



HARNESSING VIRTUAL CLASSROOM SYSTEM AS AN ALTERNATIVE FOR PART-TIME STUDIES IN NIGERIA



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Abstract

The clamour for higher education is on the increase globally, precisely, there is great need for higher education in Nigeria. For this mere fact, there was great need for part-time studies in the Nigerian universities. This need was short lived when the governing body of the Nigerian Universities; Nigerian University Commission (NUC) put a stop to this viable means of acquiring knowledge. The hope of Nigerians was salvaged with the advancement in technology, especially in the area of Information and Communication Technology (ICT). With these inventions, we have what is known as the virtual classroom (VC), a medium that works like the traditional classroom system. The virtual class room is a teaching and learning environment located within a computer-mediated communication system which supports collaborative learning. The virtual classroom has three prominent components: A Virtual Instructor, a Server and Virtual Students. These three components interact together to form the Virtual Classroom System (VCS). This paper shows how virtual classroom can be harnessed as a replacement for part-time studies in Nigeria with the aid of synchronous and asynchronous tools. The virtual instructor sends lecture notes and materials through the server (internet) and the virtual student receives the note and sends feed back through the server. The server here serves as the point of contact between the virtual lecturer and the virtual student just like what is obtainable in a traditional classroom.

Keywords: Virtual classroom, harnessing, part-time studies, e-Learning, collaborative learning.

INTRODUCTION AND LITERATURE REVIEW

With growing demand for knowledge and formal education, the numbers of those enrolling for higher education courses or programs are increasing greatly. Tertiary institutions are faced with the challenge of maximizing resources to cater for the number of students enrolling for the several courses/programs they offer. For uneducated circular Nigerians, the need for formal education cannot be over emphasized. Hence, they took advantage of the part-time method of higher education which was at their reach, until the suspension by the Nigerian University Commission (NUC).

This paper suggests a possible alternative to replace the already suspended part-time method of higher education - The Virtual Classroom System (VCS).

With the advent of the Internet, the traditional classroom learning (which is one

of the oldest teaching methods) shifted to e-Learning. This was made possible by the advancement in communication tools and the introduction of personal computers. With e-Learning, an instructor can easily post lecture materials online and a student will either read or download it for his/her consumption. But this method of learning was asynchronous and not that interactive as the student was made to carry out a self study of the uploaded materials. The need for synchronous communication that is obtainable in the traditional classroom gave birth to the Virtual Classroom System; where a student can interact with the instructor, fellow students and the administrative staff.

A TRADITIONAL CLASSROOM

This is a communication system that makes it possible for people as a group to come together, to dialogue about something they want to learn and look at visuals and text that might aid them in understanding. The

traditional classroom is surrounded by walls to prevent noise interference with class work. (Tiffin and Rajasingham, 1995).

A VIRTUAL CLASSROOM SYSTEM (VCS)

The term virtual classroom originated in 1973 when Murray Turoff created the Electronic Exchange Information System (EIES), an online Group Ware application that implemented the Virtual Classroom at the New Jersey Institute of Technology (Hiltz, 1995).

A virtual classroom system can be defined as a real time computer mediated learning environment where teaching and learning can take place over a communication network which is usually the Internet or the World Wide Web (WWW). This is not restricted by location, time, space, distance, social status etc. (Hiltz S. R., 1995).

The VCS is an environment where instructors and learners are in a classroom. They are not physically present but are connected to the classroom through the Internet (www) and can thus see other classmates and the instructor(s). It is a two-way communication system where the instructor can send audio-visual materials (both still and animated) and the students can act on it based on the request of the instructor.

Shauna Schullo *et al.* quoted Waits and Lewis (2003), as saying that: the majority of online courses consisted of predominately asynchronous technologies. Adding synchronous components can greatly enhance meaningful interactions in distance courses (Repman, Zinskie & Carlson, 2005).

However, until recently, synchronous technologies were expensive and difficult to implement. With advances in technology (such as Voice-Over IP) and increased bandwidth, distance learning is changing; it is now feasible to incorporate interactive instruction using a new model of distributed learning that combines asynchronous and synchronous solutions (Bonk & Graham, 2006, Kim & Bonk, 2006; Pulichino, 2005).

SIMILARITIES BETWEEN A TRADITIONAL CLASSROOM AND A VIRTUAL CLASSROOM SYSTEM

The instructor and the learner are present at the same time and it is the instructor that controls the activities of the class. Student can ask and answer questions in a VCS like is obtainable in a traditional classroom.

There is a level of social presence as individual students can get to meet, interact and even help one another. Students can also have group discussion, attend seminar, present seminar etc.

Virtual classroom gives room for both asynchronous and synchronous kind of communication the same as we can get in a traditional classroom.

