Strategies for Teaching Online Courses within the Sub-Saharan African Context: An Instructor's Recommendations

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Abstract

To understand better the challenges of implementing online learning in developing countries, the authors studied two consecutive iterations of an online course at a private university in Ghana during the 2007-2008 academic year. Study participants were undergraduate pre-service teachers, and the course - Pedagogical Aspects of ICT - which hitherto had been delivered as a classroom-based lecture, was redesigned and delivered online by the instructors who also served as the researchers. This served the dual purpose of introducing the students to collaborative online learning, and providing the setting for this empirical study. Working within Africa's peculiar context of limited and unreliable technology infrastructure, and with students who preferred the traditional instructor-led approach to student-centered self-directed learning, several issues and challenges came to light. The lessons learnt, instructional strategies adopted, as well as the perspectives that the students shared in their formative and summative evaluations of the course, form the basis of a set of recommendations outlined in this paper. These recommendations therefore mainly relate to strategies that may be relevant to instructors who wish to foster young students' engagement and participation in learner-centered collaborative online learning activities within the context of limited technology infrastructure as pertains in most parts of Sub-Saharan Africa.

Keywords: collaborative online learning, Ghana, undergraduate students' perceptions, social constructivist pedagogy, learner-centered instruction, open source learning management system.

Introduction

With the current advances in Information and Communication Technologies (ICTs) by way of improved computer power, faster data transfer rates, and attendant lowering of costs, coupled with the fact that the effective integration of these technologies into educational curricula has been demonstrated to have positive effects on student learning (Harvey, 2003; Salpeter, 1998), technology-enabled instruction, especially online learning, has emerged as the most feasible and economically sound means of expanding access to quality higher education. Online learning is thus being rapidly adopted by educational institutions worldwide as an alternate or complementary mode of education delivery, and indeed has been heralded as the next democratizing force in education, particularly in higher education (Jones, 1997). Thus, in the United States for example, over 3.5 million college students took at least one online course in the fall term of 2006 (Allen & Seaman, 2007).

In Sub-Saharan Africa however, where it is estimated that only 1 in 250 people have access to the Internet as against the global average of 1 in 15 (UNESCO Institute for Statistics, 2007), online learning in higher education poses a great challenge as this mode of instruction delivery relies solely on the available information and communication technology infrastructure. In addition, most institutions within the sub-region are currently in a state of crises - having to cope with collapsing infrastructure, brain drain

and dwindling financial resources, whilst under increasing pressure to cater for larger student populations (Mackintosh, 2005).

Despite these constraints, online learning is still being touted as one of the best possible solutions to the problem of access to quality higher education in Sub-Saharan Africa, and so most institutions within the sub-region are being urged to adopt this mode of learning for both whole and partial delivery of courses (African Information Society Initiative (AISI), 2007). However, with very limited studies being reported on online learning within Sub-Saharan Africa, it is unclear which type of technology tools, instructional strategies and learning philosophies will be most appropriate in fostering online learning within that context. It is also not certain how traditional higher education students who have limited access to technological resources perceive this mode of learning, especially as the development of digital content that is aligned with curriculum frameworks is known to be very limited in Africa (Farrell, Isaacs, & Trucano, 2007).

It is in line with this thinking that fully online collaborative learning activities were introduced at a Ghanaian private university during the 2007-2008 academic year, and all issues and activities pertaining to the conduct of the courses over two semesters thoroughly investigated, especially from the students' perspectives. The first semester involved 26 students (mostly pre-service teachers), but recorded a high attrition rate resulting in only 5 completing the course. Based on the experiences with the first group however, some strategies were adopted during the second semester, resulting in the second group participating more actively in course activities and also performing much better. Indeed, 23 out of 25 students who enrolled completed the course.

The recommendations outlined in this paper thus mostly emerge from some of the instructional strategies that were subsequently adopted following the lessons learnt in the first round, and which contributed to such a dramatic increase in student participation the second time.

Conduct of the Courses

The course - *Pedagogical Aspects of ICT* - introduces pre-service teachers to the foundations of Information and Communication Technologies (ICTs) in education: basic facilitation skills for teaching in ICT enhanced environments, the use of ICTs in the packaging, storage and retrieval of electronic documents, and the importance of software packages and learning management systems as aids to education. *Claroline*, an Open Source Learning Management System served as the main platform for course delivery and interactions.

