UK institutions to take distance learning as their core strategy for conveying schooling and if their online support and training is not sufficient to help their instructors, at that point an inquiry can be presented to the condition of all different establishments who have taken up e-learning a lot later than the Open University. Those tutors who took part in the training complained that training was not as they expected; it was a diagram meeting without accentuation on education, it did not give them enough certainty, it was not rousing enough for them to continue learning, instructional courses was gravely arranged with blunders, and it was hurried and not completely practical (Jackson & Fearon, 2013).

2.4.3.5 Time Management Challenges

Tutors that utilise e-learning systems usually face challenges in dealing with their time. As per Reeder (2004) a portion of the "cyber culture values" are portrayed by reach, quick response and speed. In proposals set out by Burd and Buchman (2004), the

prerequisite to be a good online educator is that tutors must visit the conversation page not less than once every day to check whether there is a posting by students. A feasible inquiry is that meeting the discussion board once a day may not be viewed as satisfactory as per digital culture esteems. A few scientists have expressed that tutors ought to consistently keep up a vigorous presence on online conversation board so they control conversation, give answers and criticism so students do not withdraw from the course (Vonderwall et al., 2007; Mayes et al., 2011; Nandi et al., 2012).

A contextual analysis by Mihhailova (2006) intended to discover a portion of the difficulties that teachers who were trailing e-learning technology in an Estonian University face. It focused on ten meetings led with speakers and found that time management was complicated as queries answering or lecture notes preparation took longer than anticipated and there was "no compensation system or clarity in pay for the lecturers" (Mihhailova, 2006: 275). Understanding and improving how tutors can adjust their outstanding task at hand was a critical suggestion of this contextual analysis.

Tutors in the UK are thinking that it is hard to stay up with postings in the discussion forums. "The volume of traffic on the forum affected the time needed to keep up to date" (Cornelius & Macdonald, 2008, p. 52), causing tutors at times to skim over posted messages. They additionally found that different tutors who are steady about checking each posting become specific when traffic increases.

There is a distinction of sentiment whether e-learning diminishes time and exertion of tutors. A portion of the literature states e-learning has mechanized and smoothed out a portion of the managerial assignments making communication simpler and that having

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a central repository to put content is saving time for quality contact (Feldstein & Masson, 2006; Heinrich, Milne & Moore, 2009; Kotzé & Nageland, 2010).

2.4.4 Measures to alleviate the difficulties looked by mentors and students in e-learning

Since technology has become a vital part of lives of people, it gets basic for the educators to be agreeable in its dealing with in schooling system also. The instructors may use them in the instructional materials according to individual differences.

According to Reeder (2004) educators may start using e-learning with the assistance of their associates by and large on a theme with tutoring and sharing experiences practices so they eliminate their fears in handling it. Later they can broaden this education for little subjects in their educating learning measures. Hierarchical and critical thinking aptitudes can be created using technology and honed for use in the work world. Educators may utilise internet resources to join online tutorials for students who need additional assistance, and interface graphic calculators to TV screens. Instructors may practice to become techno-accommodating and be very agreeable in using it. They ought to have the option to utilise it as an improved instructional asset in the comparative way as a pencil or blackboard did in past ages. For instance, they may utilise short video clasps to furnish students with visuals to help explain ideas and carry pertinence to an exercise, go to Internet to show students how to raise social awareness for a specific reason and find out about moral duty by beginning a blog (Mayes et al., 2011). Computer games, regularly observed as interruptions to scholarly investigation, likewise can be used adequately as a learning resource by the educators. Computer games in the study hall are an eager, intelligent way to deal with education. They give

an approach to consolidate 21st century aptitudes and permit students to be dynamic members in the learning process.

Refresher programs should be coordinated occasionally so they become alright with using technology. According to National Policy on ICT in School Education, educators need to partake in determination and basic assessment of advanced substance and assets. They should be urged to build up their own digital resources, imparting them to partners through the digital repositories. All these technical assets can be used in the study halls if the instructors are quiet with them. For this, it is needed to give adequate direction to the instructors for using them. From that point onward, it is essential to arrange supplemental classes occasionally in which more prominent accentuation is given on the hands on experience for the instructors (Mayes et al., 2011).

Educators should build up a positive demeanour towards ICT and be intrigued themselves with regards to its learning. They ought not accept it as an obstruction to their vocation rather thinks it as an innovative teaching asset in their study halls (Cornelius & Macdonald, 2008). Additionally, educator discussion forums could be made for talking about the sort of utilisation of ICT in their separate classes and gain from one another simultaneously. Coaching may likewise be useful in increasing advanced aptitudes. Instructor may frame one of the educators themselves as coach who is capable in computers or if that is absurd, tutor from outside school as master in technology proficiency might be selected in schools who can give standard direction to the instructors for being ICT-accommodating (Conrad, 2004).

Projects like International Pedagogical ICT Certification Education Program by NIIT might be made obligatory for all the teachers so they get technological abilities as well as become proficient in dealing with it in their study halls. They may train themselves for computer projects and make a propensity for looking through pertinent information from internet and give references of the destinations so students likewise feel better associated with them and the gap among student and instructor because of technology diminishes (Clark, 2001).

According to Tomei (2006), educators at first may start with presenting mixed learning in their classrooms, that is, a blend of both online and offline learning. This would help in eliminating their fears towards using the cutting edge technology steadily and would make them agreeable simultaneously. Totally internet learning when contrasted with the mixed adapting needs infrastructural prerequisites, nonstop online access, skill and comfortability of the people using it and so on, that may set aside a long effort for implementation.

Numerous famous scholars have declared that if students do not comprehend the manner in which you educate, cause them to comprehend the manner in which they learn. Consequently when the learning is given to the educated students by their own particular manner, learning would turn into an intriguing, connecting with and exciting experience for them (Gustafson & Gibbs, 2010).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the methods used to carry out the study. The chapter is the blueprint of the entire project work. It focused on research design, population, sample size, sampling technique source of data, administration of questionnaires and data analysis procedure.

3.2 Study Design

This study was a descriptive survey design which adopted the quantitative approach. Kothari (2004) defines the descriptive design as a method of collecting information by interviewing or administering a questionnaire to a sample of individuals. The main feature of descriptive survey design is to describe specific characteristics of a large group of persons, objects or institutions, through questionnaires (Kothari, 2004). Besides, the design was also used because of its descriptive nature in order to assist the researcher in collecting data from members of the sample population for the purpose of estimating the population parameters. Due to the purpose of the study and formulation of research questions, the descriptive survey was adopted. This provided the opportunity of gaining in-depth information from a wider number of respondents having to do with e-learning.

