# GRADUATE AND UNDERGRADUATE STUDENTS' LEVEL OF SATISFACTION ON THE USE OF THE COLLEGE FOR COMMUNITY AND ORGANISATIONAL DEVELOPMENT BLENDED LEARNING (CBL) AT ALL MOBILIZATION CENTRES, SUNYANI, GHANA



## Abstract

Schools are facing challenges to meet the demands of the information society and the student generation of today. Not only are students carrying their mobile phones everywhere, they are also familiar with different online environments, especially social software. This situation can be seen both a challenge and a chance for schools, as mobile technologies and social software can be used as tools for building flexible learning environments to foster students' collaborative learning. This paper examines the possibilities of mobile technologies and social software in the contexts of blended learning and collaborative learning theories. The paper also provides two concrete examples of how these possibilities have been put into practice in higher education, namely teacher education. It provides ideas for the use of mobile technologies and social software in teaching and learning. In recent trends teaching and learning become very interesting due to the innovative methods of teaching using many technologies and practical tools. This study is dealing with new trends in Organisational Education that can help one to become a modern job creator or teacher. Students like the teaching of modern teachers because they can actively participate in the learning process. E-content, Video Lessons and Online teaching and many other tools are used to present the subject innovatively and productively. Blended learning classroom is the latest educational technique that is being adapted in modern classrooms to enhance the learning experience of the students. The researchers are staff of CCOD. The conclusion of their study reveals that blended learning classroom has positive impact on CCOD Students' academic fulfillment of Thesis writing and access to the E-Library services.

**Keywords:** Collaborative learning, Technology Education, ICT, Shared Notes, wiki, Blended Learning, Net Generation, Effectiveness; Blended Learning Classroom; Computer Science Teaching and Learning

## Terms and Meaning

**Effectiveness –**deals with the independent variable introduced in this study. **Blended Learning Classroom-**which means the pedagogical approach to education that combination of Traditional classroom and online teaching classroom for educational teaching and learning materials. **College For Community and Organisational Development Blended Learning –Is the approach** in which the teacher refers students to his facilitation or teaching the subject to CCOD Students'

learning platform for both their academic course content materials and the Theses writing, End of Trimester Examination questions and Results for easy accessibility.

**Brief Background on CCOD Blended learning (CBL)**

"College for Community and Organisational Development (CCOD) is the Premier Organisational Development (OD) Technical University in Africa focused on developing appreciative leaders, professionally Certified OD Consultants, Human Resource Managers and the Academia using unique behavioural science approaches, contributing to people's transformation, organisational effectiveness and institutional systems' sustainability". The College for Community and Organisational Development, Sunyani, (CCOD) is a multi-campus private university set up across all the sixteen regions in Ghana in May 2011under the Ghana Tertiary Education Council (GTEC) Statutes. The mobilization Centres are located in ten towns namely: Atebubu, Accra, Bole Damongo, Takoradi, Kumasi, Kintampo, Duori/Jirapa, Yerikoi, Wa, are located in Bono, Greater Accra, Northern Region, Upper West Regions etc. of Ghana. The CCOD Institutional Repository (IR) known as CBL was established in 2019 and makes available its content on the DS Space software. Documents on the CCOD CBL are organized into Broad areas and sub-major areas which are further sub-divided into collections for easy browsing. There are ten (10) content areas which include fifty-nine (59) collections. The names of the contributing authors are shown with the corresponding number of their academic production of videos and course content material of the CBL/ repository. These names are sorted in ascending order based on the author with the most elements in the repository. Access to scientific and scholarly information for graduate students is very critical if the quality of their research is to be enhanced. According to Okite-Amughoro, Makgahlela and Bopape, (2014) the quality of a postgraduate degree is enhanced through the accessibility and utilization by graduate students of the research output of the faculty and students of the parent institution as well as the research output of other institutions. This prevents duplication of research and also ensures that research outcomes are further investigated to draw more valid conclusions. The provision of these resources has always been the core business of the academic library inmost tertiary institutions. In recent times because of advancements in information communication and technology academic libraries have included the provision of electronic resources and the adoption of institutional repositories as part of their services. Manchu and Vasudevan (2018) define an Institutional repository (IR) as a formally organized and managed collection of digital content generated by the faculty, researchers and students at an institution.

The content of an institutional repository is usually made freely available through Open Access a system which allows for free access to scientific and scholarly articles without any hindrance apart from the cost of the internet itself (NundaandElia, 2019). Access to the documents on the IR is therefore freely available to anyone who wants to access them and this could be a very good source

of scientific and scholarly information for graduate students.
The need to provide scientific, scholarly and timely information to graduate students is further buttressed by Dulle (2011) who asserts that graduate students are being trained to become future researchers and faculty members. It is therefore necessary for the IR to bring such people and the needed information together. It is also significant to note that these and dissertations produced by graduate students often form an important input of institutional repositories. Saulus and Mutula (2019) avert hat IRs are particularly important as they were introduced to overcome the high cost of journal subscription faced by libraries as a result of budget cuts, high rate of inflation and currency devaluation especially in developing countries.

