



# Adults Pursuing E-Learning in Ghana – Opportunities, Challenges and Expectations

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## Abstract

It has been said that the debate over effectiveness of learning online has ended and that several large-scale studies are reporting better learning outcomes for online learning than for some face-to-face courses. In the Central Region of Ghana, a study was carried out to explore opportunities, challenges and expectations confronting adults who learn online. Adult learners' completed a survey modeled on a five-point Likert scale. One hundred and fifty respondents from two districts completed the survey. Respondents perceived their greatest opportunity to be earning a degree online while maintaining their job. Their greatest challenge was with interactivity. Respondents expected information in online courses to be communicated clearly and also be provided with feedback on their progress.

**Keywords:** Distance learning, Technology usage, Interactivity, Accessibility, Enrolment procedures, Accreditation.



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## 1. Introduction

This paper attempts to bring to light the potential for online education for adults in Ghana. It examines opportunities and challenges that confront adult learners pursuing online learning in Central Region of Ghana. Findings of nationwide studies show that reading and writing performance of students is inadequate and that literacy and work force preparedness are two of the most important issues facing education today (Brand and Educational Resources Information Center (U.S.), 1990). Increasingly, e-learning is being employed in Higher Education to provide education, literacy and workforce preparedness to graduating students.

A number of advantages to online learning have been identified including the provision of equal opportunities for learners to learn at their chosen pace. In South Africa, (Rohleder *et al.*, 2008) reports on students' evaluations on the use of e-learning in a collaborative project between two universities and shows both positive and negative evaluations of the use e-learning. The positive aspects identified were that e-learning made it easy to communicate between parties, and easy access to information and learning material.

Negative aspects identified were that it presented some technical challenges; including online communication was disjointed; there was unequal access to computers between students from the two universities; students felt that more face-to-face interaction was needed. In Spain, (Birzina *et al.*, 2012) note that the rapidly changing economic, financial and social conditions in the globalized social environment require new knowledge and competences in order to understand, adapt, remain competitive and successful. Birzina *et al.* (2012) observed in their study of the implementation of the inter-university master's programme, that e-learning was the means to promote changes in academic studies and provide opportunity in the globalised social environment to widen access to lifelong learning and enable universities to play the role of integrating non-formal and informal learning elements into formal education.

Without doubt, e-learning has offered many opportunities for individuals and institutions all over the world; individuals gaining access to education they need almost anytime and anywhere they are ready to and enabling institutions to provide more cost-effective training to their employees (Demiray, 2010). In Kenya, interviews with distant education administrators revealed numerous opportunities that e-learning presents.

These included; administrative opportunities, student-centred opportunities, instructional opportunities, infrastructural opportunities and business services opportunities. While respondents in the study were enthusiastic about distance education and the potential for e-learning in particular, they were cautious of the challenges that roam in the background (Mungania, 2006). The issue of unequal access to computers and the internet is highlighted as a crucial issue for e-learning in the South African context, and for the fostering of democratising educational discourse (Rohleder *et al.*, 2008).

It appears from the above account that, a lot has been done in e-learning in the African Continent and around the world. However, at the School of Continuing and Distance Education at the University of Ghana, not much research has had a focus in this area. Moreover, it is not known if any study in Ghana had ever examined the opportunities and challenges that confront adults in on in the Central Region in their pursuit of e-learning.

## 2. Background

The Institute of Continuing and Distance Education (ICDE) is one of the key institutions through which the University of Ghana carries its mission, standards and curricula into Ghanaian cities, towns, villages, and communities. The Institute offers courses leading to Diploma, Bachelors, M.A., M.Phil., Ph.D. in Adult Education; Youth in Development Work; and short courses for community leaders.