3.3 Study Area

The study was conducted at the Nusrat Jahan Ahmadiyya and the McCoy Colleges of Education in Wa in the Upper West Region of Ghana. Nusrat Jahan Ahmadiyya Muslim University College of Education as it is known today was established in 1970 as a Girls'

Academy with its first head, Naeema being a female expatriate from Pakistan. After 12 years, the school became a training college where both males and females were admitted into the College. That was in 1982. In 2012 it became a College of Education. It is on records that Ahmadiyya Muslim Mission was the first Islamic sect (Muslims) to embrace circular education in Ghana. Waala, who were predominantly Muslims had rejected circular education then. At the time of establishing the Girls Secondary School in Wa in 1970, Ahmadi Muslims were a negligible minority Islamic sect in the then Upper Region and then had to face very strong opposition from their brothers, the non-Ahmadis, for establishing it. Since the Muslim community at that time rejected circular education and the Ahmadi population was very small, the numerical strength of the school in the first year was 25 girls. By 1977/8 it became a mixed secondary school admitting both males and females and the population rose to 88 comprising 22 females and 66 males. By 1982 the non- Ahmadi Muslims now saw the need to embrace circular education and that was the time the school became a teacher training college and the population increased to 700 with 103 being females and 593 being males. This increase in population resulted from the hospitable, non-discriminatory, and peaceful nature of the Ahmadiyya Muslim Mission. The school has, as at its inception embraced all religious sects. NJA College of Education was established based on the Mission's mantra/motto thus; 'Humanity First' and the College is living by it. The mantra includes gender and social inclusion. As a result, the college is one of 5 colleges out of 46 national colleges of education that have taken the challenge to train the visually impaired to be teachers.

McCoy College was established in 2014 to train teachers for basic schools in response to a social audit which was conducted by the Catholic Diocese of Wa in 2011 to assess the physical and financial gaps between needs and resources available for local

development in the area of education. The vision of the college is to provide quality Catholic Education for Transformational Leadership. McCoy College of Education is affiliated to University for Development Studies. The current total regular student population is 603.

3.4 Study Population

The study population is the group of individuals or objects from which the sample was taken for measurement (Kombo & Tromp, 2006). The research population for this study consisted of the teacher trainees and tutors of the two colleges of education. There were a total of 1,303 regular teacher trainees in the two colleges of education.

3.5 Sample Size

The sample size for the study was calculated using the relation for a finite population which is defined by Yamane (1973) as Sample size $(Z) = \frac{n(N)}{n + (N-1)}$, where N is the study population and n is the desired sample size. The researcher desired a sample size of 100 due to the difficulties in getting respondents to answer online questions as all students were at home at the time of the study.

Therefore, $Z = \frac{100(1303)}{100 + (1303-1)} = \frac{130300}{100 + 1302} = \frac{130300}{1402} = 92.3$

However, 100 students were recruited for the study. Also, 50 tutors each (100 tutors in all) were conveniently selected from the two institutions and administered with questionnaire to find out the challenges they face in e-lessons delivery.

3.6 Sampling Method

The participants were selected using the snowball sampling procedure. In snowball sampling, one participant is contacted and that participant directs or leads the researcher to another participant (Sadler, Lee, Lim & Fullerton, 2010). In this study the researcher sent the link of the questionnaire to one of the students who in turned sent the link to other students. This procedure was appropriate because due to the COVID-19 pandemic, participants were in their various homes and the only means of contacting them was through other research participants' assistance.

3.7 Data Collection Tools

The research study used a structured questionnaire design in Google form as its main tool for data gathering. The questionnaire consisted of both open-ended and close-ended questions. The open-ended questions gave respondents the choice to determine the level of detail and length of some accounts to enable the researcher to understand their point of view. Conversely, to limit other responses to specific choices while curtailing the risk of misinterpretation, close-ended questions were used. The questionnaire had four sections with Section A consist of the background information of the lecturer. Sections B consist of the effectiveness of e-learning in the Colleges of Education, section C consists of the course outline delivery, course content delivery online of e-learning, section D consists of the challenges faced by students in e-learning and section E consists of the measures to mitigate the challenges faced by tutors and students in e-learning. Separate questionnaire was also designed to collect data from the tutors.

3.8 Pre-testing

The questionnaire was pre-tested among 15 students who were not part of the study to ensure internal validity. The researcher personally administered the questionnaire to the 15 students. These were students of the Tumu College of Education who were also at home due to the closure of schools. Before administering the questionnaire, the 15 respondents were given an evaluation form which covered the principles of clarity, legibility, relevance, anonymity, and privacy to complete. The pre-testing was to ensure the validity and reliability of the questionnaire. Challenges that were encountered with the questionnaire in the pre-test were corrected before the actual study.

3.9 Data Collection Procedure

The questionnaire was designed in Google form and sent to the social media platform (wassup chats) of the students. Upon reaching a participant via social media platform, the participants were briefed about the purpose of the study and his or her consent was sought before he or she is interviewed. The respondents were required to rate the lecturers base on their level of expectation toward the e-learning classroom, the scale range was 1 to 5 points where 5 points is Strongly Agree, 4 points is agree, 3 points is Neutral, 2 points is disagrees and 1point is strongly disagree. Yes and No were inclusive.

3.10 Data Analysis

The Statistical Package for Social Sciences (SPSS) version16.0 was used to analyse the data collected and the results were presented in frequency tables and graphs. The data was exported from Google form into Microsoft Excel and edited. The edited data was then transported into the SPSS for analysis. Quantitative explanations were made with

respect to the quantitative data to give meaning to the data as well as explain their implications and summary description was also used in analyzing the data.

3.11 Ethical Consideration

In order not to infringe on the rights of the participants, all the potential participants were informed that the study was for academic purposes only and that any information given will be treated as confidential. All respondents informed that, no contrary act of any sought will be the consequence from their refusal to participate in the study. The questionnaires for the study were identified by codes and not names of the respondents. The participants were advised to consider their participation or otherwise in the study. There were no rejections from the selected respondents.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis and discussion according to the study objectives.

Frequency distribution and descriptive statistics tables are used to present the results of

the data. Standard deviations and means are used to explain the outcomes of the variables in

the descriptive statistics. Acording to Ali and Bhaskar (2016), the mean is the arithmetic

average of the responses on the scale of 1 to 5. The standard deviation (Std.) indicates how the

data is spread out from the mean. For the purpose of this study, a mean value more than 3

indicates strong agreement and a mean value less than 3 indicate a strong disagreement.

4.2 Results

4.2.1 Socio-demographic Characteristics of Respondents

Table 1: Age of Respondents

Age group	Frequency	Percentage (%)
<18 years	7	7.0
18-25 years	37	37.0
26-30 years	52	52.0
Above 30 years	4	4.0
Total	**100**	**100.0**

Source: Field Survey, 2020

Out of the 100 respondents interviewed, 7% was aged less than 18 years, 37% was aged

18 to 25 years, 52% was aged 26 to 30 years and 4% was aged above 30 years.

Table 2: Sex of Respondents

Sex	Frequency	Percentage (%)
Male	65	65.0
Female	35	35.0
Total	**100**	**100.0**

Source: Field Survey, 2020

Out of the 100 respondents, 65% was males and 35% was females.

Table 3: Class Level

Class level	Frequency	Percentage (%)
level 100	15	15.0
level 200	34	34.0
level 300	49	49.0
Level 400	2	2.0
Total	**100**	**100.0**

Source: Field Survey, 2020

Of the class levels of the 100 respondents, 15% was in level 100, 34% was in level

200, 49% was in level 300 and 2% was in level 400.

Table 4: The platforms that respondents use

Platform	Frequency	Percentage (%)
Zoom	47	47.0
LMS	17	17.0
Telegram	29	29.0
Google meet	7	7.0
Total	**100**	**100.0**

Source: Field Survey, 2020

Of the 100 respondents, 47% use zoom, 17% use LMS, 29% use telegram and 7% use

Google meet.

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4.2.2 Effectiveness of e-learning in Colleges of Education

This sub-section presents the results on the effectiveness of e-learning in the two colleges of education.

