

# Strategizing with ICT to Manage High Universities Enrollments

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**Abstract.** University education especially in the developing world is faced with many challenges. However, it's 21st Century major challenge has been acquiring, deploying and effectively use ICT to address other challenges. This paper demonstrates how new technology innovations are used to improve online teaching in universities that are currently facing a big challenge of high enrollment. The paper contributes to the pedagogical approach that could be followed by instructors to improve their e-learning experience. Practically, the illustrated methods could be used to boost e-learning tools that are already implemented but ineffectively used in many universities.

**Keywords:** E-learning, Teaching Pedagogies, Course Management Systems and Online Teaching Strategies.

## 1. Introduction

Universities worldwide are operating in a challenging global environment that was never before. The advent of internet and the ubiquitous of computers have caused an exponential increase in the competition for clients. Such competition has seen many universities merging and others establishing regional campuses to gain higher market share. Even though these dramatic changes in the demographic structures and the enrollment boom are seen as a bottom line by the university administrators, they have created serious unanticipated challenges. Such challenges like the complexities in managing unstructured data content, duplication, inconsistencies and poor service delivery. Worth still, it is impractical to assume that, class assignments, discussions, exams, and other activities will exactly remain as before the classes burgeoned. This doesn't only increase the instructors' workload, but also comprises the quality of the courses being offered. Such dilemma has been a major factor in fueling endless uncalmness that has engulfed universities in developing countries in the 21st century.

Due to these increasing demands, many universities have hugely invested in information and communication technology (ICT). Others have acquired the latest most robust electronic learning communities and subscribed to externally hosted databases. However, all of these have done little in solving the problem (Petrides, 2004; Kalema et al., 2011). As (Baker, 2010) noted, the failure of ICT to create a change in higher education is not because of what technology, but how the technology is used and the pedagogy followed when using it. This should be done not forgetting the students' social-background as many in developing countries use information technology (IT) for the first time while at the university.

The evolution of IT has increased its need to be used in teaching and learning (e-learning) so as to manage learners and their learning contents. E-learning as domain of IT has been widely researched, advertised and advocated for as an essential tool for teaching and learning. However, the slogans anytime, anywhere that are used to describe e-learning have entirely remained in adverts, conference proceedings and journals.

The objective of this paper is to report and demonstrate some tools and strategies that may be used to make e-learning effective by improving students' engagement and hence produce the desired learning outcome. This paper is expected to contribute on the methodology of effective use of ICT in teaching and learning especially in the high enrolments environment.

## 2. Related Work

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Literature shows that several research studies have been conducted on the use of ICT in teaching and learning. Like many other studies in information systems (IS) many of these researches concentrated on the adoption, acceptance and use of e-learning rather than how e-learning could be effectively used. Li (2004) studied on the perception and factors influencing diffusion of Web-based distance education. By using the diffusion of innovations (DOI) constructs, he asserted that teachers experience has no effect on the five constructs of DOI. However, his study fell short of establishing whether a teacher's experience has an effect on how the he/she transforms the face to face classroom experience to effectively use e-learning.

Like Benbasat and Barki (2007) noted, the use of the technology acceptance model (TAM) has seen many researchers investigating every domain of IT in the perspective of adoption and acceptance of technology. Many studies on e-learning (e.g. Yi et al., 2006; Usluel, 2008; Makgopela & Kalema, 2010) also followed this direction. However, with the ubiquitous of technology the issue of adoption and acceptance of IT is becoming out fashioned especially in the developed world as technology is being used right from the cell phones. Hence, it is important to note that, the more technology evolves, the more proactive students become to it. Therefore, students need to be more motivated with effective content presentations in the virtual environment if the universities are to benefit from e-learning investments.

This study believes that in order for e-learning to effectively impact on teaching and learning, instructors need to devise better pedagogies that put into consideration the design of the courses that are used in the e-learning environment. This helps to reduce students' anxiety, promote the quality and quantity of interaction, as well as increasing students' satisfaction.

### **3. Methodological Approach**

This section outlines and illustrates how well planned strategies and pedagogies may be applied to enlist effective use of e-learning tools. It further demonstrates how change in tone, technology, teaching presence and organization can bring positive changes to student learning. The suggested approaches and strategies are illustrated thus;

#### **3.1. Application of Synchronous Methods in E-learning Courses**

Today's teaching is challenged by many factors among them are; (i) many university students could hardly take up ownership of their studies without intervention. As a result students prefer to visit social networking sites rather than using the learning management systems (LMS) or course management systems (CMS) that are used for teaching and learning. (ii) Many universities do promotions and any sort of professional development appointments of lecturers basing on research and publications. The desire to be promoted or appointed in any senior position makes lecturers to be busy involved in personal research work. This leaves lecturers with no more time to attend to big number of students who at the same time require extra interventions.

Amidst these challenges, many CMS or LMS like the social networking sites (SNS) are developed with features of chat, discussion, instant messaging and mailing tools. CMS that are developed on the Blackboard technology like MyTutor or WebCt have tools that enable them to detect other users that are online and enable them to chat. Lecturers or instructors could leverage on these tools to engage the students. A Lecture may start a discussion topic either to intentionally keep the students busy or to make them discuss in the form of an assignment. Such discussions not only engage students in the social network circles but also make them gain experience with web-based tools and at the same time apply to their work.