A number of research findings have shown that graduate students have a high level of awareness of IRs, however, most of the findings also indicate a low level of usage of IRs by graduate students (Abdelrahman, 2017; Dulle, 2011; Kim, 2007). The CCOD Library has invested significantly in the establishment of an IR in order to provide services to the university community especially graduate students. In order to get the university community to efficiently use the IR the library embarked on a number of activities in the past to market the IR to the university community. However, a study by Thompson, Akeriwe and Aikins (2016) revealed a low level of participation by researchers. This study has become necessary because with the strategies put in place to market and promote the CCOD as a new emerging change agent in Ghana and Africa. It was expected that the CCOD staff, continuing students including graduate students would patronise the CBL. This study is also undertaken because there is very little literature on the perception of students, particularly graduate and undergraduate students about the CBL and their utilisation of the CBL. Graduate and undergraduate students usually submit their theses or dissertations to the CBL theses portal to form the content of the CBL. They are therefore key stakeholders in the information management system of the CBL and their perceptions about CBL are very relevant to the CBL managers and policy makers.

**Introduction**

This paper presents the background and two cases of the development work currently conducted at the University for Development Studies, (UDS), Tamale, Ghana University of Eastern Finland, School of Applied Educational Sciences and Teacher Education. This study adopts the survey instruments used by Ibrahim, A. K., et al. (2020) study conducted at UDS, Tamale. A greater portion of this study is adopted from their study for which study owe it final result to their previous research work conducted. The aim of this development work is to design and test new ways of teaching and learning using mobile technologies for supporting collaborative learning. Information and communication technologies (ICT) provide several possibilities for developing teaching and learning toward a more collaborative direction.

Especially with mobile technologies, i.e., wireless networks and portable tools such as mini laptop computers (net books), we can expand face-to-face teaching with possibilities of different online

environments, specifically social software. In this way we can easily and flexibly take advantage of ICT in various learning situations.
In other words, the use of computers is not limited only to computer classes.
The information society poses new challenges for schools and teachers (Scardamalia, 2001; Starkey, 2010). Schools are adopting new technologies and changing their practices rather slowly indicating a need for well-functioning pedagogical and technological practices (Scardamalia, 2001).Schools are also challenged by today's Blended learning with everyday technologies to activate students' collaborative learning 273 students who are described as the next generation and digital natives, referring to the notion that they have lived their whole lives surrounded by a variety of technologies (Tapscott, 2009; Prensky 2001).
Based on this notion there are assumptions that students are interested, capable and willing to use different technologies. Assumptions indicate that students are familiar with tools of social software (Hartman et al., 2007).
According to Naismith et al. (2004), today's students more and more frequently bring their personal mobile technologies i.e., mobile phones, with them to the classrooms. These assumptions provide possibilities but also challenges for schools: how can schools take advantage of students' assumed skills, and how should teachers react to students bringing personal mobile technologies with them to schools? Are students' mobile phones a threat disturbing teaching or possibly an advantage, providing new tools for learning? This article is to describe two different ways of using mobile technologies and social software to support students' collaborative learning. The aim is to stress the possibility to create flexible, collaborative learning environments using ICT where needed instead of traditional computer laboratories. These two cases provide examples for schools to develop to better meet the challenges of the knowledge society and the assumed net generation. They also provide ideas for developing teaching and learning practices to take advantage of everyday technologies, i.e., mobile technologies and social software, so as to foster students' collaborative learning.

## LITERATURE REVIEW

### Theoretical background

The goal of blending traditional teaching and learning situations with technology are specifically to support students' and student groups' unique interpretations of the content and use these as a source for deeper learning and discussion. In this study, the aim of blending face-to-face teaching and learning situations with various technologies, especially social software, has in particular been capturing students' and student groups' unique interpretations to be utilised as a source for further learning and discussion. Next, we will consider the roles of collaborative learning, social software and blended learning and continue with presenting two blended learning case studies where face-to-face teaching and learning was combined with everyday technologies such as mini laptop computers and social software.

### Collaborative learning

The pedagogical framework for this developmental work mainly derives from collaborative learning theories. According to Dillenbourg et al.(1996), theoretical influences of collaborative learning mainly draw on socio-cultural and socio-constructivist approaches for learning. Both of these approaches emphasise students' collaborative work with their peers and active participation. Socio-cultural theory stresses the role of psychological tools, e.g., language, concepts, theories, use of software etc. as part of learning. Learning is described as participation into communities and in this way appropriating the tools. Appropriation refers to culturally mediated practical inter-subjectivity, a process where both students and teacher have an active role in creating the learning environment with their earlier knowledge and ideas. Students are not just passively memorising facts presented by teachers but using their earlier knowledge and experiences to construct new knowledge. In the process of appropriation, students develop the ability to carry out actions without any apparent external assistance (Dillon, 2004; Rogoff, 1995). Socio-constructivist theory also emphasises collaboration, although concentrating more on an individual's knowledge structures that direct a person's awareness, interpretation of new situations and information. An essential part of learning can be described as cognitive conflicts, meaning situations where earlier knowledge structures are not sufficient or are contradictory to a new situation. In these situations, knowledge structures demand updating, searching for new knowledge or an explanation in order to assimilate or accommodate knowledge structures to respond to and work in a new situation. Collaborative situations with several opinions and different interpretations of the content to be learned provide triggering situations for cognitive conflicts and also, for locating cognitive gaps that need to be fixed. (Dillenbourg, 1999; Weinberger, 2003) MikkoVesisenaho, TeemuValtonen, JariKukkonen, Sari Havu-Nuutinen, AnuHartikainen, SirpaKrkkinen 274