Table 5: Descriptive Statistics on the effectiveness of e-learning

	N	Minimum	Maximum	Mean	Std. Deviation
The time allocated for eLearning is enough	100	1.00	5.00	2.4200	1.38666
The nature of accessible programming for students' learning is effective.	100	1.00	5.00	2.8600	1.55713
There is enough demonstration during e-lessons.	100	1.00	5.00	2.9100	1.53145
The learning that occurs during the e-learning session meets the objective of the lessons.	100	1.00	5.00	2.1000	1.56024
There is usually social interaction with instructors and collaborative interaction with peers during e-learning.	100	1.00	5.00	3.2300	1.57541
The time spent using e-learning system is effective.	100	1.00	5.00	2.0500	1.68400
There is self-motivation to learn during e-learning.	100	1.00	5.00	3.1900	1.61867
Valid N (listwise)	100				

Source: Field Survey, 2020

The respondents disagreed that the time allocated for eLearning is enough (mean = 2.42). Also, the respondents disagreed that the nature of accessible programming for students' learning is effective (mean = 2.86). The respondents further disagreed that there is enough demonstration during e-lessons (mean = 2.91). Most of the respondents disagreed that the learning that occurs during the e-learning session meets the objective of the lessons (mean = 2.10). Most of the respondents further agreed that there is usually social interaction with instructors and collaborative interaction with peers during e-

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learning (3.23). Not the least, the respondents agreed that the time spent using e-learning system is effective (mean = 3.05). Finally, the respondents agreed that there is self-motivation to learn during e-learning (mean = 3.19).

4.2.3 Course outline/content/mode of delivery

This sub-section presents the results on the course outline, content and the mode of delivery of e-learning lessons in the two colleges of education.

Table 6: Descriptive Statistics on Course outline/content/mode of delivery

	N	Minimum	Maximum	Mean	Std. Deviation
The course contents are based on the outline provided	100	1.00	5.00	3.8800	1.02770
The course content is covered by the end of the teaching period	100	1.00	5.00	2.9300	1.65910
The Tutors demonstrate knowledge of the subject matter	100	1.00	5.00	4.1000	.79772
The Tutors' delivery are organized and systematic	100	1.00	5.00	3.2800	1.49801
The Tutors are able to communicate what he/she is teaching	100	1.00	5.00	3.2100	1.52617
The Tutors always encourage students to read materials beyond the suggested reading and teaching notes	100	1.00	5.00	4.0600	1.11754
The Tutors always encourage students to read materials beyond the suggested reading and teaching notes	100	1.00	5.00	3.2700	1.55606
Valid N (listwise)	100				

Source: Field Survey, 2020

Most of the respondents agreed that the course contents are based on the outline provided (mean = 3.88). Also, majority of the respondents disagreed that the course content is covered by the end of the teaching period (mean = 2.93). Majority of the

respondents agreed that the tutors demonstrate knowledge of the subject matter (mean = 4.10). Most of the respondents agreed that the Tutors' delivery are organized and systematic (mean = 3.28). Again, most of the respondents agreed that tutors are able to communicate what he/she is teaching (3.21). Not the least, majority of the respondents were agreed that Tutors always encourage students to read materials beyond the suggested reading and teaching notes (mean = 4.06). Finally, most of the respondents agreed that the Tutors always encourage students to read materials beyond the suggested reading and teaching notes (mean = 3.27).

4.2.4 Challenges faced by students during e-learning lessons

This sub-section used descriptive statistics to assess the challenges faced by the students during e-learning lessons. The respondents showed their level of disagreed and agreement on a scale of 1 to 5.
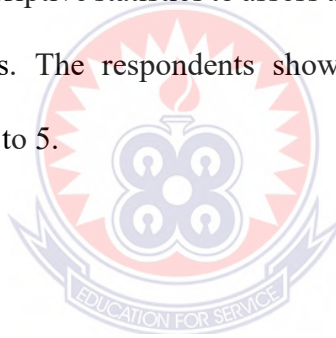
Table 7: Descriptive Statistics on challenges faced by students during e-learning lessons

	N	Minimum	Maximum	Mean	Std. Deviation
Lack of computers, mobile phones, etc, and necessary skills for e-learning programs among most of the students.	100	1.00	5.00	4.4600	.88100
I sometimes get lost or confounded about course exercises and deadlines.	100	2.00	5.00	4.5100	.74529
I sometimes feel distanced from the instructor.	100	1.00	5.00	4.4200	.80629
I lack data to access e-learning.	100	1.00	5.00	4.5800	.63850
The independent nature of E-learning sometimes becomes a challenge when there is no self-motivation.	100	1.00	5.00	4.5700	.74203
TLMs are usually absent during exercises in e-learning.	100	2.00	5.00	4.6600	.57243
Poor Mobile network internet quality to access the e-learning	100	1.00	5.00	4.5000	.82266
Valid N (listwise)	100				

Source: Field Survey, 2020

Majority of the respondents agreed that there is lack of computers, mobile phones, etc, and necessary skills for e-learning programs among most of the students (mean = 4.46). Also, majority of the respondents agreed that they sometimes get lost or confounded about course exercises and deadlines (mean = 4.51). Again, majority of the respondents agreed that they sometimes feel distant or disengaged from the instructor (mean = 4.20). Furthermore, Majority of the respondents agreed that they usually lack data to access e-learning (mean = 4.58). Not the least, majority of the respondents agreed that the independent nature of E-learning sometimes becomes a challenge when there is no self-motivation (mean = 4.57). Again, majority of the respondents agreed that there is usually the absence of teaching and learning materials (TLMs) during exercises in e-learning

(mean = 4.66). Lastly, majority of the respondents agreed that there is usually poor mobile network internet quality to access the e-learning (mean = 4.50).

On other challenges that students face, these are what some students had to say:

"Some of us have to travel to other nearby towns so that we can a stronger network to be able to participate in the e-learning class. Sometimes we don't hear of classes because the time table is not followed regularly by the tutors. They can decide to use any available time and we miss some of the classes." (A level 200 student)

"The challenge I have is that I don't have a smart phone and have to borrow from friends to enable me join classes so when I don't get some, I cannot participate in the lesson." (A level 100 student)

4.2.5 Challenges faced by tutors during e-learning lessons

This sub-section presents the findings on the challenges faced by tutors in e-learning lesson in the two colleges of education.