The course was conducted in two semesters and thus involved two different sets of students, most of who were in the age range of 18 - 22 years. Both constructivist (Bennett, 2003; Jonassen, 1999) and behaviorist principles were applied in the design of the course, and its implementation was guided by Graham, C., Cagiltay, K., Byung-Ro, L., Craner, J., and Duffy, T. M's (2001) adaptation of "Seven Principles for Good Practice in Undergraduate Education," a popular framework for evaluating teaching in traditional courses which was originally published in the *AAHE Bulletin* by Chickering & Gamson in 1987. After having used the principles to evaluate four online courses at a Midwestern University in the United States, Graham and co-workers developed a list of "lessons learned" that correspond with the original seven principles. Though, not a set of global guidelines for online courses, the instructors found the principles quite useful and relevant enough to serve as a guide for implementing the course. These seven principles are:

1. Instructors should provide clear guidelines for interaction with students.
2. Instructors should facilitate meaningful cooperation among students through well designed discussion assignments.
3. To encourage active learning, students should present course projects.
4. Instructors need to provide two types of feedback: information feedback and acknowledgment feedback.
5. Online courses need deadlines.
6. Challenging tasks, sample cases, and praise for quality work communicate high expectations.
7. Respect diverse talents and ways of learning; allowing students to choose project topics incorporates diverse views into online courses (p. 2).

The course was thus organized in modules of sequenced lessons with each focusing on learning different concepts and principles. For each module, students were required to read recommended texts, participate in online guided discussions, take an online quiz, and in some cases, submit written responses to assignment questions, all of which were graded for sixty (60) percentage points. However, to keep students motivated, assignments were designed to challenge students to apply unconventional learning strategies such as interviewing practitioners and reporting on findings etc.

Students were also expected to work collaboratively in groups of three or four on specific projects that involved finding solutions to real-life education or training problems. Projects included researching and writing conceptual pieces on issues such as the digital divide, distance learning etc., creating multimedia learning resources, creating instructional websites etc. All relevant resources and supports were provided and students self-selected their groups and project topics. Students were assessed on their respective levels of group collaborative activities (which were monitored online), as well as the quality of their final presentations. This aspect of the course carried forty (40) percentage points.

During each semester, pre- and post-course survey questionnaires were administered to students to elicit their expectations and perceptions of online learning respectively, whilst their daily communication and other learning activities that took place on the course website were monitored to determine the levels and trends of usage of course resources. These activities, together with informal interviews and the instructors' general observations provided a wealth of data and information that yielded some insights into the broader human and contextual factors that influence the implementation of collaborative online learning within the Ghanaian context.

Findings

First Iteration of the Course As one purpose of the study was to fully understand students' opinions, expectations and concerns with regard to collaborative online learning within their context, the pre-course questionnaire administered to the students contained a series of statements that addressed students' expected levels of participation, the personal and environmental factors that were likely to influence participation and the expected outcome of the learning experience. An open ended question asking students to write down their general perceptions was also included. Of the 26 students enrolled in the course, 22 returned responses to the questionnaire.

Over 60% of respondents indicated that the lack of face-to-face learning activities, the lack of a final exam and their participation in other classroom-based courses were the main factors that were likely to impact negatively on their participation in the course. The reason being that they spent almost all their time attending classes in other courses (as absence will be noticed by the instructor) and studying for exams, and so an online class that had no such attendance requirements and exams was not motivating enough. Some students were however quite pleased that they could take a course without having to attend classes at some scheduled times.

Students also indicated their discomfort with the mostly self-directed learning activities that were required of them as this represented a departure from the teacher-led instruction that they are accustomed to. Two students expressed their concerns this way:

> Student 1: "Well I do not personally enjoy the style of the course. I believe I would have enjoyed it much if it was a class based course."

> Student 2: "Because it turns out to be that we do not have a personal touch with the teacher and practical aspects of the course it makes it more ineffective for me."