**Social software**

From the point of view of socio-constructivist and socio-cultural approaches, mobile technologies and especially social software provide interesting possibilities for developing teaching and learning toward a more collaborative direction. While Shirky (2003) defines social software broadly as all the software that supports group interaction, other definitions are more specific. For example, Boyd (2003) specifies thast social software supports conversational interaction and social networks and also social feedback. Dron (2007) defines social software as software that allows social construction of meaning and new way for collaboration. According to Alexander
(2006), social software lets users in a more active role compared to traditional passive ways of using webpages. Instead of only providing readymade material and web pages, social software provides tools for creating and publishing new material. Users are not only consumers but instead, they create and participate, acting simultaneously as readers and writers (Sinclair, 2007; Maged et al., 2007). According to Owen et al. (2006), publishing material also enables communication between many people. Publishing and communicating between many allows working as an open process. The above mentioned features of social software are coherent with features of collaborative learning (Ferdig,2007). Theories of collaborative learning emphasise participation

and creating materials which supports bringing up and sharing students' unique knowledge structures and knowledge gaps. Furthermore, this provides environments and tools for triggering cognitive conflicts by supporting students' exchange of ideas and interpretations. Similarly, social software allows students to actively participate, communicate and create their own materials. Social software can be also used as an environment for common projects, to foster communities of practice. Different types of social software can be used in several ways for supporting and triggering the mechanisms of learning described in section 2.1.White (2007) has categorised tools of social software into 10 categories based on their purposes, such as for example communication, file sharing, blogs, social networking, collaborative authoring and image sharing. Social software can be used to support online and face-to-face searching. Mobile technologies and wireless techniques, in particular, allow the creating of learning environments that provide new possibilities

Blended learning with everyday technologies to activate students' collaborative learning275for students' collaborative work and capturing the unique learning and thinking processes in several kinds of environments.

**Blended learning**

As social software provides interesting possibilities for building collaborative learning environments, the wireless networks allow flexibility in setting up learning environments where needed. Connecting face-to-face teaching and learning with ICT refers to blended learning, i.e., different ways to blend face-to-face teaching and different online tools. According to Garrison and Kanuka (2004), the simplest model of blended learning "is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences" aiming at taking advantage of a synchronous face-to-face situation and the asynchronous, text-based Internet.

Typically, this means traditional face-to-face teaching or lecturing with additional materials and learning assignments online, using different learning management systems, such as Moodle. K.se (2010) provides a more advanced way of utilising the idea of blended learning by connecting the possibilities of face-to-face situation and online environments in several ways, both simultaneously and non-simultaneously. K.se (2010) also takes advantage of different social software as tools for providing possibilities to produce material, to demonstrate their knowledge and to communicate. Typically, net generation students are quite familiar with social software. Thus, from the blended learning point of view, social software provides interesting opportunities to support collaborative learning (**Ferdig, 2007**). Also, an important aspect is that social software can be accessed and used online without installing specific software. In our two cases of blended learning, utilising social software and ideas related to those provided by K.se (2010): The aim of bringing in online environments is not just to provide extra materials or separate assignments but to add a new "layer" to the face-to-face teaching and learning situation. The purpose is to use different online environments, and tools of social software, actively during the face-to-face session in order to capture students' thinking and their work. With social software the materials produced by students and teacher are also available after the class. Based on theories of collaborative learning, students' unique interpretations and ideas, ways to understand and also the resources produced by student

groups are vital for learning, causing cognitive conflicts, locating knowledge gaps and providing possibilities for students' appropriation (Dillenbourg et al., 1996; Dillenbourg, 1999). With social software, we can better capture these unique ideas and use them for further learning and discussion. We call this advanced approach Blended Learning 2.0.Altogether, blended learning (2.0) provides interesting possibilities when considering the different ways to use mobile technologies. Using mobile technologies allows creating flexible ways to support learning, varying from simple drill-and-practice activities to collaborative learning practices (Naismith et al., 2004). With mobile technologies, i.e. wireless connections and portable equipment, we can take advantage of different online environments outside traditional computer laboratories, and have contextualized real life learning experiences supported by technologies (cf. Vesisenaho, 2009).

The situation is especially interesting when considering today's students and today's technologies. It seems that students are more and more bringing 276mobile technologies with them to classrooms and teachers should find ways to take advantage of that (Sharples, 2003).Mikko Vesisenaho, Teemu Valtonen, JariKukkonen, Sari Havu-Nuutinen, AnuHartikainen, Sirpa Krkkinen.

**Theoretical Framework**

The study was based on the Technology Acceptance Model (TAM), a theoretical framework originally proposed by Davis (1986, as cited in Lee, et. al., 2003) to explain the factors that influence the acceptance or rejection of a technology by individuals. The acceptance or rejection of a technology is often dependent on the perception of how useful and how easy it will be to use. The more the perceived benefits of using the technology the more people will accept the technology. Again, the easier the usage the more people will accept the technology. Conversely, TAM is therefore based on the assumption that the usage of a technology is influenced by the perception of usefulness, perception of ease of use and the attitude of the individual. The perception of usefulness can be explained as the unsubstantiated view of an individual about how the use of something will improve their work performance. It is also the perception of the potential user that the use of some technology will positively change their job performance (Davis et.al., 1989).The belief of a person in a system can be influenced by other factors referred to as external variables in TAM. The external factors together with either the Perceived Ease of Use or the Perceived Usefulness influence the attitude toward using the system, the behavioural intention to use the system and the actual use of the system. If graduate students perceive the institutional repository to be a system that provides information resources that meets their information needs and also easy to navigate without much effort, then they will accept and use it. However, if they do not find the IR relevant in their research and easy to use then they will stay away from using it. The actual utilization of a system is determined by the behavioural intention which is also influenced by the perceived usefulness of the system acted upon by external variables. An individual will employ a certain technology if his or her perception about the outcome of using it is that it will improve their current state. The model therefore demonstrates show the expected benefits and the expected ease of use will determine the behavioural intention to use a system and

also determine how the individual reacts towards utilizing it.