Table 8: Descriptive Statistics on challenges faced by tutors during e-learning lessons

	N	Min.	Max.	Mean	Std. Deviation
I have enough computers in my college to support e-learning.	101	1.00	5.00	2.8416	1.05577
My college has free internet wifi for e-learning	101	1.00	5.00	3.7228	1.22571
I have a smartphone that supports e-learning	101	1.00	5.00	4.1188	1.01279
I am aware of free e-learning platforms (such as Moodle, Wimba, Adobe Connect, Coursera, Zoom, WhatsApp) that I can use to engage students in learning	101	1.00	5.00	4.1980	1.06789
I use only verbal communication in e-learning and it makes lesson delivery difficult.	101	1.00	5.00	4.3366	.94103
I have technical skills and knowledge such as typing, downloading, uploading, connecting technology tools to the internet needed to use for e- classroom learning.	101	1.00	5.00	3.9505	1.24400
Cheating prevention during an online assessment is complicated	101	1.00	5.00	4.3267	.89564
I always share educational resources with my students through e-learning systems.	101	1.00	5.00	4.1485	.94219
I sometimes feel distanced from the students	101	1.00	5.00	4.2376	1.03100
I sometimes do not have enough data to access the e-learning	101	1.00	5.00	4.3069	.92458
I sometimes find it difficult to see how students learn during e-lessons.	101	1.00	5.00	4.1683	1.08692
I lack the ICT skills needed for e-learning.	101	1.00	5.00	4.0594	1.05662
I can use virtual learning to effectively organize group discussions among students.	101	1.00	5.00	4.1584	1.08381
I lack face-to-face communication	101	1.00	5.00	4.1485	1.01377
I can use e-learning systems to give effective and quick feedback to students	101	1.00	5.00	4.1386	.94900
I can effectively deliver learning materials to my students at anytime and anywhere on the e-learning system.	101	1.00	5.00	4.2079	1.03264
I tend to focus on theory rather than practicals	101	1.00	5.00	4.0693	1.07942
I lack accreditation and quality assurance in online education	101	1.00	5.00	4.2178	.97575
I require strong self-motivation and time management skills for e-learning	101	1.00	5.00	3.9901	1.09083
I use an e-learning system to instantly grade students to encourage them to learn.	101	1.00	5.00	4.1089	1.08537
Valid N (listwise)	101				

Source: Field Survey, 2020

Majority of the tutors disagreed that they have enough computers in their college to support e-learning (mean = 2.841). Also, most of the tutors agreed that their colleges college have free internet wifi for e-learning (mean = 3.723). Majority of the tutors agreed that they have a smartphone that supports e-learning (mean = 4.119). Again, majority of the tutors agreed that they are aware of free e-learning platforms (such as Moodle, Wimba, Adobe Connect, Coursera, Zoom, WhatsApp) that I can use to engage students in learning (mean = 4.198). Again, majority of the tutors agreed that they use only verbal communication in e-learning and it makes lesson delivery difficult (mean = 4.337). Most of the tutors agreed that they have technical skills and knowledge such as typing, downloading, uploading, connecting technology tools to the internet needed to use for e- classroom learning (mean = 3.951). Majority of the tutors agreed that cheating prevention during an online assessment is complicated (4.327). Not the least, most of the tutors agreed that they always share educational resources with their students through e-learning systems (mean = 4.149). Majority of the tutors again agreed that they sometimes feel distanced from the students (mean = 4.238). Majority of the tutors further agreed that they sometimes do not have enough data to access the e-learning (mean = 4.307).

Majority of the tutors agreed that sometimes find it difficult to see how students learn during e-lessons (mean = 4.168). Also, majority of the tutors agreed that they lack the ICT skills needed for e-learning (mean = 4.059). Majority of the tutors agreed that they can use virtual learning to effectively organize group discussions among students (mean = 4.158). Again, majority of the tutors agreed that they lack face-to-face communication (mean = 4.146). Again, majority of the tutors agreed that they can use e-learning systems to give effective and quick feedback to students (mean = 4.139). Majority of

the tutors agreed that they can effectively deliver learning materials to my students at anytime and anywhere on the e-learning system (mean = 4.208). Majority of the tutors agreed that they tend to focus on theory rather than practicals (4.069). Not the least, majority of the tutors agreed that they lack accreditation and quality assurance in online education (mean = 4.218). Most of the tutors again agreed that they require strong self-motivation and time management skills for e-learning (mean = 4.3.990). Majority of the tutors further agreed that they use an e-learning system to instantly grade students to encourage them to learn (mean = 4.307).

4.2.6 Measures to mitigate the challenges faced by tutors and students in e-learning

This sub-section also assessed the measures that help mitigate the challenges faced by both tutors and students in e-learning.

Table 9: Descriptive Statistics on measures to mitigate challenges

Parameters	N	Min	Max	Mean	Std. Deviation
Ensuring a flexible user friendly interface.	100	2.00	5.00	4.1300	.66142
Tutors may start using e-learning with the assistance of their associates.	100	2.00	5.00	3.8200	.95748
Computer games can be used adequately as a learning resource by the educators.	100	2.00	5.00	4.1400	.87640
Refresher programs should be coordinated occasionally for tutors so they become familiar with using technology.	100	2.00	5.00	3.9800	1.12797
Educator discussion forums can be made for discussing the use of ICT in their separate classes by tutors.	100	2.00	5.00	4.2200	.70467
ICT courses should be made compulsory for tutors to undertake them.	100	2.00	5.00	4.1500	.97830
Starting e-learning with mixed of both online and offline learning.	100	1.00	5.00	3.7900	1.38020
Giving learning to the students by their own particular manner.	100	2.00	5.00	4.2200	.70467
Valid N (listwise)	100				

Source: Field Survey, 2020

Majority of the respondents agreed that ensuring a flexible user friendly interface (mean = 4.13). Also, most of the respondents agreed that tutors may start using e-learning with the assistance of their associates (mean = 3.82). Again, majority of the respondents agreed that computer games can be used adequately as a learning resource by the educators (mean = 4.14). Most of the respondents further agreed refresher programs should be coordinated occasionally for tutors so they become familiar with using technology (mean = 3.98). Not the least, majority of the respondents agreed that educator discussion forums can be made for discussing the use of ICT in their separate classes by tutors (mean = 4.22). Again, majority of the respondents agreed that ICT courses should be made compulsory for tutors to undertake them (mean = 4.15). The respondents further agreed that Starting e-learning with mixed of both online and offline learning (mean = 3.79). Lastly, majority of the respondents agreed that giving learning to the students by their own particular manner (mean = 4.22).
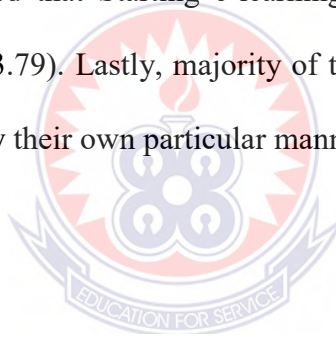
4.3 Discussion

4.3.1 Effectiveness of e-learning in Colleges of Education

The study found that the time allocated   for eLearning is not enough (mean = 2.42). Time is very precious for undertaking works in lessons especially assignments. With the introduction of e-learning, most students struggle to complete the assignment given due to limited time given. The connection to the internet can even take more than halve of the given time. This agrees with Noesgaard (2014) who also argued that there is the need to consider both the time accessible to the students and the normal remaining workload of the e-Learning.

Also, the study found that the nature of accessible programming for students' learning is not effective (mean = 2.86). The common program that received the light of the day in the e-learning era is the Zoom. Although many people subscribed to it, it was seen as ineffective for those who could hardly understand it. This agrees with the result from a study by Rother (2004) who also concluded that just 15% of the respondents nonetheless, demonstrated that the nature of accessible programming for students' learning is "superb", and 52% of them stated, is "poor" or just "OK"

The study further found that there is no enough demonstration during e-lessons (mean = 2.91). In the conventional classroom environment, many demonstrations are made to enable students better understand the lesson being delivered. This agrees with the result from a study by Jiang et al. (2006) who also concluded that matured students need demonstrating and framework to be effective in an online environment but this is usually not enough in e-learning class.

The study further revealed that there is usually social interaction with instructors and collaborative interaction with peers during e-learning (3.23). Social interaction with instructors and collaborative interaction with peer students are important in enhancing learning and active participation in online discussion. This also agrees with Jung et al. (2002) who concluded that collaboration is commonly viewed as basic to the effectiveness of e-Learning.

