

**AC 2008-1375: HUMAN AND INFRASTRUCTURE ISSUES IN THE
DEVELOPMENT OF WEB-BASED LABORATORIES IN CHALLENGED
ENVIRONMENTS**

David Olowokere, University of Alabama at Birmingham

Lawrence O. Kehinde, Texas Southern University, Houston, Texas

Olutola Jonah, Obafemi Awolowo University

Oladipo O. Osasona, Obafemi Awolowo University, Ile-Ife, Nigeria

E.O.B. Ajayi, Obafemi Awolowo University, Nigeria

Kayode P. Ayodele, Obafemi Awolowo University

Human and Infrastructure Issues in the Development of Web-Based Laboratories in Challenged Environments

Web-based laboratories (WBL) involve not only hardware and software but human and infrastructural development. For sustainable WBL, it is important to ensure that not only are the laboratories able to satisfy pedagogical needs; they should also ensure that designers and developers are well trained to adapt basic experiment infrastructure to suit a range of other experiments. Training will include hardware and software development.

An important aspect of WBL is how much of hardware should be replaced by software. This aspect becomes especially relevant in cash strapped environment and in many institutions where deficient funding leads to constraints in the acquisition of equipment. Of note also is how WBL can be tailored to suit cases where adequate bandwidth is an important issue.

In this paper the experience of developing WBL especially in a fund and bandwidth-limited environment is presented. The basic trainings for acceptable skill requirement of technical staff are identified. In doing this considerations is given to issue of the ratio of hardware to software component for optimum results in an economy with financial constraints is considered. Suggestions are made for relevant collaboration between staff of institutions separated by distance as well as student exchanges to evolve a critical mass of developers at each institution. The difficulties encountered in specific situations are enumerated and solutions proffered. The development of WBL that has synergy with curriculum and which can engender curriculum development is also discussed.