### 2.1. Problem Statement

A successful integration of learning technology into the conventional face-to-face teaching and learning will have the potential to provide more flexible access to learning material, improved learning outcome for the students, and increase the quality of teaching and administrative services, without changing the mission of universities or reducing the academic freedom and autonomy (Omollo, 2011). Larsen and Rytönen (2013) has revealed that the management at the College of Health Sciences (CHS), at the University of Ghana perceived the following in regards to e-learning:

That, teachers' do not prioritize developing their teaching using e-learning due to lack of incentives., And that low bandwidth and little available e-learning support and training meant that PhD students at the CHS-UG have limited experiences with e-learning but are positive about using e-learning in PhD courses (students are used to various teaching forms and keen on trying new ways of teaching as long as the e-learning activities are fully integrated in the teaching and included in the assessment)

That suggested steps for implementation of e-learning, identified in 2006, are still valid and in line with the recommendations in the literature and the assumptions of earlier appraisal report (Awidi, 2008).

Omollo (2011) show that, a successful integration of learning technology will have the potential to provide more flexible access to learning material, improved learning outcome for the students, and would increase the quality of teaching and administrative services, without changing the mission of universities or reducing the academic freedom and autonomy. Larsen and Rytönen (2013) makes a note that, one way of ensuring student involvement is through mandatory participation in online learning activities where the participation in activities is very important.

The authors note that, central aspect in online learning is to look at how you activate the students in actual learning activities and harvesting the full potential of e-learning means that one embarks on an integrated approach in which one engages students in online learning activities. They affirmed that one can design, diverse array of activities around group work, problem based learning (projects, cases, etc.), self-tests, video lectures, assignments and discussions.

The critical question now, is in what ways can adult learners having a disadvantage in their access to technological resources, as pertains in Ghana, an African country perceive e-learning i.e. the online mode of

learning, more especially as adult learners are mostly thought to be ill-prepared for higher education and more used to the traditional lecture mode of instruction delivery? It is in line with this trend of thoughts that this study has sought to explore adult learners in two districts in the Central Region of Ghana for their perceptions on opportunities, challenges and expectations for pursuing e-learning. The need for this study arose as a result of the quest for answers to questions pertaining to the lack of effective understanding of what adult learners' pursuing e-learning look for as opportunities and what challenges confront them in doing studies online as well as the expectations they have for pursuing e-learning.

This study examining opportunities and challenges that confront adult learners is a part of a bigger study that asked six research questions. This paper focuses only on two research questions about opportunities/ challenges and expectations adult learners have for doing e-learning.

### 2.1.1. Why Central Region

The Cape Coast Learning Center of the College of Education, University of Ghana Learning Centres in the Central Region is one of ten Regional Centers that has largely offered face-to-face teaching of adult learners. The Centre's mandate covers the entire Region. As the School of Continuing and Distance Education prepared to roll out its distance education program at the Cape Coast Centre in 2014, there was the urgency to respond effectively to the growing demand of working adults and others who have difficulties in getting trained in conventional education because of lack of flexibility in the timing and location of courses. The other urgency was to provide an opportunity for the empowerment of those who are disadvantaged by existing provisions. These are the unemployed, the disabled and ethnic minorities who would benefit greatly from continuing education.

## 3. Literature Review

### 3.1. E-Learning in Sub-Saharan Africa

The [UNESCO Institute for Statistics \(2007\)](#) estimate that in Sub-Saharan Africa, only 1 in 250 people have access to the Internet as against the global average of 1 in 15. With this statistic, it is obvious that e-learning in higher education faces a great challenge as this mode of instruction delivery relies heavily on the available information and communication technology infrastructure. The lack of infrastructure and the poor quality of equipment present in Higher Education Institutions means that, research as well as the use of learning technologies would suffer. However, notwithstanding those constraints, e-learning is still being proclaimed by many as having the potential to address the problem of access to quality higher education in Sub-Saharan Africa, especially as it has been documented within other settings, especially the developed world that learners who have participated in online learning, mostly report that they perceive this mode of learning as being convenient and flexible ([A.P et al., 2010](#)); ([Beatty et al., 2001](#)) offering a greater access to learning resources ([Brannan and Michigan State University, 2002](#)) increasing student motivation and self-esteem ([Alberta Learning E & Educational Resources Information Center \(U.S.\), 2002](#)) enhancing learner participation and interactivity ([Al-Fadhli and Khalfan, 2009](#)) and more significantly, improving the quality of learning ([Dengler, 2008](#)).