Not the least, the study also found that the learning that occurs during the e-learning session did not meets the objective of the lessons (mean = 2.10). There are set objectives for every lesson and e-learning is not different. Time constrain may be an obstacle to the achievement of learning objectives during e-learning. It was therefore confirmed by

the study that the time spent using e-learning system is not effective (mean = 2.05). Due to internet connection problems, students may take longer period trying to connect and even after connection are successful, the class becomes slow. Students can therefore stay online for a longer period but little time will actually be used for the lesson. This again agrees with Jung et al, (2002) who further concluded that when tasks are characterized as 'blended e-Learning', time spent may not generally be a decent pointer of whether learning occurred.

The study result shows that there is self-motivation to learn during e-learning (mean = 3.19). Inspiration to learn is critical to the effectiveness of e-learning. When students are not self-motivated to learn, they may see e-lessons boring and pay less attention to it. This agrees with Brown (2005) also suggested the importance of motivation to learn and workload in determining aggregate time spent in e-learning courses.

4.3.2 Course outline/content/mode of delivery

The study found that the course contents are based on the outline provided (mean = 3.88). Course contents are designed and an outline given to students so that they can read and learn ahead of lessons. This is contrary to the findings of ADEA (2020) that some of the challenges of e-learning in Africa are scarcity of resources and inadequate availability of online learning content. However, the study found that the course content is not usually covered by the end of the teaching period. Although there are usually the availability of course content, it is difficult for tutors to cover the entire course content due to several constrains including lesson duration.

The study further found that the tutors demonstrate knowledge of the subject matter (mean = 4.10). This means that most of the tutors have knowledge on the subject they are handling and demonstrate it appropriately. The tutors there for have the technical and intellectual abilities to deliver. This agrees with Casonato and Morello (2002) that individuals pursue their own assignment and must combine technical skills with an intellectual toolbox enriched with expensive roles, team building, and knowledge.

The study also found that the tutors' delivery are organized and systematic (mean = 3.28) and that the tutors are able to communicate what he/she is teaching (3.21). The mode of delivery of e-lessons by the tutors is very necessary for e-learning to occur and the students to understand what the tutor wants to put across. This agrees with the assertion by Salmon (2000) who indicated that the influence and role of a tutor is one of the indispensable components needed for the e-learning experience to take place.

The study also found that tutors always encourage students to read materials beyond the suggested reading and teaching notes (mean = 4.06). It is important that e-moderators develop techniques to encourage learner facilitation skills within the e-lessons. Thus the role of an e-moderator may be considered to be involving the processes of designing and promoting e-learning experience rather than just a content expert. This agrees with Packham et al. (2006) that E-moderator is required to have sufficient knowledge within the subject area of study to be able to encourage e-interaction in order to enhance the developmental processes.

Finally, the study found that the tutors always encourage students to read materials beyond the suggested reading and teaching notes (mean = 3.27). When students are encouraged to read and learn ahead of the teaching notes, they eventually become independent learners. This agrees with Jackson and Fearon (2013) who argued that the

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facilitative learning moves away from the strong teacher centred learning to what is known as self-directed learning, where the academic uses various strategies by acknowledging students past experience and learning styles to encourage student to become independent learners.

4.3.3 Challenges faced by students during e-learning lessons

The study results show that that there is lack of computers, mobile phones, etc, and necessary skills for e-learning programs among most of the students (mean = 4.46). Most students have no skills regarding the use of computer not to talk of the software on the computers. This lack of computer skills is a major challenge to e-learning especially in Ghana. These are personal issues which include the absence of skills in technology to encourage or enable the process of learning. The absence of technological abilities could bring about the loss of information, failure to spare or move information which could be baffling to the E-student. This agrees with Khan (2005) who also concluded that one disadvantage of e-learning is that students must approach a computer just as the Internet. They need to have computer aptitudes with programs, for example, Internet browsers, email and word processing.

Also, the study results show that students sometimes get lost or confounded about course exercises and deadlines (mean = 4.51). In many cases, students are not aware of online assignments given by their tutors. Assignment dates expire without the knowledge of students. This was also in line with the findings of Dearnley (2003) who also concluded that students may get lost or confounded about course exercises and deadlines making the student fail or do badly.

Again, the study revealed that students sometimes feel distant or disengaged from the instructor (mean = 4.20). The lack of face-to-face contact with the tutor really makes it difficult for some students to concentrate on e-lesson being delivered. Other factors around the environment of the student can destruct the student due to the lack of control from the tutor. This also agrees with Khan (2005) who concluded that another downside of e-learning is that students may feel distant or disengaged from the instructor.

The study further revealed that students usually lack data to access e-learning (mean = 4.58). E-learning requires the student to have a computer or at least a smart phone and data bundle but some students cannot even afford a smart phone yet, are required to partake in e-learning. This challenging situation has left many students frustrated and they feel left out of the school. This finding agrees with the findings of Kathawala et al., (2003) who showed that there are technological and internet data constraints to e-learning and these comprise of absence of equipment, restricted internet infrastructure and low bandwidth.

Not the least, the results from the study revealed that the independent nature of E-learning sometimes becomes a challenge when there is no self-motivation (mean = 4.04). Students may feel relaxed to partake in lessons when they have the choice to do so. This also agrees with the argument by Rivera and Rice (2002) that the independent nature of E-learning could be a type of hindrance since E-learners are required to be self-motivators and also self-discipline as to finish their tasks or schoolwork on schedule.

The results also indicate that there is usually the absence of teaching and learning materials (TLMs) during exercises in e-learning (mean = 4.66). Graphical illustrations may be difficult to do in e-lessons and even if a tutor manages to presents graphics, some students may not access it due to the nature of their devices. Wong (2008) contends that the absence of conveying proficiently may bring about misconception during E-learning exercises, for example, chats and discussion forum.

The study also revealed that there is usually poor mobile network internet quality to access the e-learning (mean = 4.50). Lack of smart phones and poor connectivity relating to mobile communication network unavailability are some of the challenges that confront students in e-learning in the various schools. This agrees with the findings of Tamrat and Teferra (2020) that on the African continent, the transition from face-to-face teaching and learning to online teaching and learning due to the closure of schools is not that simple as only 24% of the population has access to internet coupled with poor connectivity, high cost of internet bundle and recurrent power interruptions.

4.3.5 Challenges faced by tutors in delivering e-lessons

The study found that tutors do not have enough computers in their college to support e-learning (mean = 2.841). The concept of e-learning came in at a time most of the colleges were not thinking of it and were not therefore prepared for it. Availability of computers and data for e-learning became a problem to the schools, even those schools who had well established computer laboratories still struggled. The study also found that tutors sometimes do not have enough data to access the e-learning (mean = 4.307). Access to data for e-learning has always been a challenge to those who engage in e-learning. This is as a result of the high cost of data and failure of the schools to provide

data for tutors apart from the wifi on campuses. This finding agrees with the Ministry of Education of Ghana (2003) that not all tertiary institutions in the country are equally endowed and there are instances where the computer facilities are run purely by the private sector as cyber cafes on campus.

Also, the study found that some college have free internet wifi for e-learning (mean = 3.723). Some colleges through their own initiative have provided free wifi for tutors and students to use especially during e-learning. This is contrary to the conclusion by OECD (2020a) that there are some challenges such as tutors' access to internet connection and computers at home to use for their online learning.