Only two of the respondents however were hopeful that they will likely benefit from the course, as evidenced by the following statement made by one of them:

> "I believe this will give me my first experience with online education, and I'm certain that I will learn as much as I would if this course were to be held in the classroom."

Generally, the instructors noticed that the majority of the students were less hopeful of attaining any fruitful learning experience, and therefore appeared to a bit disinterested, with some laying blame on the university's inability to provide high speed internet access as major drawback. One student summed up as follows:

"First of all, I don't think I have a proper understanding of the course (i.e. in terms of course description). As to what we're expected to learn and to know (or become) at the end of day I don't know. I'll be glad, if you are able to expand on these two areas for me."

This particular student's sentiments were shared by most others, as subsequent one-to-one inquiries by the instructors via email revealed that such students did not fully appreciate how online instruction could possibly replace classroom lectures. Such thinking is probably informed by the mindset, particularly within the African context, that online learning is second best (Saint, 1999), and indeed some African countries have adopted a policy of not recognizing foreign credentials obtained through online courses, citing problems of quality control and accreditation (UNESCO Institute for Information Technologies in Education, 2002).

With the apparent certainty that these negative learner perceptions could directly influence the amount and level of learning processes that were due to take place, a few adjustments were made to the original design of the course e.g. deadlines were relaxed, whilst more assessment tasks (e.g. multiple choice quizzes) were added.

Upon completion of the course, another questionnaire was administered, but had only 9 responses. Of these respondents, only 3 indicated that they were satisfied with the way the course was conducted. Indeed, only 5 students actually completed all course requirements, and it was thus not surprising that most of the course participants indicated that they did not find the style of learning useful or beneficial.

Students' responses to the post-course questionnaire also confirmed the fact that their involvement in other class-based courses was another factor that impacted negatively on their participation in the course. One student for example wrote: "With a lot of pressure from classroom learning, students tended to postpone the online learning activities," whilst another also stated that he would have enjoyed the course better if all students were participating actively.

The high attrition rate in the course could thus be traced to the fact that whilst some students dropped because they were not motivated enough to engage in self-directed learning, others simply faded out because they felt obliged to spend more time and resources on the class-based courses. As the numbers kept dwindling, others also lost interest due to the non-participation of colleagues. In all, students were of the general perception that, compared to traditional face-to-face courses, online learning is more burdensome, offers less interactivity between students, and between students and the instructor, and generally promotes learning to a lesser extent, hence inferior to traditional learning. These issues were thus all taken into consideration when the course was being delivered the second time.

Second Iteration of the Course The second iteration of the course in the subsequent semester involved a different set of 25 students (19 males, 6 females), also mostly pre-service teachers. As in the case with the first, a pre-course questionnaire was administered and all students responded. Analysis of the responses indicated that all students were quite proficient in the use of computers and the Internet, and were familiar with the school's Learning Management System, but none had any prior experience in online learning. As to their expectations with regard to the impending course, students generally gave the impression that though they anticipated encountering difficulties during the course, they were well motivated, at least to begin the course. To some students, the main reason for their motivation was that they had been offered an opportunity to try something new, whilst to others, it was simply because they could take a course and earn a grade without having to attend class sessions that might have been inconveniencing for them. This is exemplified by the following statements from two students:

Student 1: "Hope this course will be interesting and will help me to work in the online environment better. I am hoping to be exposed to the online education to meet new people and learn new things."

Student 2: "I think this online course is going to be difficult for me but with time I think am going to adjust with it. I'm only happy that there are no classes and I can learn at my own time."

The prospect of encountering technical difficulties during online course activities was not lost on some students as they pointed out that the level and capacity of the University's Internet services were just inadequate. One student put it this way:

"For me, I guess with the frequent breakdown of the internet, I am not sure whether I would really benefit from this course."

On the whole, all course participants were assured that the course was being implemented in a way that would address most of their concerns and also minimize the effect of slow Internet connections, but were advised that they needed to keep focused on satisfying all course requirements.