As a result most institutions within Sub-Saharan Africa are beginning to explore the possibility of adopting this mode of learning to help address the ever-growing demand for tertiary education within the sub region ([UNESCO IfS, 2007](#)). Unfortunately, this is mostly being done with little recourse to trying to understand the students' characteristics and their perceptions about the helpfulness, accessibility, and usability of these technologies within their context ([Asunka, 2008](#)). Nonetheless, [Sawahel \(2013\)](#) reveal that there is a sharp rise in academic digitisation programmes, booming enrolment in online higher education and rapid adoption of self-paced e-learning, making Africa become one of the most dynamic e-learning market in the world – with Senegal in first place followed by Zambia, Zimbabwe and Kenya.

Drawing from a recent study by Ambient Insight, "*The Africa Market for Self-paced e-Learning Products and Services: 2011-2016 forecast and analysis.*" Sawahel shows that forecasts for 16 countries in Africa: Algeria, Angola, Ethiopia, Ghana, Kenya, Morocco, Mozambique, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Tunisia, Uganda, Zambia and Zimbabwe, looks impressive. The study found that the overall growth rate for self-paced e-learning in Africa is 15.2%. Senegal has the highest growth rate in Africa at 30.4%, followed by Zambia, Zimbabwe and Kenya at 27.9%, 25.1% and 24.9% respectively. Overall, self-paced e-learning revenues in Africa reached US\$250.9 million in 2011, and by 2016 will triple in four countries and double in seven countries.

Although, the figures look interesting and impressive from Sawahel's report, it is important that, integration of technology effectively into mainstream teaching and learning within higher education institutions in Africa and for that matter Ghana which does not show up in the list of countries with highest growth rate in self-paced e-learning in Africa be done carefully and effectively by allowing more empirical studies to take its course so as to lead to a fuller understanding of all the "sociological" issues that are probably unique to particular institutions, regions or countries ([Asunka, 2008](#))

### 3.2. Characteristics and Needs of Adult Learners

Many of adult learners in the University of Ghana and the Cape Coast Learning Centre are working, some full-time, and many have childcare responsibilities as well. So nearly all of them need the information to be presented in as direct and easy to digest manner as possible. The online educational environment is increasingly being used by adults and should be designed based on the needs of adult learners ([Cerccone, 2008](#)) In his groundbreaking study, Cerccone, discusses andragogy, an important learning theory and reviews three other adult learning theories: self-directed learning, experiential learning, and transformational learning.

Subsequently the theories were and adult characteristics are examined for ways in which they may be applied to the design of online learning environments. It follows that, in designing an online classroom environment it is important to considering the application of online learning theories. Online learning is on the rise, but research on

outcomes and student satisfaction has produced conflicting results, and systematic, targeted research on underprepared college students is generally lacking according to [McDonough et al. \(2014\)](#).

This study compared three sections (traditional, online, and 50% hybrid) of the same upper-level psychology course, taught with identical materials by the same instructor. Although exam scores were marginally higher in the traditional course, final grades and written assignments did not differ across sections, nor did student satisfaction. Student engagement predicted outcomes online. These results suggested that outcomes and satisfaction are equivalent in online, hybrid, and traditional courses, and that a student's own diligence and drive might better predict success in online learning.

[Jagers \(2011\)](#) documented that underprepared students perform poorly in online coursework for four reasons:

- a. the technical difficulties associated with navigating the online content,
- b. social distance from classmates and instructor,
- c. lack of student supports online, and
- d. the lack of structure in online platforms.

Nonetheless, the self-paced nature of the online environment may be beneficial to these same students ([Kim and Lee, 2011](#))

### **3.3. Students Expectations and Experience**

[Asunka \(2008\)](#) show that, a cross-section of Ghanaian students studied in a private tertiary school did not respond favorably to online constructivist teaching approaches such as asynchronous discussions and ill-structured project-based learning activities, and perceived collaborative online learning within their context as a complex, more demanding and time-consuming experience. Many other studies have reported unfavourable students experiences with online learning stemming largely from improper planning and poor implementation and evaluation of e-learning approaches.