Again, the study found that tutors use only verbal communication in e-learning and it makes lesson delivery difficult (mean = 4.337). In these circumstances, the function of e-learning educator turns out to be exceptionally basic to the achievement of any type of computer interceded communication. This agrees with Walters-Coppola et al., (2002) who also gives more consideration to the fact that the conventional educator can practice both verbal and non-verbal methods for communication while e-learning depends on the composed verbal type of communication.

The study found that tutors have technical skills and knowledge such as typing, downloading, uploading, connecting technology tools to the internet needed to use for e- classroom learning (mean = 3.951). These are basic technical issues that a tutor in a college level should possess. The great desire cannot be met with insufficient investment in infrastructure and technological assistance to tutors who are required to guide students in e-learning. This agrees with Reeder et al. (2004) who also argued that

technical help to tutors is deficient in contrast with the craving of learning achievement and the significant use of e-learning technology.

The study also found that tutors sometimes feel distanced from the students (mean = 4.238). Pedagogy method is about empowering the most ideal approach to accomplish learning. In the event that this method is not considered, the ideal learning result will not be accomplished. This agrees with Teo (2006) who argued that fruitful instructional method requires the educator to see how students learn then develop and convey course materials, and mentor students suitably, so information and abilities are passed on.

Also, the study found that tutors lack the ICT skills needed for e-learning (mean = 4.059). Since the tutor has an impact on the learning outcome of the student, it is important for the tutor to have some skills to apply the needed technology required for e-learning. This agrees with Morley (2010) who also states that with the goal for tutors to successfully make the progress to become online educators they have to accomplish new ICT skills and it should be teaching method based.

It was also found that the tutors can use virtual learning to effectively organize group discussions among students (mean = 4.158). Commonly with the Zoom platform, there are the features which enable the creation of discussion forums where the tutors can discuss with the students or discussion forums for students to interact with their colleagues. This agrees with Banning (2005) on his assertion that the Socratic strategy is vigorously learner orientated learning so students can think freely and different systems can be used by tutors, for example, tests, discussion, strong group work sessions with strong emphases on communicating with peers, self-assessment and research for the purposes of enabling student develop into critical thinkers.

Again, it was found that that tutors lack face-to-face communication (mean = 4.146) and that they sometimes find it difficult to see how students learn during e-lessons (mean = 4.168). To accomplish the best learning result it is attractive to have a comprehension of students' learning styles through a face-to-face interaction. Online students' learning styles can be unclear and this has some implication on how tutors develop learning material. This also agrees with Sywelem et al. (2012) who also argued that everybody has their own learning style alongside their cultural impacts; the ones who are taught using their own learning style considering the aspect of their culture will perform better academically.

Again, majority of the tutors agreed that they can use e-learning systems to give effective and quick feedback to students (mean = 4.139) and also, tutors use an e-learning system to instantly grade students to encourage them to learn (mean = 4.307). If tutors are active and have access to a fast internet connection, feedbacks to their students becomes quick and effective. It is the responsibility of the tutor to respond quickly to the students. This agrees with Volery and Lord (2000) who expressed that the educator must be able to propel students, show sympathy, resolve crisis issues and react to messages quickly.

The study also found that tutors can effectively deliver learning materials to their students at anytime and anywhere on the e-learning system (mean = 4.208). It was also found that the tutors always share educational resources with their students through e-learning systems (mean = 4.149). The various e-learning platforms have the ability to enable tutors to deliver the needed learning materials to their student at any point in time. This agrees with Mayes et al. (2011) who also argued that tutors are be urged to

build up their own digital resources, imparting them to students through the digital repositories.

It was also found that tutors tend to focus on theory rather than practicals (4.069). Most of the trainings that are given to tutors are not focused on the practical aspect of e-learning. This makes it difficult for the tutors to practically deliver e-lessons during their periods. This finding agrees with a study conducted by Jackson and Fearon (2013) on ICT training for tutors. They concluded that those tutors who took part in the training complained that training was not as they expected and it was hurried and not completely practical.

The study found that tutors require strong self-motivation and time management skills for e-learning (mean = 4.3.990). Inspiration to teach and draw in with the e-Learning arrangement is critical to effectiveness, particularly when effectiveness is characterized as the time spent using the item. This agrees with results from the study of Brown (2005) which also suggest the importance of motivation to teach and workload in determining aggregate time spent in e-learning courses.

4.3.6 Measures to mitigate the challenges faced by tutors and students in e-learning

The study found that ensuring a friendly user interface will help solve the challenges in e-learning (mean = 4.13). This implies that the planning of the E-learning interface could add to the achievement or disappointment of the E-learning experience. This agrees with Wong (2008) who clarifies that flexible user friendly interface have the ability to attract E-students while then again poor user interface may distract which could bring about E-students losing interest.

The study also found that tutors may start using e-learning with the assistance of their associates (mean = 3.82). If tutors are finding it difficult to use any e-learning platform, they can seek the help of other colleagues who are well vest in that particular platform to guide them. This agrees with Reeder (2004) who also argued that educators may start using e-learning with the assistance of their associates by and large on a theme with tutoring and sharing experiences practices so they eliminate their fears in handling it. The study also found that computer games can be used adequately as a learning resource by the educators (mean = 4.14). Computer games regularly observed as interruptions to scholarly investigation but can be effectively made use in the e-learning lessons. Computer games in the study hall are an eager, intelligent way to deal with education. This also agrees with Mayes et al., (2011) who indicated that computer can be used adequately as a learning resource by the educators. They give an approach to consolidate 21st century aptitudes and permit students to be dynamic members in the learning process.
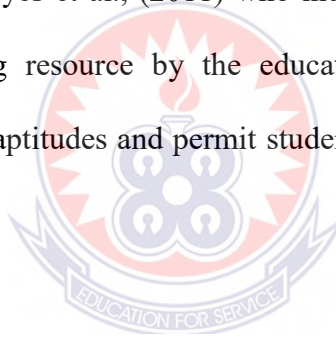
The result of the study also indicates that refresher programs should be coordinated occasionally for tutors so they become familiar with using technology (mean = 3.98). According to the Ghana National Policy on ICT in School Education, educators need to partake in determination and basic assessment of advanced substance and assets. This further agrees with Mayes et al. (2011) who argued that tutors need to participate in refresher programs to become alright with using technologies as they evolve.

The result also show that educator discussion forums can be made for discussing the use of ICT in their separate classes by tutors (mean = 4.22). Coaching may likewise be useful in increasing advanced aptitudes for tutors. This agrees with Conrad (2004) who asserted that instructor may frame one of the educators themselves as coach who is

capable in computers or if that is absurd, tutor from outside school as master in technology proficiency might be selected in schools who can give standard direction to the instructors for being ICT-accommodating.

The result from the study further shows that ICT courses should be made compulsory for tutors to undertake them (mean = 4.15). So far as the use of ICT and the adoption of e-learning remains, it is necessary for tutors to obtain some skills to be able to use the emerging technologies. The only means to get this is to take IVT course and if not made compulsory, some tutors may ignore it. This agrees with Clark (2001) who said that projects like International Pedagogical ICT Certification Education Program by NIIT might be made obligatory for all the teachers so they get technological abilities as well as become proficient in dealing with it in their study halls.