SOME TYPE OF VIRTUAL CLASSROOM SYSTEMS

1. **CAP A (Computer Assisted Personalized Approach):** The system was developed -at Michigan State University and was first used in a small (92 student) physics class in 1992. It has since been used by more than 100,000 students in astronomy, biochemistry, chemistry, mathematics, physics, botany, accelerator physics, human food and nutrition, family and child ecology, and computer science courses.
2. **CALCampus.com:** CALCampus (1994) was the first to develop and implement the concept of a totally online-based school through which administration, real-time classroom instruction, and materials were provided, originating with the Quantumlink campus.
3. **CyberProf:** is interactive Web-based educational software that was developed by the University of Illinois in the year 1995. It is an interactive system where an instructor can create online lecture notes, administer homework, solve problems etc. The student can review questions, check grades, complete homework and receive immediate response on the answers.

ADVANTAGES AND DISADVANTAGES OF A VIRTUAL CLASSROOM SYSTEM

The advantages and disadvantages are there, but we are going to look at a few critical advantages and disadvantages of a virtual classroom system.

ADVANTAGES

- **Location:** This is not a barrier in VCS as instructors and learners can log on to the system from any location in the country, provided they are connected to the World Wide Web (WWW).
- **One-on-one Communication:** In a VCS, learners can communicate with the lecturer on a one on one basis and the lecturer can ask a particular student question too. This is of high advantage as timid students can have the freedom of speech that may not be common in a traditional classroom system.
- **Record Keeping:** Classroom session can be recorded for future use. This feature is peculiar to students that are slow in learning. Unlike a traditional classroom system, if a student in a VCS misses a class, he/she can get the complete lecture/activities of that class session.

DISADVANTAGES

- **Technical Familiarity:** Some students and instructors may not be familiar with some of that VCS tools at the initial/start state of their admission.
- **Time:** Since the lecture (classroom) takes place real-time, some student/instructors may not be able to meet up with the scheduled time depending on their geographical location.
- **Access to Internet Facilities:** Not all students have the luxury to afford

Internet facilities and payment of Internet subscription fee.

HOW DOES THE VIRTUAL CLASSROOM SYSTEM WORK?

The virtual classroom system which is a simulation of the real world classroom system has three cardinal parts:

1. Virtual Instructor
2. A server
3. Virtual Students

Virtual Instructor: The Instructor is a subsystem of the VCS. The instructor sends lecture materials (images, audio and text), to the server, which in turn broadcasts these materials to students in the virtual classroom.

Server: The Server is the major part of the Virtual Class System. Apart from routing data from the Instructor to the students, it also does the following:

- a) It maintains the virtual classroom, such that all interactions within a classroom remain implicitly within the classroom.
- b) Supports multiple lectures running at the same time.
- c) Manages lecture periods (makes sure that lectures are broadcasted only at certain times, as stipulated by the system administrator).

Virtual Students: The student is also a subsystem of the VCS that receives the broadcasted lectures and displays them on the students' system. Broadcasted lectures include text, images and audio material. The VCS Student also allows users (students) to ask questions discuss with lecturers and submit assignments in a coordinated procedure in order not to disrupt an on-going lecture.

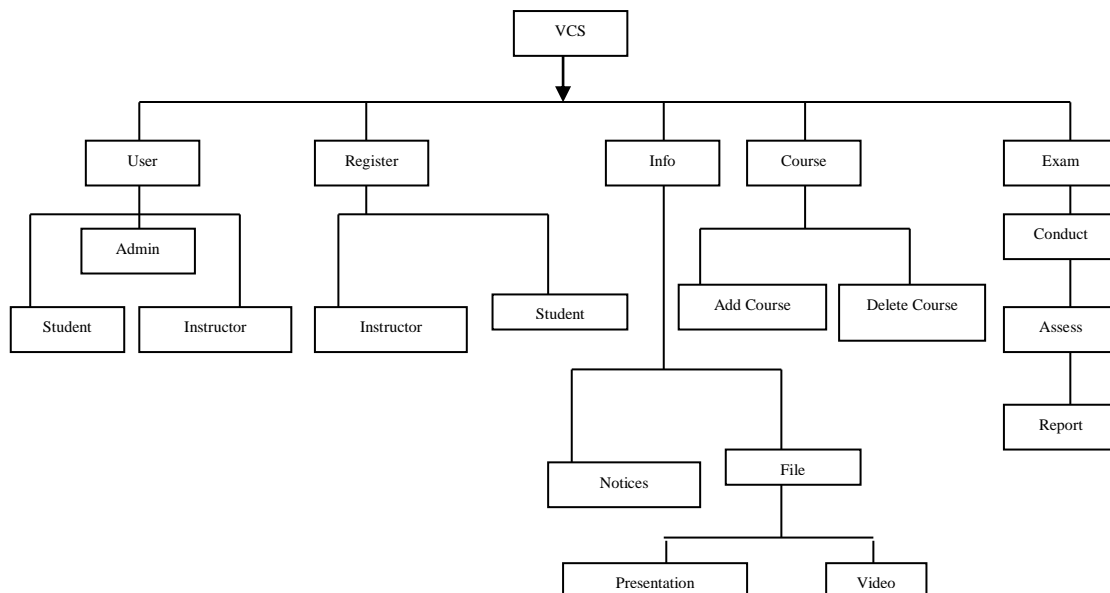


Fig 1: Architecture of VCS

The multimedia requirements include (Bengu, 1994):

- Online lectures.
- Audio-video education tools.
- Interactive computer software (process and equipment design, simulation and animation software).
- It will also make access available.