[Hara and Kling \(2003\)](#) report of students' distress with e-learning resulting from poor implementation practices leading to communications breakdowns and technical difficulties. [Merisotis and Olsen \(2000\)](#) report on ambiguous instructions causing distress to e-learning students. [Dirkx and Smith \(2004\)](#); [Stodel et al. \(2006\)](#) and [Maeroff \(2004\)](#) document the unwillingness of other learners to participate in group assignments and the general feeling of 'loss' and 'disconnectedness' due to the lack of face-to-face interactions and one-on-one support usually available to learners in traditional classroom setting.

[Carr \(2000\)](#) assert that some of these student experiences become important factors that cause high dropout rates in most online courses. [Maltby and Whittle \(2000\)](#) as well as and [Mullenburg and Berge \(2005\)](#) find that, unfavourable student experiences with e-learning could result in reduced student motivation to learn and low student satisfaction with their learning experiences.

## **4. Methodology**

An exploratory survey was carried out to understand e-learning needs of adults in Central Region. This paper reports only on a section of the survey carried out to obtain data for study. The entire survey investigated six research questions. In this paper only 2 of the 6 questions are addressed. The survey questions were measured using a five-point Likert scale. It probed the extent to adult learners in the Central Region agreed or disagreed with statements about the opportunities and challenges open to them to pursue e-learning and what expectations they had for e-learning.

The study was a cross sectional because the relevant data was collected only at a point in time when each respondent was asked to complete the questionnaire. The exploratory survey covered just two of the sixteen clusters (constituting Cape Coast Metropolitan and Abura-Asebu-Kwamankese District) that the entire Central Region had been divided into by reason of this study.

### **4.1. Population and Sample Sizes of the Study**

Population for the study comprised adult learners within the two Districts considered for the study in the Central Region. The study population was estimated to approximate between 500 to 600 adult learners in the two districts. The sample size was 150 respondents all people who claimed to have experienced e-learning at a point in their life.

### **4.2. Questionnaire Development**

This paper reports on part of the data gathered from the questionnaire survey. Likert-type scale with five levels ranging from strongly agrees (allotted 5 points), agree (4 points), uncertain (3 points) disagree (2 points) and strongly disagree (1point) was used.

### **4.3. Validation of Instruments**

The instruments for the study was assessed for content and construct validity. Each item of the instrument was carefully analyzed and checked to ensure that it conveyed the necessary message. The instruments addressed for this paper the two issues stated above.

### **4.4. Data Entry and Analysis**

Quantitative data resulting from the survey was entered into the Statistical Package for Social Sciences (SPSS). Data entered was analyzed and mean responses were examined. Descriptive Statistics (means, charts and histograms) is used to present results.

### 5. Results

In analyzing the data, means indicated the dominant perception of respondents regarding opportunities, challenges and expectations about e-learning. Standard deviations showed the deviation from the mean responses. Thus it showed the shape of the distribution of the perceptions of respondents on a specific issue addressing opportunities, challenges and expectations about e-learning. How close the responses were from the mean response were used in the assessment of various issues raised. Based on the five-point rating scale of a low of 1 and a high of 5, any item with mean 2.50 and above is considered as agreed/ applicable while any item with mean less than 2.50 is regarded as disagreed/not applicable to the issue.

On opportunities and challenges/difficulties that confronted adult learners, respondents perceived that the most important opportunity for students to pursue online learning was being able to earn a degree online while maintaining their job. In other words, adult learners find opportunity in e-learning systems that are easy to navigate by learners to enable them obtain a degree online while working (Table 1).