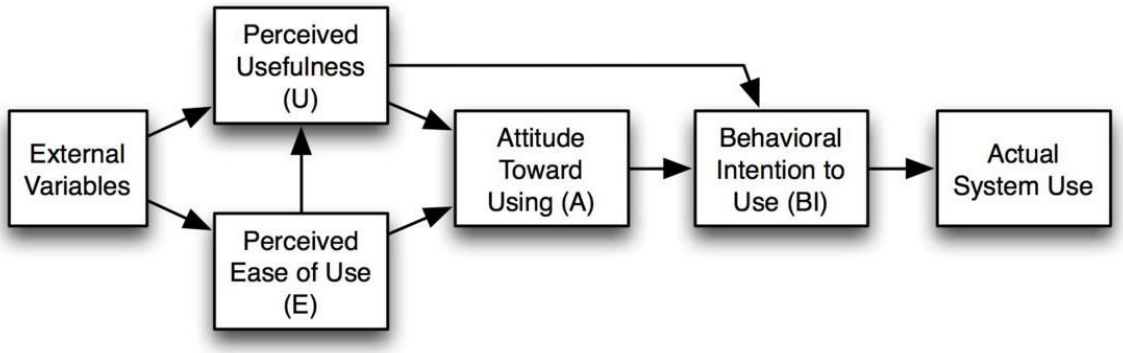


Figure1: Technology Acceptance Model (TAM) (Daviset al.1989).

The theory was considered suitable for the study in view of fact that the use of institutional repositories by students is greatly affected by their perception of the services they change from an IR, as well as their perception of how easy it is to use the technology. A positive perception of the IR or even a good experience of it results in an effective use of it and vice-versa. If students perceive that using the institutional repository will improve research and learning, then chances are that they will appreciate and use the IR more.

Since people will have to know about the existence of something before they can use it the level of awareness of people about the IR is often seen as a factor that determines its usage. In a study of the institutional repositories and open access awareness among the researchers of the University of Calicut, Manchu and Vasudevan (2018) discovered that the majority of researchers in the university were aware of the concept of institutional repositories and saw it as an avenue to improve their scholarly activities. However, they were constrained by how to archive their work in the repository, while some of them thought that publishing in an institutional repository did not give them the level of prestige they needed. Abdelrahman, (2017) investigated the attitudes of graduate students towards the utilization of institutional repository of the University of Khartoum (Khartoum space) and found that the respondents mostly used electronic theses, dissertations and eBooks among the items on the IR. The study also revealed that although there was low utilization of the IR by the respondents, they have a positive attitude towards the repository, and that the majority of the respondents' source of awareness about the IR is their colleagues rather than a librarian. The potential role for research students in an institutional repository (IR) was investigated by Pickton and Mcknight (2006) at the Loughborough University on the proposed Loughborough repository and found that students were mostly interested in access to complete theses, post prints and conference papers. Mnzava, and Chirwa, (2018) in a study on the utilization of the Institutional Repository of the Sokoine University of Agriculture (SUAIR) by the faculty members at the College of Veterinary Medicine and Biomedical Science (CVBMS) in Tanzania discovered that the faculty members had a positive attitude towards the use of the IR but were constrained in its patronage by their busy schedule and the fear of plagiarism.

A study by Okoroma (2018) on the perception and behaviour of faculty members towards institutional repositories in academic libraries in Nigeria also reveals that most of the faculty members in Nigeria are either not conversant with the concept of institutional repositories or are not well informed about the aims and objectives of IR. The relationship between the level of awareness and the level of faculty members' contribution is further demonstrated in a study by Moseti (2016) who studied the archiving of research documents in universities in Kenya and found that faculty members at universities have individually been involved in archiving their electronic works although they seldom did that through the institutional repository.

This has been largely attributed to the lack of awareness of the further demonstrated in a study by Moseti (2016) who studied the archiving of research documents in universities in Kenya and found that faculty members at universities have individually been involved in archiving their electronic works although they seldom did that through the institutional repository. This has been largely attributed to the lack of awareness of the important role of digital repositories in digital preservation.

Mammo and Ngulube (2015) in a study conducted at some selected universities in Ethiopia on the attitudes of academics toward open access journals discovered that the majority of the academics were aware of open access journals, had positive attitude towards open access journals and were willing to use them. The study also reports that the academics were actually using open access journals. Dlamini and Snyman (2017) in a study of institutional repositories across Africa conclude that the problem of lack of awareness of Open Access Institutional Repositories (OAIRs)is common to most countries in Africa.