- The authoring agent
- The user agent
- The distributed database or group agent

The authoring agent consists of various tools which allow authors, such as instructors to publish the course material in a manner which is easy and comprehensive.

The software architecture of the multimedia courseware may be viewed as having three components:

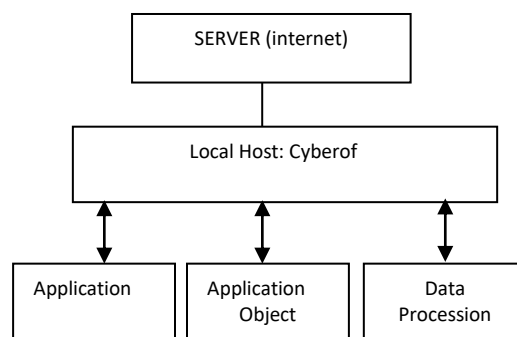


Fig 2: Local host interface (Authoring agent)

All these features are accessed not by traveling to a university but by typing into, and reading from, a personal computer with internet connection or which connects by telephone to a mini- or mainframe computer operating the Virtual Classroom

System (VCS) software. This system allows student to collaborate and share lecture materials including presentations of seminar. This is possible when a student logs into his/her system with VCS real-time from his own location and time and

connects with the lecturer and students from another location and time but on the same topics.

These images were gotten from the implementation of *Elluminate Live* virtual classroom system.



Fig 3: List of virtual students participating in class discussion.

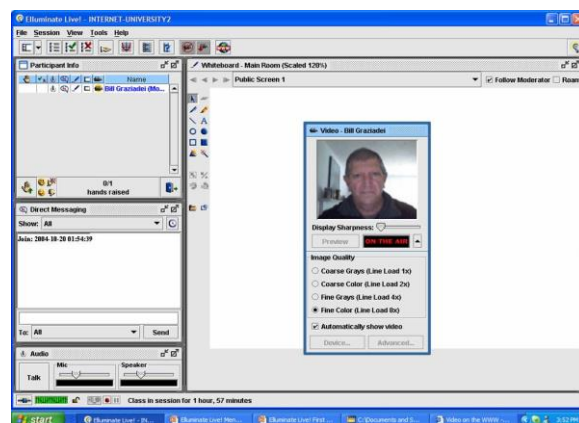


Fig 4: A virtual instructor on *Elluminate Live* Local Host.

Fig 3 shows virtual student participating in class work, it is seen that Samantha and Joshua are the only ones whose hands are virtually up to respond to a question that was asked by the virtual instructor. In Fig 4, the virtual instructor is live for all to see and perhaps greet and get set for class.

CONCLUSION

It is seen that the objectives of a virtual classroom are clear. It gives room for improved and enhanced atmosphere for quality education. It gives improved access to advanced educational

experiences though allowing students and instructors to participate in remote-learning communities at times and places convenient for them, using personal computers at home, on a campus or at work.

It- is recommended that the Nigerian University Commission take a look into this already harnessed avenue of quality and technical means of tertiary education. This can be controlled from a central database (server), which is actually the mediator between the users (instructor, students).

REFERENCES

- Elluminate. (2007). Elluminate Live for educators. Retrieved November 15, 2007, from http://www.elluminate.com/educator_solutions.jsp
- Hiltz, S. R. (1995). *Teaching in a classroom*. 1995 International Conference on Computer Assisted Instruction. March 7 – 1, 1995, National Chiaotung University, Hsinchu, Taiwan.
- Hiltz, S. R., Turoff, M. (1995). Virtual Classroom plus Video: Technology for Educational Excellence. Proceedings, educational Multimedia and Hypermedia 1994, 26 – 37.
- Kim, K.-J., and Bonk, C. J. (2006). The future of online teaching and learning in higher education: The survey says ... *Educause Quarterly*, 29(4), 22-30.
- Repman, J., Zinskie, C., and Carlson, R. (2005). Effective use of CMC tools in interactive online learning. *Computers in the Schools*, 22(1/2), 57-69.
- Schullo, S. (2005). An analysis of pedagogical strategies: Using synchronous Web-based course systems in the online classroom. (Doctoral Dissertation, University of South Florida) *Dissertation Abstracts International*. 66(09), 3268 (UMI No. 3188434).
- Waits, T., and Lewis, L. (2003). Distance education at degree-granting postsecondary institutions: 2000–2001 (NCES No. 2003017). Washington, DC: U.S. Government Printing Office.