#### **3.2. Online Coursework Strategy**

Several CMS are compatible with other software that may be used for computer based assessment. For instance WebCt is compatible with Respondus. Using Respondus a lecturer could design multiple choices, short answers, fill in and matching answer questions and posts them on WebCt. Such a hands on experience of answering questions online, get marked by the system and receive the feedback from the system at anytime and anywhere make e-learning achieve its objective. High involvement of learners could be achieved if instructors increase the number of such assessments say end of each topic or put it on a monthly basis. This could easily be achieved since many of today's text books are accompanied with CDs of lecture

notes and questions. At the same time many lecturers' copy text books are equipped with softcopy of manuals that contain questions and answers these could be used in the setting of the online tests.

*Universities may purchase a licensed copy of Respondus or lecturers could use trial versions downloaded from: <http://www.respondus.com/download/index.shtml>*

### **3.3. The Teaching Presence Strategy**

Researchers (e.g. Shea et al., 2006; Nippard & Murphy, 2007; Baker, 2010) put it that, instructors could leverage on the present technology to make their physical presence felt in online teaching. They further assert that, student's interest in learning could easily be accelerated if online teaching materials are blended with audio, video and computer screen simulations technologies. These may be implemented by using free audacity software like, Jing, Smilebox or licensed software like Camtasia and Captivate. These audio or video clips could be uploaded to the CMS freely via TeacherTube. The virtual inclusion of the human teacher in e-learning classes to substitute the traditional PDF and PowerPoint lecture slides that are a norm of CMS's study materials enlivens students learning regardless of the numbers. The blending of online teaching materials outlives the criticism of e-learning of the lack of human teacher's presence.

*Instructors may download and customize free screencasters from [www.jingproject.com](http://www.jingproject.com)*

### **3.4. Selection and Customization of the CMS Tools Strategy**

Most CMS or LMS are developed with several tools that could be used by instructors for communication. However, instructors need to be skillful enough to identify those tools that the students use most and deactivate those that are less or not used at all. It could not be a wise idea to overpopulate the course's home page with many tools which the students have less or no use. In the comparative study of e-learning tools, between two CMS Electronic Campus and WebCt, researchers (Makgopela & Kalema, 2010) established that one reason why students preferred Electronic Campus over WebCt is that the former is easier to navigate. It is essential to note that e-learning is intended to include everyone, hence all hurdles that could lead to exclusion should be eliminated.

### **3.5. Assessment of Students Engagement Strategy**

Instructors need to intuitively think when developing and posting study materials on CMSs. It is important to note that contextualized course materials for e-learning is paramount for increasing the learners' self-efficacy (Kalema et al., 2011). This in turn helps to reduce the learners' anxiety, increase their interaction and hence improve their satisfaction. As Jennings and Angelo (2006) noted, instructors should monitor learners' engagement as a formative strategy to examine the impact of their teaching and assessment activities. Therefore, instructors should blend e-learning course contents with free downloadable software like puzzles, concept maps, podcasts and demonstration videos. This improves active learning that leads to increased learners' engagement. Instructors could also leverage on SNS like Facebook's virtual homeroom, Twitters blogs, Skype for real time presentation, del.icio.us for repository of bookmarks and YouTube for videos recorded purposely for the class.

*Instructors may use these sites to download and customize course contents to improve students engagement. [www.puzzle-maker.com/CW/](http://www.puzzle-maker.com/CW/) and <http://audacity.sourceforge.net/download/>*

### **3.6. Voice over PowerPoint Strategy**

PowerPoint and PDF are the most commonly used applications for e-learning course contents. Experience shows that animated and picture embedded in presentation slides attracts students more than the still presentation slides. With the current technology, articulation could be used to record the instructors' narration or vivid explanation for each slide. These slides may be uploaded as Web page links on the CMS and played by Flash Player. Narrations may be recorded before or during the presentations.

*Instructors could download free articulations from [www.articulate.com/downloads/freetrial-step1.aspx](http://www.articulate.com/downloads/freetrial-step1.aspx).*

## **4. Conclusion**

Classrooms are social organizations (Weaver & Qi, 2005). Like in any social environment the interaction between the people and environment can't be separated. Hence, instructors need to devise better means of

managing the available resources so that students and their environmental needs could be met. By so doing, students will be capacitated to use technology for learning and as a tool to develop skills. Hence, in order to provide quality e-learning content to the ever increasing students' numbers, instructors need to address the increasing number of students challenge by blending e-contents with the available free interactive technology. This will not only boost the learning process, but will also help to optimize the basic minimum infrastructure available for e-learning.

Effective use of ICT for teaching and learning is hence viewed as the value-added or transformation process for university education. Therefore, universities need to refocus from teacher-centered to learner-centered instructions by providing experiential and flexible learning. Such an approach will cultivate a change in pedagogic concept and inclusiveness that will see instructors effectively and efficiently manage the ever increasing classes.

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