It was also revealed that starting e-learning with mixed of both online and offline learning will help eliminate the e-learning challenges (mean = 3.79). This would help in eliminating their fears towards using the cutting edge technology steadily and would make them agreeable simultaneously. This agrees with the proposal made by Tomei (2006) that educators at first may start with presenting mixed learning in their classrooms, that is, a blend of both online and offline learning.

The study also revealed that giving learning to the students by their own particular manner (mean = 4.22). Numerous famous scholars have declared that if students do not comprehend the manner in which you educate, cause them to comprehend the manner in which they learn. This agrees with Gustafson and Gibbs (2010) who argued that when the learning is given to the educated students by their own particular manner, learning would turn into an intriguing, connecting with and exciting experience for them.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the major finding of the study, the conclusion drawn from the findings and some recommendations. The presentation is done in line with the objectives of the study.

5.2 Summary

On the effectiveness of e-learning, the study found that the time allocated for eLearning is not enough, the nature of accessible programming for students' learning is not effective, there is no enough demonstration during e-lessons. The study further revealed that there is usually social interaction with instructors and collaborative interaction with peers during e-learning, the learning that occurs during the e-learning session did not meets the objective of the lessons, and that there is self-motivation to learn during e-learning.

Assessing the course outline/content and delivery, the study revealed that the course contents are based on the outline provided, the tutors demonstrate knowledge of the subject matter, the tutors' delivery are organized and systematic, tutors always encourage students to read materials beyond the suggested reading and teaching notes, and the tutors always encourage students to read materials beyond the suggested reading and teaching notes.

On the challenges faced by students in e-learning lessons, the study found that there is lack of computers, mobile phones, etc, and necessary skills for e-learning programs among most of the students, students sometimes get lost or confounded about course exercises and deadlines, students sometimes feel distant or disengaged from the instructor, students usually lack data to access e-learning, there is usually the absence of demonstrations with teaching and learning materials (TLMs) during exercises in e-learning, and poor mobile network connectivity which is the only means available to students.

The study also revealed that tutors on the other hand do not have enough computers and even if they do, they do not have enough data for internet access, only verbal communication in e-learning and it makes lesson delivery difficult, tutors sometimes feel distanced from the students, most tutors lack the ICT skills needed for e-learning, that tutors lack face-to-face communication with students, tutors tend to focus on theory rather than practicals, and that tutors require strong self-motivation and time management skills for e-learning.

The study also revealed that ensuring a friendly user interface will help solve the challenges in e-learning, tutors may start using e-learning with the assistance of their associates, computer games can be used adequately as a learning resource by the educators, refresher programs should be coordinated occasionally for tutors so they become familiar with using technology, educator discussion forums can be made for discussing the use of ICT in their separate classes by tutors, ICT courses should be made compulsory for tutors to undertake them, starting e-learning with mixed of both online and offline learning will help eliminate the e-learning challenges, and that giving

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learning to the students by their own particular manner with help them understand better to enhance e-learning.

5.3 Conclusion

The study concludes that the time allocated for eLearning is not enough due to the demand of the courses outline. This makes it difficult for the tutors to take their time and explain issues to the understanding of the students. Also, the nature of accessible programming for students' learning is not effective. This might be as a result of the lack of internet data bundle to access the high quality graphics of the common e-learning platform (Zoom) which is widely used by most schools. There is no enough demonstration during e-lessons due to time constrains. The study further concludes that there is usually social interaction with instructors and collaborative interaction with peers during e-learning. The learning that occurs during the e-learning session did not meets the objective of the lessons because of the lack of time, and that there is self-motivation to learn during e-learning.

Also, the study concludes that the course contents for e-lessons are based on the outline provided and the tutors demonstrate knowledge of the subject matter. It is the same course content for the conventional class that is used for the e-learning class and the tutors are expected to demonstrate a similar knowledge as it is in the conventional class. The tutors' delivery are organized and systematic and the tutors always encourage students to read materials beyond the suggested reading and teaching notes, and the tutors always encourage students to read materials beyond the suggested reading and teaching notes.

The study further concludes that there is lack of computers, mobile phones, and other devices, and necessary skills required for e-learning programs among most of the students. The students are of different cultural backgrounds and some are accessing these technology devices for the first time. Also, students sometimes get lost or confounded about course exercises and deadlines because of the poor internet services in their various locations. They also lack data to access e-learning. Some of the students are residing in rural areas and have to go to nearby towns to get access to internet services for e-learning. The students sometimes feel distant or disengaged from the instructor and there is usually the absence of demonstrations with teaching and learning materials (TLMs) during exercises in e-learning.

Not the least, the study concludes that tutors on the other hand do not have enough computers and even if they do, they do not have enough data for internet access. Only verbal communication in e-learning and it makes lesson delivery difficult. Tutors, just as the students, sometimes feel distanced from the students. Due to this, the tutors lack face-to-face communication with students and tend to focus on theory rather than the practical aspect of the lessons. It is difficult for most of the tutors to do effective demonstrations to the students during the lessons. Most tutors in the colleges lack the ICT skills needed for e-learning and they therefore require strong self-motivation and time management skills for e-learning.

Finally, the study concludes that in solving the challenges that comes with e-learning, there is the need to ensure a friendly user interface, tutors may start using e-learning with the assistance of their associates, computer games can be used adequately as a learning resource by the educators, refresher programs should be coordinated occasionally for tutors so they become familiar with using technology, educator

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discussion forums can be made for discussing the use of ICT in their separate classes by tutors, ICT courses should be made compulsory for tutors to undertake them, starting e-learning with mixed of both online and offline learning, and giving learning to the students by their own particular manner with help them understand better to enhance e-learning. When these are provided and appropriately done, e-learning in the colleges of education will improve.

5.4 Recommendations

Based on the findings of the study, the following recommendations are made:

- Since students perceive e-learning as not being self-motivating, the tutors need to develop assignments that create effective feedback and have interactive element included within them.

- There is the need for innovative teaching strategies, course design specific to online education, and the development of good online teaching skills by tutors and these are significant components of quality and effective online education.

- E-learning offers an excellent means for students to widen their educational opportunities and remain competitive in the perpetual demanding realm of education. Therefore, students embarking on the path of any higher education using e-learning need to be self-motivated, responsible learners and independent.

- Tutors may begin using e-learning lessons with the help of their colleagues in a collaborative way on a topic with sharing and mentoring experiences practices in order that they remove their understanding in handling it. Then later, they may extend this practice to smaller topics in their processes of teaching-learning.

- The Ghana education services should make ICT programs available and compulsory for every tutor, irrespective of the course or subject that tutor is handling. This will equip them with the basic ICT skills to handle e-learning appropriately.

- Government needs to also subsidy internet data bundle cost for the educational institutions to enable tutors have access to internet connectivity for e-learning.

- The colleges of education can also include the cost of mobile devices for e-learning in their academic fees so that upon paying fees, students will be provided with these devices.

- Future studies should be done to assess the use of e-learning in the special schools in Ghana, for example, the Wa school for the blind.