Based on lessons learnt from the previous semester's delivery of the course, as well as the concerns expressed by the current students, the instructors made a couple of revisions to the course content and delivery style and also increased the level of communication and interaction with the students. Details of these revisions are discussed below as recommendations, but it is worth noting that whilst some interventions worked better than anticipated, others did not have much impact. For instance, in an effort to increase student participation in group learning activities, a lot more points were assigned for group work, but this had little impact until a further revision was made. On the other hand, an earlier presumption that students would be motivated to contribute in a discussion forum if deadlines were relaxed, turned out to be an underestimation as students appeared to be more enthusiastic about continuously contributing on topics that had long been dealt with.

Generally however, the course ran quite smoothly, students logged onto the course platform in high numbers, downloaded course materials as soon as they were put up, and also contributed enthusiastically on the discussion forum, and even though motivation began to wane towards the latter stages of the course, a comparatively very low attrition rate (only 2 did not complete all course requirements) was recorded. Post-course questionnaires administered to the students shortly before the end of the course were answered and returned by 20 students. By their responses, students generally expressed satisfaction with the overall conduct of the course. The following is an opinion expressed by one such student:

"Though the course was challenging and sort of a little difficult due to the pressure I believe it was worth the try. At least one will have something to talk about when it comes to online education."

The majority of the respondents also strongly agreed with statements that they had indeed learnt something, and that online learning is equally as effective as class-based learning. This is exemplified by the following statement by another student:

"This online course saved me a lot of money and time as I was able to blend work with my studies. The experience was also worthwhile, and I will definitely take an online course again when I get the opportunity."

Recommendations based on Experiences and Findings

Based on the instructors' experiences and some of the findings made in the investigations, the following are recommended as techniques and strategies that instructors can adopt to help foster young students' engagement and participation in learner-centered collaborative online learning activities within context of Ghanaian and Sub-Saharan African higher education.

1. Build collaborative learning activities around group competitions

Being used to the traditional educational practices, undergraduate students tend to have a competitive mindset - trying to outdo each other. They are therefore not very keen in participating voluntarily in collaborative learning activities, particularly with those students who feel that group work will likely impact negatively on their final individual grade. Instructors should therefore make an extra effort to get to know the learners, and if they exhibit such tendencies, build collaborative learning activities around group competitions (e.g. debates, controversial discussions etc.) with rewards in the form of extra credit. With groups of students having the opportunity to critique or rebut each other's presentations on issues, and with students knowing that the instructor is monitoring and awarding points based on each group's performance, contributions from individual members towards group work increases. On the contrary, when students are placed in groups and asked to work collaboratively, the output most often does not represent an equitable contribution by all group members.

2. If possible, make all learning activities gradable:

Students tend to be more focused on those activities that they hope will improve their final scores and grades, and are therefore reluctant to learn other important things (e.g. copyright issues etc) if they are aware that they will not earn a grade in doing so. Instructors should therefore make all learning activities gradable - even the mere downloading of a document can earn 1 mark for a student. Also feedback on any contribution by a student should be made promptly and, if possible, in the form of scores, whilst making other students aware of it. These activities serve as strong motivators for participation.

3. Wherever possible, make learning interesting and fun:

Students view the Internet more as a resource for entertainment and socialization rather than as a technology that can facilitate learning. They are therefore very adept at using social networking tools such as online chat, Facebook etc, but lack an equal level of enthusiasm when it comes to working with academic course content. It is therefore recommended that learning activities e.g. asynchronous discussions should be interspersed with light-hearted language, fun and pleasant surprises. A common example is to pair students and ask them to criticize each others' respective contributions to a particular topic. Students easily get enthusiastic about this as they have the opportunity to "get back" at their colleagues, and in the process, make meaningful contributions to the discussions. Also give students other online opportunities (e.g. blogs, wikis etc) to express themselves in ways where they are most comfortable. Care must however be taken as students have the tendency of getting off track.

4. Offer alternatives

Though less self-directed learners, undergraduate students tend to appreciate having the opportunity to choose among alternatives within class assignments, projects etc. This is because they have their individual interest areas, strengths and weaknesses, and in the absence of face-to-face contact, are comfortable if given the opportunity to make their own decisions. Thus, for instance, rather than asking all students to submit text responses to a particular assignment, they can be given other options such as PowerPoint presentations, web pages etc. This gives students an overall sense of responsibility and control of their own learning, and contributes to keeping students motivated and engaged. Grading such diverse submissions should however not be based on a single rubric, though the total number of points to be earned can remain the same.