Okoroma(2018) conducted survey of the utilization of institutional repositories (IRs) of five Nigerian universities in terms of self-archiving, preservation of research articles and for searching information resources and found that the IRs faced the problem of low submission of documents. The study also found that although utilization of the IR was high faculty members were reluctant to submit their works. The authors therefore suggested the need for education and awareness among faculty members on the importance and use of the IR.

Students have been known to use the institutional repository to search for thesis and dissertations mostly when they are carrying out research for their thesis. This is an important role that the institutional repository plays to facilitate learning and research in an institution. Ina study of the role of research students in an institutional repository at the Loughborough University Pickton and Mcknight(2006) finds that students were more interested in having access to complete theses, post prints and conference papers. Since people will have to know about the existence of something before, they can use it the level of awareness of people about the IR is often seen as a factor that determines its usage. In a study of the institutional repositories and open access awareness among the researchers of the University of Calicut, Manchu and Vasudevan(2018) discovered that the majority of researchers in the university were aware of the concept of institutional repositories and saw it as an avenue to improve their scholarly activities.
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**Need and Significance of the Study**

Blended Learning is an educational model where some lessons are delivered in a regular classroom strategy and some lessons are delivered in a digital format. In blended learning the traditional classroom is still in effect, however some of the lessons are replaced with Video Lesson learning. Blended learning classroom is also called as hybrid, mixed**,** or Integrative learning because it has a combination of the traditional classroom and educational technology. Blended learning uses technology to expand the classroom learning environment and allow students to learn at their own pace. "The increasing availability of Internet connectivity and interactive Web application shave contributed to the growth in the number of schools implementing Blended Learning" (Ugur,Akkoyunlu, &Kurbanoğlu, 2011)."Although implementing the Blended Learning is a complex process because educators must determine the perfect blend of face-to-face activities and online learning activities when designing courses, early research indicates students have favourable opinions about participating in Blended Learning courses versus the traditional classroom"(Yapici&Akbayin,2012)."In the future, teachers and students will need to work collaboratively and take equal ownership in determining the best principles for an approach that redefines what it means in order to teach and learn"(O'Byrne,&Pytash,2015).

Blended Learning Classroom will be most suitable for computer science teaching and learning. Hence, the investigator conducting and experiment study on Blended Learning/IR in CCOD.

## Methodology

This study outlines two cases of blended learning using social software. The aim of both cases is to foster students' collaborative learning. Both cases aim at supporting face-to-face teaching and learning by taking advantage of students' participation as producers of content individually and in small groups. The first case is a lecture situation where students wrote their lecture notes into a shared online environment – a microblog. In the second case, students worked as groups, conducting laboratory experiments and writing their findings into a semi-structured wiki-environment. In both cases, a face-to-face teaching and learning situation was "expanded" to online environments using mini laptop computers in wireless networks. Students' opinions and experiences of the two cases were analysed using both qualitative and quantitative methods. In case 1, students' online lecture notes were categorised, and reflections concerning the shared lecture notes approach were collected by interviewing four students after the course. Interviews were recorded and analysed using an open coding approach (Gibbs & Flick, 2007). The aim of the open coding was to catch students' experiences about the course and the use of shared lecture notes without ready-made categories to stress students' own experiences and ideas. Notes were further analysed using discourse analysis (Roth, 2005). The aim of this analysis was to describe different types of lecture notes produced by students. Experiences from the second case were analysed using quantitative methods. Research material was gathered using an online questionnaire containing 40 Likert-type statements scaling from 1 to 5 (1=strongly disagree, 5=strongly agree). The analysis of data was undertaken using principal component analysis, aiming to condense information (Afifi & Clark, 1996). Separate statements were condensed into four subscales. Coefficients of reliability for all subscales were satisfactory; Cronbach's alpha values were over .60 in the case of each new variable (Mets.muuronen, 2006).

## Results

In this section, we provide more details of the two case studies and outline students' experiences of these cases. These cases can be seen as our first steps toward developing blended learning with social software for supporting collaborative learning. These results are also used for further research and development of the approach.

## Objectives of the Study

The main objective of this study is to determine the postgraduate students in the use of institutional repositories with particular reference to graduate and undergraduate students at the College for Community and Organisational Development, Sunyani, Ghana.

The specific objectives are:

1) To find out the effectiveness of CBL on working with graduate and undergraduate students outside the main campus of Sunyani, Ghana.
2) To determine if graduate students in CCOD and undergraduate students are aware of the existence of the CBL in Sunyani, Ghana;

3) To determine the extent of use of the CBL by graduate and undergraduate students;
4) To find out the factors that hinder the use of CBLby graduate and undergraduate students;

**Hypothesis for this Present Study**

The following hypothesis is framed by the researcher for the present study.

H1.From the mean score there is no significance difference on students in Sunyani main campus having face to face facilitation and other students at the various mobilization centres throughout the country who access the CBL.

**Limitations of this Study**

This present study is conducted for the Blended Learning Classroom Model of CCOD graduate and undergraduate students at the various mobilization centres. The CCOD Blended learning was created and validated to help staff working with all students both graduate and undergraduate in all the urban mobilization centres. This study is conducted only for the graduate and undergraduate students. The staff have not been considered.

**Methodology**

Descriptive survey approach was adopted. The study was conducted on all the mobilisation centres via Google survey from July 2021 to August ending 2021. A total of 105 copies of a questionnaire were distributed to graduate and undergraduate students on Google survey based on random sampling and105 copies of them were completed and returned. Only 100 copies were found usable and thus were used for the analysis.