- Also, future studies should assess the barriers to the implementation of e-learning in some institutions that are not using the digital teaching and learning platforms.
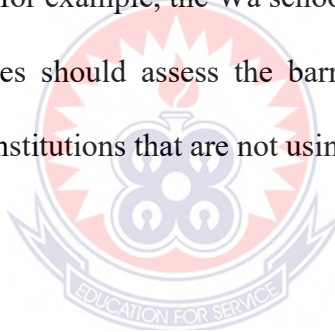
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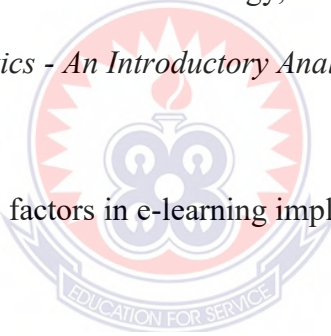
APPENDIX

QUESTIONNAIRE

PURPOSE OF THIS STUDY

I am a graduate student of the University of Education, Winneba – Kumasi campus, conducting a study in the effects of e-learning in the colleges of education in Ghana. E-learning may be defined as a learning system based on formalized teaching but with the help of electronic resources. The use of computers and the Internet forms the major component of E-learning and it enables teaching and learning to be done in and out of the classroom.

This questionnaire is designed for colleges of education tutors and students. This will take approximately 10 minutes of your time. You are assured that your responses will be strictly confidential. The data will be strictly used for academic purposes. Thank you for participating in this study.
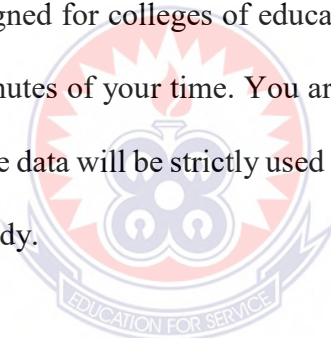
INSTRUCTION

Please indicate your response to the following questions by selecting the appropriate response in the spaces provided.

SECTION A:

PERSONAL DETAILS

1. Age: less than 18 years ( )   18-25 years ( )   26-30 years ( )

   above 30 years ( )

2. Sex: Male ( )   Female ( )

3. Level: 100 ( )   200 ( )   300 ( )   400 ( )

4. Which of these platforms do you use (   ) Zoom (   ) LMS (   )Telegram (   )

    Google meet (   )

    Other(s) Please specify……………………….

SECTION B: Effectiveness of e-learning in Colleges of Education

Please indicate your level of agreement or disagreement with the following parameters:

1-Strongly disagree,   2-Disagree, 3-Neutral, 4-Agree and 5-Strongly agree

Please kindly tick (✓) only one in each row on the table below

#	Parameter	1	2	3	4	5
1	The time allocated for eLearning was enough.					
2	The nature of accessible programming for students' learning is effective.					
3	There was enough demonstration during e-lessons.					
4	The learning that occurred during the e-learning session met the objectives of the lessons.					
5	There were usually social interaction with instructors and collaborative interaction with peers during e-learning.					
6	The time spent using e-learning system was effective.					
7	There was self-motivation to learn during e-learning.					

SECTION C: COURSE OUTLINE /CONTENT/MODE OF DELIVERY

The table below contains statements about course outline, content, and mode of delivery

in e-learning?

Please indicate your level of agreement or disagreement with the following parameters:

1-Strongly disagree,   2-Disagree, 3-Neutral, 4-Agree, and 5-Strongly agree

Please kindly tick (✓) only one in each row on the table below

#	Parameter	1	2	3	4	5
1	A courses outline was made available at the beginning of the programme.					
2	The course contents were based on the outline provided					
3	The course content was covered at the end of the teaching period.					
4	The tutors demonstrated knowledge of the subject matter.					
5	The Tutors' delivery were organized and systematic					
6	The Tutors communicated what he/she was teaching					
7	The Tutors encouraged students to read materials beyond the suggested reading and teaching notes.					
8	The Tutors used the appropriate teaching and learning materials.					

SECTION D: Challenges faced by students during e-learning lessons

The table below contains statements about challenges facing students in e learning.

Please indicate your level of agreement or disagreement with the following parameters:

1-Strongly disagree,   2-Disagree, 3-Neutral, 4-Agree, and 5-Strongly agree

Please kindly tick ($\checkmark$) only one in each row on the table below

#	Parameter	1	2	3	4	5
1	Lack of computers, mobile phones, etc, and necessary skills for e-learning programs among most of the students.					
2	I sometimes get lost or confounded about course exercises and deadlines.					
3	I sometimes feel distanced from the instructor.					
4	I lack devices to access e-learning.					
5	The independent nature of E-learning sometimes becomes a challenge when there is no self-motivation.					
6	TLM's are usually absent during exercises in e-learning.					
7	Poor Mobile network quality to access the e-learning is a challenge.					

8. What else do you think are/is the challenge(s) faced in the e-learning

    system..?

SECTION E: Measures to mitigate the challenges faced by tutors and students in e-learning

The table below contains statements about measures to reduce the challenges faced by tutors and students in e-learning.

Please indicate your level of agreement or disagreement with the following parameters:

1-Strongly disagree,   2-Disagree, 3-Neutral, 4-Agree, and 5-Strongly agree

Please kindly tick (✓) only one in each row on the table below

#	Parameter	1	2	3	4	5
1	Ensuring a friendly user interface.					
2	Tutors may start using e-learning with the assistance of ICT experts.					
3	Computer games can be used adequately as a learning resource by educators.					
4	Refresher programs should be organized occasionally for tutors so they become familiar with using the e-learning platforms.					
5	Educator discussion forums can be made for discussing the use of ICT in their separate classes by tutors.					
6	ICT courses should be made compulsory for tutors to undertake them.					
7	Starting e-learning with mixed of both online and offline learning will be appropriate.					

8. What other measures do you think will be appropriate in mitigating the challenges associate with e-learning ?…..

………………………………………………………………………………

………………………………………………………………………………

9. What else do you think is the challenge faced in delivering the e-learning lessons?...

FOR TUTORS ONLY

Please indicate the extent to which you agree or disagree with the following parameters

regarding the challenges you face during e-learning.

Please kindly tick (✓) only one in each row on the table below

1-Strongly disagree,   2-Disagree 3-Neutral, 4-Agree, and 5-Strongly agree

#	Parameter	1	2	3	4	5
1	I have enough computers in my college to support e-learning.					
2	My college has free internet wifi for e-learning.					
3	I have a smartphone that supports e-learning.					
4	I always share educational resources with my students through e-learning systems.					
5	I am aware of free e-learning platforms (such as Moodle, Wimba, Adobe Connect, Coursera, Zoom, WhatsApp) that I can use to engage students in learning.					
6	I use only verbal communication in e-learning and it makes lesson delivery difficult.					
7	I have technical skills and knowledge such as typing, downloading, uploading, connecting technology tools to the internet needed to use for e-classroom learning.					
8	Cheating prevention during an online assessment is complicated.					
9	I sometimes feel distanced from the students					
10	I sometimes do not have enough data to access e-learning.					
11	I sometimes find it difficult to see how students learn during e-lessons.					

12	I lack the ICT skills needed for e-learning.					
13	I can use virtual learning to effectively organize group discussions among students.					
14	I lack face-to-face communication.					
15	I can use e-learning systems to give effective and quick feedback to students					
16	I can effectively deliver learning materials to my students at any time and anywhere on the e-learning system.					
17	I tend to focus on theory rather than practicals					
18	I lack accreditation and quality assurance in online education.					
19	I require strong self-motivation and time management skills for e-learning.					
20	I use an e-learning system to instantly grade students to encourage them to learn.					