A mean of 4.7133 on the rating scale indicate a strong agreement to this issue that students consider a great opportunity in being able to master and navigate their way through the e-learning environment to be able to bring their online degree dreams to a successful end. However considering all other opportunities shown in the table, it is seen that respondents' agreed that all the opportunities listed in the table motivated students to pursue online learning. Proper accreditation of e-learning programmes was big in the minds of adult learners (mean = 4.0 & 4.2) and finding scholarships to do e-learning also was seen as an opportunity (mean = 3.32 & 3.0).

Table-1. Perceptions of adult learners on opportunities to pursue E-learning

Opportunities	N	Mean	Std. Deviation
Earning a degree easily online while keeping my job	150	4.7133	.52247
Properly accredited institutions offering online learning only programmes	150	4.0000	.72353
Properly accredited institutions offering online learning partially through distance education programmes	150	4.1667	.85465
Properly accredited institutions offering a traditional distance education programmes	150	3.9400	1.05060
Distance learning scholarships available for online-only learning programmes	150	3.3267	1.25049
Distance learning scholarships available for traditional distance education programmes	150	2.9800	1.33849
Distance learning scholarships available for programmes combining online learning with traditional distance education programmes	150	3.0000	1.34614

In as much as there were various opportunities to students when pursuing online learning, respondents also indicated various difficulties that are encountered by learners doing e-learning. From the figure below it is shown that, interactivity (mean = 4.6) and accreditation (mean = 4.5) were the major difficulties adult learners' faced in pursuing E-learning, while technology use (mean = 4.3), cost of financing (mean = 4.2), enrollment procedures (mean = 4.2) followed subsequently as difficulties in pursuing E-learning (Fig 1). Also, the difficulty in programme planning and design (mean = 4.1), college and life responsibilities (mean = 3.9), institutional operation (mean = 4.0), institutional governance (mean = 4.0), applied and experiential learning (mean = 4.0) and accessibility (mean = 3.9) were all indicated to be problem facing students pursuing online learning.

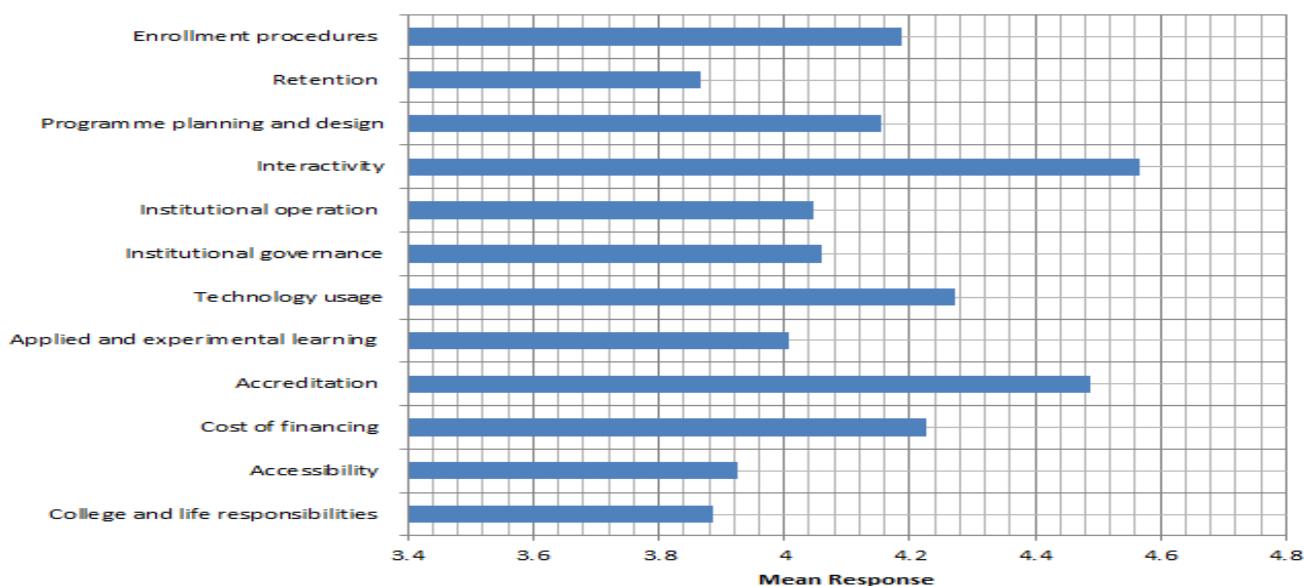


Fig-1. Perceptions of adult learners on difficulties they face in pursuing E-learning