The following table shows the 'T' test results on the CCOD Blended learning. This shows that the CBL is working with graduate and undergraduate students between Pre-test and Post-test of survey groups of students.

Table 1.Pre-test and Post-Test of Survey Group

| Test | Total No. of the student | Mean Score | SD | 't' | DF | Significant Level |
|---|---|---|---|---|---|---|
| Pre-Test | 30 | 39 | 7.87 | 4.049 | 58 | 0.01 |
| Post-Test | 30 | 46 | 5.29 | | | |

From the above table the't' value between the Pre- test and Post- test of Experimental group in the Criterion Test on Working with Linux-Ubuntu in the Computer Science is 4.049. It is significant at 0.01 and 0.05 level for the df 58.The mean of Post-test of Experimental group (46) is higher than the mean of Pre-test of Experimental group (39).Therefore, the research hypothesis is accepted and null hypothesis is rejected. It could be inferred that the Blended Learning Classroom on working well with CCOD graduate and undergraduate students and positively impact the

students' academic fulfillment in all modules facilitation, theses writing and supervision.

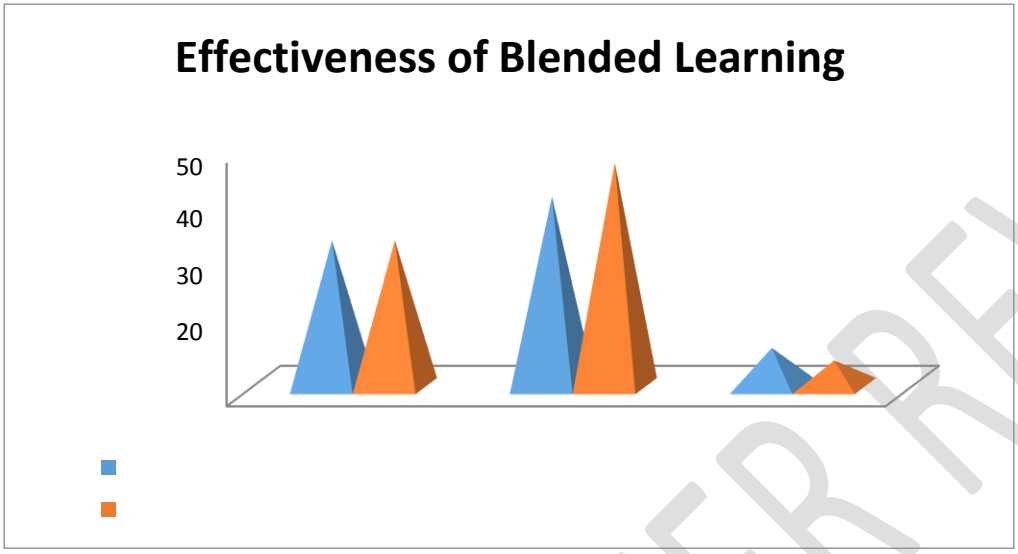


Figure2: Effectiveness of Blended Learning

| AxisTitle | N | MEAN | SD |
|---|---|---|---|
| PreTest | 30 | 39 | 7.87 |
| PostTest | 30 | 46 | 5.29 |

Chart 1. CBL between Pre-Test and Post-Test of Experimental Group

The above picture shows that there is a significance difference in the Mean Achievement of students who use the CCOD blended learning and those who do not use the CBL between Pre-

Test and Post-Test of Experimental Group.

**Awareness and Use of CBL**

To achieve the first objective of the study the level of awareness of respondents on the existence of the institutional repository was examined and the data are presented in Table 2below:

**Table2: Levelof Awareness of CBL**

| Response | Students(n= 100) | |
|---|---|---|
| | Freq. | Percentage |
| Yes | 87 | 87 |
| No | 13 | 13 |
| Total | 100 | 100 |

Source: Google Survey, 2021

**Methodology of Data Analysis**

The study adopted the descriptive survey approach. The study was conducted on all the mobilization centres of CCOD in July, 2021. A total of 110 copies of a questionnaire were distributed to graduate and undergraduate students of the CCOD based on random sampling on Google and 105 copies of them were completed and returned. Only 100 copies were found usable and thus were used for the analysis.

**Item Analysis for the CBL**

To improve the validity and reliability of the test usually we did Item analysis. From that item analysis we have to find the item difficulty level and item discriminative index level.

**Data Collection**

The present study is a pre- test – post- test Survey Group design. The selected sample for conducting the study is presented in the above table.

**Data Analysis**

The researcher applied 'T' test between Pre and Post test scores of Criterion Test in Ubuntu Operating System in the Computer Science Chapter.

**Awareness and Use of the CBL**

To achieve the first objective of the study the level of awareness of respondents on the existence of the institutional repository was examined and the data are presented in Table 2 above.

**Sources of Awareness about the CBL for Students**

The study also sought to identify the different sources through which the respondents first heard about the CBL. The data is presented in Table3below.

**Table3: Sources of Awareness of CBL for Students**

| | Frequency | Percent (%) |
|---|---|---|
| Colleague | 6 | 6 |
| Lecturer | 12 | 12 |
| Library | 28 | 28 |
| Internet | 52 | 52 |
| Total | 100 | 100 |

Source: Google Survey, 2021

Table 3 indicates that majority of the respondents 52(52%) first heard of the CBL by browsing through the internet. This was followed by 28(28%) who first heard of it through the library. Twelve (12%) of the respondents first heard of the IR through a lecturer whilst 6(6%) heard of it through a colleague student. This could also be attributed to the lack of orientation or awareness creation programmes by the library for graduate students.