5. Be flexible with deadlines:

Students tend to procrastinate, and the lack of round-the-clock access to the Internet contributes a lot to this. Strict deadlines for submission of assignments etc. results in most students not meeting these deadlines and ultimately dropping off. To help this situation, the instructor should set submission deadlines but give students the opportunity to submit after that date. However, the maximum score a student can earn for a particular assignment or exercise should be progressively reduced each day after the deadline, and all students should be made aware of this at the very beginning. This motivates students to submit assignments on time, or at least not too long after the stated submission date.

6. Take steps to discourage plagiarism

As traditional students who are very much used to memorizing notes and reproducing the same content during exams, students have difficulty appreciating the issue of plagiarism. Copying and pasting content from websites is thus seen to be normal with most students. Instructors should therefore point out plagiarized work (preferably by showing them the websites etc. that they copied from) and give students a chance to redo assignments with the opportunity of earning a higher score. Also students should be directed to Web resources where they can learn about plagiarism and its consequences, and again extra points can be awarded to those ~~students~~ who demonstrate that they have read these resources.

7 .Involve other means of communicating with students:

Almost all students now possess cell phones, and appear to be more comfortable with communicating by SMS than through e-mail. Thus, if possible, instructors can use SMS text messages to give feedback (there are Web resources available that can facilitate this) and also alert students on course related issues such as looming deadlines etc. Students who also seem to be fading out of the course can be reminded through a text direct to their phone. This gets an immediate response from students (as it is

within their reach), than e-mail or announcements on course websites which students have to go online before they can access these.

8. Treat Technology access and availability as the bottom line

In Ghana, most students do not have personal computers, and for those who do, there is no Internet connectivity in their homes, whilst using an Internet café can cost as much as US$ 2 per hour. Access to school computers is also quite limited - few (sometimes outdated) computers are located in laboratories that serve large numbers of students, and in situations where all students have computer access, limited bandwidth leads to very slow data transfer rates. Equipment breakdowns and occasional loss of Internet connectivity are also quite prevalent. Students therefore have sporadic access to the Internet and are incapable of engaging in sustained online activities for long periods. It is therefore recommended that instructors should:

- If possible, provide all course documentation as downloadable PDFs on the course website (usually the school's LMS) as well as third party websites, or e-mail attachments to students. Microsoft word documents containing lots of tables and graphics should also be converted to PDFs before uploading, as this results in smaller file sizes.

- Make effective use of other (preferably free) third party resources to serve as back-ups in the event of loss of Internet access through the institution's technology infrastructure. For example www.nicenet.org for discussions, Google docs for collective creation of documents etc.

- For campus based students, consider a hybrid or blended course, as the occasional in-class activities will help alleviate students' distress with the online interactions.

- As much as possible, avoid heavy multimedia applications such as streaming audio, video, high quality graphics etc. Also avoid online assessment strategies (e.g. quizzes etc.) that require long periods of continuous online presence. For example a quiz of 50 questions can be broken down into 2 or 3 separate sets of questions each of which can be taken at a different time.

- Test course resources including external Web resources with a dial-up connection before making them available or recommending them to students.

- In terms of asynchronous discussions, allow students the opportunity to keep contributing to "old" discussion topics, and keep monitoring and giving feedback. However make students aware that they will be earning lesser points for contributing to discussions on a particular topic after the period allotted for that topic is over.

Conclusion

The purpose of this paper is to contribute to the discussion on what it takes to provide flexible online multimedia learning environments that are acceptable to all categories of learners, particularly within the context of limited technology infrastructure as pertains in most parts of the developing world. Increasingly, pressure is being brought to bear upon higher education institutions, especially those within Sub-Saharan Africa, to adopt technology-enabled distance learning activities in order to make higher education more accessible to a broader section of the adult population. Instructors who have responded by introducing online learning within the African context however, have to contend with students' inability, unwillingness and incapability of participating effectively in the online learning activities due to several social and environmental factors. The recommendations enumerated in this paper, having been arrived at after a year-long online learning activities within the African context have been undertaken, will therefore help enlighten other instructors as they embark on the process of designing and implementing online courses to similar students and within similar contexts.

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