From the study objective two, which sought to examine the expectations of adult learners for pursuing e-learning, respondents perceived their utmost expectations to be that e-learning courses should be interactive by process and diverse in content. A mean of 4.3 on the rating scales, indicate strong agreement to those issues. Availability of student assessment guidelines was equally highly by respondents (mean = 4.29).

Next in line of respondent rating were provision of procedural details for e-learning and pretraining in basic computer and information skills to learners (each with a mean of 4.18). Following were instructors who are responsive to student needs and available to discuss students' progress (mean = 4.16) and challenging course

content and assignments (mean = 4. 14). Instructor feedback on class projects, examinations and quizzes, availability of course outlines specifying important information about the course and scope of the course and content were all deemed as important as shown in [Table 2](#).

**Table-2.** Adult learners expectations about what E-learning should offer them

<b>Expectations</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Courses are of in-depth scope, stimulating and challenging	150	4.0267	1.11696
Courses are interactive in process and diverse in content	150	4.3067	.75925
Availability of course outline specifies teaching methods, grading, attendance and participation policies	150	4.0067	.99324
Availability of student assessment guidelines	150	4.2933	.90892
Instructors who are responsive students needs and available to discuss students' progress	150	4.1600	.87531
Course content and assignments are challenging	150	4.1400	.99009
Instructors schedules are available	149	3.8523	1.00254
Procedural details are provided to support effective learning online	149	4.1879	.96120
Instructor feedback available on class projects, examinations, paper and quizzes	150	4.0800	1.06513
There is pretraining in basic computer and information skills	150	4.1867	1.07683

In summary it can be inferred that the most perceived important opportunity for students to pursue e-learning was to obtain an online degree while they kept their job however, although there are opportunities, it was shown by respondents that interactivity- getting on-on-one support from the instructor as well as accreditation of the certificates obtained from the pursuing e-learning were the major challenges or difficulties they faced. It was also shown that adult learners had great expectations for e-learning to make adult learning easy and accessible to every adult learner.

## **6. Discussion**

### **6.1. Reflections about Support for Effective E-Learning**

This results support the idea that adult learners must be supported adequately to find e-learning engaging, enjoyable and easy to do. This is in line with the assertion by Cercone that, the online educational environment is increasingly being used by adults and should be designed based on the needs of adult learners ([Cercone, 2008](#)). This means that implementation of e-learning programmes must take into consideration adult learner perspectives that play a role in determining quality in online courses.

E-learning should not just be about populating course materials on the web. It should embrace authorship involving the creation of collaborative learning environment that supports knowledge acquisition, inquiry and questioning between instructors and learners, learning styles, interactivity and accredited assessments ([Deubel, 2003](#)).

[Carr \(2000\)](#) reported that unfavorable student experiences became important factors that caused high dropout rates in most online courses. [Hara and Kling \(2003\)](#) reported that students' distress with e-learning resulting from poor implementation practices led to communication breakdowns and technical difficulties.

The time is ripe for accredited Institutions such as the University of Ghana, Kwame Nkrumah University of Science and Technology and the University of Cape Coast which have some of the best facilities and resources for traditional undergraduate and graduate education in the country to increase their online presence to support needy learners and award more high quality online degrees.

### **6.2. Addressing E-Learning Opportunities, Challenges and Expectations of Adult Learners**

Some of the simplest ways to address challenges and expectations identified by adult learners to pursue online learning should be directing learners to use YouTube ([www.youtube.com](http://www.youtube.com)) or Khan Academy ([www.khanacademy.com](http://www.khanacademy.com)). Instructors could look up for appropriate videos, and ask students to email back if they find videos they consider helpful. Usually the students will find excellent resources for the instructor. From there writing and sharing notes with class will enhance interactivity and engagement and improve communication.