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**Table4: Purpose for Using the CBL**

| | Frequency | Percent |
|---|---|---|
| To access thesis and dissertations | 75 | 75 |
| Search for journal articles | 21 | 21 |
| Search for all kinds of information | 4 | 4 |
| Total | 100 | 100 |

Source: Google Survey, 2021

The current study sought to examine the main purpose for which respondents used the IR.

An examination of Table 4 shows that the majority 75% of graduate students use the IR to access thesis and dissertations whilst 21 percent of them use the IR mainly to search for journal articles. Only 3 respondents representing 4 percent indicated that they use the IR to search for all kinds of information. This finding is similar to the findings of Abdelrahman (2017) who in a study of

graduate students at the University of Khartoum reports that students mainly use the IR to access ETDs and e-books. Similarly, in a study at the Loughborough University, Pickton and McKnight (2006) found that students were more interested in having access to complete theses, post prints and conference papers. Finally, majority of the respondents agreed with the statement that "IR helps me to accomplish task more efficiently".

**Frequency of CBL Usage**

The current study sought to examine the main purpose of the respondents for using the IR. Responses on the frequency of using the IR were given based on four statements. The results obtained are displayed in Table 5.

**Table5: Frequency of CBL usage**

| Statement | Students(n=100) | |
|---|---|---|
| | Frequency | Percent |
| At least once every two weeks | 17 | 17 |
| At least once a month | 37 | 37 |
| Whenever I need to | 33 | 33 |
| Never | 13 | 13 |
| Total | 100 | 100 |

Source: Google Survey, 2021

Out of the 100 respondents 37 (37%) of the respondents use the CBL once a month, 33(33%) of them indicated that they use the CBL whenever they need to, 17(17%) of them indicated they use it at least once every two weeks and 13(13%) indicated they never use it. It was therefore discovered that the majority of the graduate students use the IR at least once a month. The implication is that they use the CBL occasionally. This finding is supported by Nunda and Elia (2019) who studied the use of institutional repositories by postgraduates of Muhimbili University of Health and Allied Sciences and Sokoine University of Agriculture in Tanzania and found that the respondents use the IR occasionally. The frequency of use which is the actual use could be said to be influenced by the behavioural intention which is also determined by the factor of Perceived Ease of Use (PEOU) of the CBL. If users visit the CBL and find it easy to use they will continue to use it. However, if users find the IR cumbersome or difficult to use, they will stop its usage.

**Level of Satisfaction**

The questionnaire was also designed to solicit data on the level of satisfaction of participants with regard to the utilization of the IR. The results are presented in Table6

**Table6: Level of Satisfaction**

| Statement | Frequency | Percent |
|---|---|---|
| Very Useful | 75 | 75 |
| Useful | 25 | 25 |
| Somehow Useful | 16 | 16 |
| Not Useful | 34 | 34 |
| Total | 100 | 100 |

Source: Google survey, 2021

Table 6 shows the responses of students concerning how useful the CBL has been to them. The data reveals that majority of the respondents (75%) found the CBL very useful. Just useful was 25% and 16% somehow useful to them. Only 34% indicated the CBL was not useful to them.

**Table7: Benefits of (CBL) to Students**

| Statement | SD | DA | N | A | SA |
|---|---|---|---|---|---|
| CBL enhances learning and innovation | 0(0%) | 0(0%) | 0(0) | 25(25%) | 75(75%) |
| I have access to electronic thesis and Dissertations | 0% | 14(14%) | 0 (0%) | 50(50%) | 36(36%) |
| I have access to journal articles authored by CCOD facilitators | 3(3%) | 97(97%) | 0(0%) | 0(0%) | 0(0%) |
| CBL helps me to accomplish task more efficiently | 8(9%) | 0(0%) | 0(0%) | 67(67%) | 25(25%) |
| CBL helps to improve the quality of my work | 0(0) | 14(16%) | 0 | 17(17%) | 69(69%) |

Source: Google Survey, 2021

Five statements on the benefits of CBL to the student were posed to examine the degree to which the student respondents agreed with them. Table 7shows that majority of the respondents (25%)

agreed with the statement that "CBL enhances learning and innovation" while 75% of them strongly agreed to it. No respondent was undecided. Also, no respondent disagreed with the statement.
Fifty percent of the respondents agreed to the statement that the CBL gives them access to electronic theses and dissertations" while 14%of them disagreed to the statement. None of the respondents was undecided or strongly disagreed to the statement. There is also evidence from Table 7 that the statement "I have access to journal articles authored by CCOD lecturers" was strongly agreed to by no student (0%) and majority of the respondents, (97%) strongly disagreed with the statement.

**Challenges facing students in the use of the CBL**

The researcher in order to examine the challenges facing students in their use of the IR provided statements to which the respondents were to indicate their level of agreement or disagreement to the statements. Strongly Disagree (SD) Disagree (DA) Neutral (N) Agree (A) Strongly Agree (SA).

