

Converting Traditional Classroom into Virtual Classroom.

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ABSTRACT

This paper focuses on the study of the conversion of a traditional classroom into virtual classroom. Additionally, the paper examines putting virtual mobility into a strong didactical context.

(Keywords: information and communication technology, education environments, virtual classroom infrastructure, universities, higher education)

INTRODUCTION

As the world becomes more of a global village, people are faced with new challenges posed by the globalization of business and the workforce. This, in effect, results in a broader and more diverse workload for the people. However, in order to cope with these constantly changing challenges, there is an increased need for people to upgrade their knowledge either by enrolling in continuing studies or by attending formal training.

A traditional university provides a physical location for students and lecturers to meet but restricts their mobility. This mobility is highly desirable because it aids people in gaining new insights.

Modern Information and Communication Technology (ICT), has introduced the possibility of accessing information and services and communicating with people who are spatially remote. Consequently, this technology has the potential to substitute some of the travel that is presently associated with those activities. This substitution of travel through ICT-based communication has been termed Virtual Mobility.

If we apply virtual mobility to learning (especially in tertiary education), we can overcome spatial bottlenecks, but the implementation can place a huge burden on lecturers and institution owners to provide material and infrastructure for remote students. Through adequate evaluation and

careful consideration of the aims and objectives of this paper, the following questions were posed from these research findings.

1. Can the virtual classroom replace the traditional classroom?
2. How can we convert traditional classrooms into virtual classrooms?
3. What are the technological barriers involved in the implementation of a virtual classroom?
4. What are the future developments we can look for in the virtual learning environment?

In trying to answer these questions, a number of tertiary institutions' instructors and support staffs were consulted. Tertiary institution students were also approached with questionnaires. Similarly, some ICT technocrats and academicians were also interviewed. A total of 47 out of 60 lecturers returned the questionnaire and 152 out of 200 students returned their questionnaires. In addition, 25 ICT experts, technocrats, and academicians were interviewed.

The author conducted this fieldwork in both South Africa and Nigeria because these two countries are the target countries for the implementation of the test prototype. The successful conclusion of the investigation produced satisfactory results, which will be discussed in this paper.

Can a virtual classroom replace a traditional classroom?

There have been several efforts aimed at defeating the barrier created by distance within the academic community. Such emerging efforts include distance education, online education, etc. These are testimonies to the fact that there is the need for virtual teaching and learning. The fact

that the teaching and learning process is now being substituted by remote means or methods suggests that virtual learning can actually replace traditional learning, therefore, virtual classrooms can replace traditional classrooms.

How can we convert a traditional classroom into a virtual classroom?

This transformation will be founded an imitation of the traditional way of learning, but in electronic media. The face-to-face interaction between the students and the lecturer will be replaced by interactions via net meeting, video conferences, or audio conference. The traditional chalkboard will be replaced with a data projector connected to the lecturer's laptop and the lecturer's chalk will be a PowerPoint presentation or presentation made via media player.

CD/DVD ROM can replace the traditional class notes and textbooks while a well structured on-line library can substitute for the physical library. In addition, an electronic simulation process can be used to replace practical classes for science students in a laboratory setting.

The lecturer's computer or laptop may be connected to the campus network, which in turn is linked to the Internet. With the lecturer's access to the internet, remote access from outside environments or remotes location can give access to geographically dispersed students to receive the lectures as if they are physically present in the classroom.

What are the technological barriers involved in the implementation of a virtual classroom?

Creation of software systems for supporting virtual education enterprise is still problematic. The same functionality must be available for all popular user platforms. The fact that there is no standard yet available for software written for ICT applications in learning; and this represents a very great problem. Various vendors' equipment currently available are not interoperable and this poses problems between the remote users and the institution's equipment. This will force both the institution and the users to utilize the same set of equipment or similar equipment to be interoperable.

What are the future developments we can look for in the virtual learning environment?

As the applicable technology keeps improving, so also shall we witness additional developments in the number of applicable equipment, software, and protocols. These emerging technologies cannot be over looked in the design of a virtual classroom environment. Obsolete equipment or infrastructure will contribute to set backs for the educational objectives for which it was setup. Hence, I propose that institution owners look out for the following emerging technological tools during their implementation of Virtual Technology. Some of these emerging technologies are discussed in subsequent sections.

- **IP Version 6 (IPv6)** - This is the next level of Internet protocol with 128 bits of addressing. This protocol will replace the 32 bit Internet addressing currently in use and will accommodate billions of end users and equipment. This is unlike the IPv4 (the current Protocol) which will soon be exhausted.
- **The New Network** - The new network is comprised of US Internet2 and Europe's Geant. These are multi-gigabyte Internetworks, which provide for 1000 Gigabyte of data movement over the internet. These possibilities will enhance the use of audio and video equipment over the internet.
- **Wireless and Personal Data Assistants (PDAs)** - Wireless Local Area Networks (LAN) provides seamless mobility and roaming of users, thus they beat the barrier caused by the wired LAN. With the power of wireless connectivity, laptop and PDA users will have the freedom to choose where to be during learning.
- **Haptic Interface** - Haptic is the science of applying tactile sensation to human interaction with computers. A Haptic device is one that involves physical contact between the computer and the user, usually through an input/output device, such as a joystick or data gloves, that senses the body's movements. By using Haptic devices, the user can not only feed information to the computer but can receive information from the computer in the form of a tactile

sensation on some part of the body. This is referred to as a haptic interface.

CONCLUSION

Virtual Mobility can be applied to learning environments because a large number of people are willing to enroll for further or continuing studies, but due to job and/or family responsibilities, they do not attend traditional classrooms. This investigation also revealed that quite a large number of people are enthusiastic about using technology for their day-to-day activities but called for support services, which will make the experience more enjoyable to them.

In a similar manner to the traditional laws of demand and supply; increases in demand services cause a corresponding increase in supply of those services and vice versa. Hence, the greater number enrolment slots required by the general population, the more virtual schools will be established, making use of existing technology that has really transformed the behaviors of the people.

Finally, because of the fact that the natural human environment for socialization is physical (or geographical) space, our psychology has been accustomed to this environment and we believe so much in it. Virtual space (or cyberspace) which brings about another environment for socialization has already proved to be very successful, but the lack of the physical face-to-face interaction still makes people uncomfortable.

Hence, virtual learning may not totally replace traditional learning but can supplement or complement it. Secondly, we can only replace traditional classrooms with virtual classrooms for some selected courses. Thirdly, the existing technological barriers can be overcome with training and making necessary support services available to the end users. Fourthly, any mobility project should take into consideration future developments in their implementations such that their project will not become obsolete before its inauguration.

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