Instructors may also open a free account on drop box from where to drop and share educational resources with the learners. Another step to make e-learning meaningful, engaging and easy for learners in institutions with limited e-learning resources is to write a PowerPoint lecture, and print as a PDF file. Then recording an audio to go along with it and posting and sharing in Drop Box. Free recording software is available and may be accessed at <http://audacity.sourceforge.net/>.

In a typical adult learning class in Ghana and other developing countries, learners may prefer to sit back and hear a lecture, then later take examinations. Instructors should use this knowledge to let adult learners 'buy into' the flipped classroom- learning content at home, and discuss case studies in class. Putting a quiz before each class would motivate students to take the flipped class seriously.

The textbook online sites should provide the text where resources are very scarce, but students may buy used book for less where money is not so much the issue for learners. Where money is an issue for learners less expensive alternatives should be sought. Instructors need to put in the time and effort to adequately engage and make the e-learning experience easy and enjoying for adult learners

## **7. Conclusion**

Putting it all together, respondents seems to be asking for more opportunities given for adult learners to become active participants in studies done online. From the results, respondents are indicating that they expect online

courses to be more stimulating and challenging. Respondents expect that, courses studied on line should be more in-depth in scope, interactive, and that the content and approach should be diverse to meet different learning styles and needs that adult learners have. This suggests some kind of combinations of e-learning and physical presence of instructor to manage the course.

Above observation agrees with a study by Paechter and Maier (2010) which suggested a combination of face-to-face learning components with online learning. Like the study by Paechter and Maier, this study did not research about specific best practices and examples of e-learning. But unlike their, study was smaller and an exploratory in nature trying to figure out what general experiences (opportunities, challenges and expectations) confront adult learners in the Central Region of Ghana. The baseline information obtained will then set the tone for other studies to follow which might eventually lead to the implementation of specific best-practice models in e-learning.

Respondents suggest several areas to begin an e-learning intervention. They have made suggestions about the e-learning syllabus and course information. It should communicate clearly all the information learners need to know about course requirements, contact information, evaluation processes, schedules etc. All these is suggesting that, information provided about the course should be complete in such a way and manner that, after going through them, the adult online learner should have good sense of all that it would take to achieve the learning outcomes for the course.

Respondents have stated interactivity as a major challenge. The nature of the study did not make it possible to really point out what kind of interactivity learners were pointing out. This will be the focus of future studies to identify. But whatever form and shape interactivity takes, it will boil down to relationship building in one way or the other. The best way to build effective relationships for an adult student population will be for the instructor to demonstrate genuine and sincere interest in the learners, taking their concerns, grievances and feedbacks seriously and getting very involved in activities that serve the interests of learners.

The learners' expectations of e-learning actually confirmed this. Expectations were pointing to course information being clearly communicated to them, and having access to instructor feedback and grading on class projects, examinations, papers, quizzes and others so they are able to determine where to make more efforts and improvements. Discussion forums are a place for the instructor to introduce himself and interact with students. It is also where learners get to interact meaningfully with each other. Setting online office hours has been found helpful in helping instructors and learners to connect.

Results of the study suggest learners' experiences in doing e-learning under unaccredited sources. These could be from the websites of private entities operating within the confines of Ghana or outside Ghanaian borders without proper accreditation. It is recommended that the very well established institutions of higher learning in Ghana increase their online presence to offer more courses online for adult learners.

It is recommended for adult learners to be exposed to basic computer and information skills training before Institutions of higher learning introduce them to e-learning. Students could be encouraged to practice with free online literacy courses available from YouTube or the Khan Academy or be exposed to some form of computer literacy experience in the orientations prior to engaging in e-learning for an online degree.

As noted earlier, this study gives a general impression of learners' experiences about learning online. It did not consider specific examples of e-learning delivery models. More research is needed to understand more clearly accessibility and usability issues that are important in e-learning. Also further research is needed to determine the optimal degree of instructor-student interaction in online courses for student learning and satisfaction.

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