**Table8: Challenges of using the CBL**

| Statement | SD | DA | N | A | SA |
|---|---|---|---|---|---|
| Lack of awareness creation about IR | - | - | - | 69(69%) | 31(31%) |
| Inadequate or erratic power supply | - | - | - | 89(58%) | 11(11%) |
| Insufficient technological skills | 70(70%) | 20(20%) | - | 2(9%) | 8(8%) |
| Inadequate Internet network and infrastructure | - | 10(10%) | - | 43(43%) | 47(47%) |
| Insufficient information provided by CBL | | - | - | - | 85(85%) 15(15%) |

Source: Google Survey, 2021

The participants were asked to indicate the extent to which the lack of knowledge or awareness creation about CBL" affects their use of the CBL. The majority (69%) agreed that this hindered their utilization of the IR whilst 31(31%) strongly agreed to it. No respondent took a neutral stance and no respondent disagreed or strongly disagreed to the statement.

As to whether inadequate or erratic power supply was a challenge 89 (89%) respondents agreed to the statement whilst 11(11%) respondents strongly agreed to it. None of the participants was undecided and no respondent disagreed or strongly disagreed to the statement.

Another statement was made to probe the technological skills of students against the use of the CBL was strongly disagreed to by 10 (10%) of the respondents, 43 (43%) disagreed to it however, none of the respondents took a neutral stance. Only 2(2%) agreed to the statement. In the same vein, 8(8%) respondents strongly agreed to the statement. "Inadequate internet network and infrastructure" was the next statement for respondents to indicate their level agreement of disagreement. Forty seven percent strongly agreed and 43% of the agreed to the statement. The last statement to determine respondents' reaction was "Insufficient information provided by the CBL". In this situation majority of the respondents (85%) agree that internet network was a challenge whilst (15%) of the respondents strongly agreed to the statement that "Insufficient information provided by the CBL". None of the respondents disagreed or strongly disagreed with the statement.

**Finding of this Study**

The Blended Learning Classroom in Computer Science Unit has been positively impact on CCOD Students' Achievement in all courses mounted on the CBL.

**Recommendations**

A basic philosophy is that graduate and undergraduate students with enhanced access to information will lead to quality research output and academic performance. To address the low utilization of the CBL by all CCOD students some strategic measures should be taken to influence their use by implementing the following recommendations:

**Orientation for all CCOD Students**

Library orientation should be organized for all students in order to educate them on the benefits of using the CBL for their studies especially in doing research. The use of workshops could help equip students with the skills that would make it easy for them to search the CBL efficiently and effectively for scientific and scholarly information.

Do-It-Yourself (DIY) short videos could be put on the CBL interface and the

Library website to guide students on how to use the CBL. CCOD needs the cooperation of the various departments, agencies, internet service providers and the management of CCOD to be able to succeed. Every effort should be put in place to achieve this goal.

**Provision of ICT infrastructure**

Management and effective use of the CBL relies on the internet to function. The challenge has always been the low bandwidth restricted to the office alone and not accessible to students at the various moblisation centres which makes retrieval of documents very slow for those outside office. Management should ensure that service providers increase the bandwidth to the various mobilisation centres of CCOD. There is also the need to increase the number of computers and the broad band in the Library so that as many users as possible would have easy access to upload or download from the institutional repository.

**Provision of Electric Power Generators**

The lack of standby electric power generators on all the mobilisation centres was a challenge to the users of the CBL. Management should give this the necessary attention that it deserves and gets the plants installed as a matter of urgency. It must be put on record that at the time of this study the Library was in the process of purchasing a generator at Yerikoe and Walewale mobilisation centres. Other moblisation centres should be given the same care of in future.

## Challenges

It was discovered that majority of the respondents agreed that "Inadequate or erratic power supply" was a challenge confronting user of the CBL. This finding is in line with the finding of Boufarss (2010) who in a study of the development of IRs in Nigeria found erratic power supply as one of the impediments to the development of IRs.

The study also discovered inadequate ICT connectivity and infrastructure as a major challenge confronting the users of the CBL. This finding is in tandem with the findings of Boufarss (2010) who found the lack of ICT infrastructure and facilities in institutional repositories as a challenge in Nigeria.

## Conclusion

This study provides empirical evidence on the perception of all CCOD students on their use of the CBL especially in relation to the various moblisation centres of the CCOD. The findings show that majority of all the students are aware of the CBL but are not making efficient use of it. This could be attributed to challenges students face such as ICT connectivity, infrastructure and erratic power supply.

These challenges must not be allowed to hamper the efficient utilization of the CBL in enhancing, teaching, learning and research at CCOD mobilization centres. In an era where face to face must contend with shrinking budgets and academic social networks it is only imperative that the CCOD take measures to overcome the challenges affecting their full utilization.

The blended Learning is in fact very compatible with most of our commonly accepted practices of learning theory. As far as the overall effectiveness of the pedagogical subject, this present study concludes that the College's CBL is useful to students before and after blended instruction. Derived from this survey the researcher concluded that the students' academic fulfillment is highly impacted positively after the blended instruction approach is administered for students.

**Educational Implication**

The present study indicates that the blended learning has impacted positively in students' academic achievement in all CCOD courses mounted on the CBL. Therefore, all the courses facilitators deliver may have to use the CBL as a mode or instructional strategy for all CCOD programmes. The student may have to learn the concepts easily from the videos and course content facilitation. All the mobilization centres, facilitators, students non-teaching staff and other educational institutions may continue to implement technology based learning to provide the effective teaching and learning for all the students in this COVID-19 era and in the foreseeable future

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