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Theme: **Teaching in a changing Africa**

Title of Paper: **USABILITY OF COMPUTERS IN TEACHING AND LEARNING  
AT CORE PRIMARY TEACHERS' COLLEGES IN UGANDA**

### **Abstract**

Since a computer-enriched learning environment is positively correlated with users' attitudes towards computers in general, the purpose of this study was to investigate the extent to which computers were applied in the teaching and learning at tertiary-level institutions; specifically at the Core Primary Teachers' Colleges (PTCs). The study accordingly set out to examine this duo-fold ideal at Shimoni and Kibuli Core PTCs; both in Kampala District in Uganda. The specific objectives were to find out the level to which computers have been integrated in teaching and learning at PTCs and to determine the competency of both the tutors and the students in the use of information and communication technology (ICT). Both categories served as respondents to whom a questionnaire was subjected. Findings indicated that although computers were generally being integrated in the teaching process, there was need for more infrastructure in the due regard in order to ensure expertise of both tutors and students in the use of ICT. Cognisant that integration of technology requires a move from the traditional model of teacher presentation to a learning model whereby students draw information relevant to their future profession, the paper recommended that the government of Uganda supports PTCs in ICT-related issues.

## **INTRODUCTION**

Teacher education in Uganda today provides both pre-service and in-service training through not less than 539 primary school centres and tutors radiating from 23 Primary Teacher Colleges serving all schools in the country (MoES, 2000). Accordingly, the Connectivity for Educators (Connect-ED) Project established computer-assisted teacher training laboratories and Internet Connectivity in four pilot Primary Teacher Colleges in Gulu, Bushenyi and Kampala. The project aimed at providing computer skills training to student teachers, as well as establishing computer laboratories and Internet Connectivity to the eight Core Primary Teachers' Colleges (PTCs) around the Country; of which Shimoni and Kibuli were accorded first priority. In the interview carried out with Professor Lutalo-Bbosa, the former Vice Chancellor of Kyambogo University, the objective of Connect-ED was to introduce integration of computers into the teaching methods employed in primary schools and provide capacity building to Administrators, Tutors, pre-service and in-service teachers within the PTCs.

Connect-ED activity, funded by the Education for Development and Democracy Initiative (EDDI), therefore aimed at enriching primary education through the use of new information technologies in the education system. This includes providing computer skills training to student teachers, establishing computer laboratories, and Internet Connectivity to the eight Core Primary Teacher Training Colleges around the Country; Shimoni and Kibuli taking priority.

Connect-ED was, no doubt, a multi-faceted strategy to increase the access and use of internet connectivity by education stakeholders in rural Uganda. This paper nevertheless subscribes that technology integration requires a move from the traditional model of teacher presentation, student practice and student application to a learning model where students use

reasoning skills to generate rich, complex, meaningful understanding of information relevant to their future profession (Simpson, Payne, Munro, and Hughes, 1999). Students who experience this newer model come to see that teachers learn as they teach and they are more likely to interact with their own students in the same way. Hence the need to probe the extent of usability of computers in the teaching and learning process at the selected tertiary institutions. Moreover, although teachers do aspire to the learner-centred approach little have they employed the use of multimedia and they have hardly encouraged the students to the use of ICT (Murphy and Greenwood, 1998).

Relevant literature to the study was reviewed and it has been hereby incorporated into the discussion of findings. The study adopted a cross-sectional research design with the use of a self administered questionnaire. Data were obtained from a total of twenty (20) and fifty (50) students; each Institution being represented by a half of each of the category of respondents.

The content validity index (CVI) of the questionnaire was computed using the formula:

$$\begin{aligned}
 \text{CVI} &= \frac{\text{Number of items rated as relevant}}{\text{Total number of items in the questionnaire}} \\
 &= \frac{20}{28} = \underline{\underline{0.714}}
 \end{aligned}$$

Cronbach's Alpha Coefficient Test indicated that the instrument used was reliable; as shown hereunder:

<b>Reliability Statistics</b>	
Cronbach's Alpha	No of Items
<b>0.85</b>	<b>28</b>

## **DISCUSSION OF FINDINGS**

Gibson (2001) observes that most teachers use a variation of the teacher-centred model, where the emphasis is upon the presentation of a body of knowledge or a set of skills that students are to learn. Accordingly, this study found out that to integrate technology into classroom practice, teachers must make two radical changes; for, not only must they learn how to use technology, but they must also fundamentally change how they teach. Hence, teacher anxiety about computers and overall attitude toward technology can influence the use of computers in the classroom, and, thus, the success of technology integration into the curriculum. Teachers can be expected to have the same traits as adult learners in general: (a) their past experiences serve as a resource to support new learning, (b) they are ready to learn when there is an identified need to know, and (c) they also learn what they perceive to have importance in helping them deal with problems they confront in life (Knowles, 1990).

The findings as well corroborated the studies by Storck and Hill (2000) who, regarding the use of multimedia as a teaching tool, indicated that teachers need to move through different stages of ICT proficiency and need to understand that the introduction of ICT into the classroom changes the dynamics of the classroom and impact on classroom management. This suggests a definite paradigm shift in approach to teaching and teacher attitudes towards the use of ICT in the classroom.

Adjacently, the use of the Internet for teaching and learning purposes has received increasing attention over the recent years. Mitra and Stefensmeier (2000) concluded that a networked learning institution where students have easy access to computers could foster positive attitudes toward the use of computers in teaching and learning. They found that a computer-

enriched learning environment was positively correlated with students' attitudes towards computers in general, and the role of computers in facilitating teaching and learning. Liu, Macmillan, and Timmons (1998) perceived integrating computers into a learning system as a complex instructional system in which student learning is impacted by lecturers, students, administrative and technical staff, computer hardware and software resources, and the computer laboratory and classroom settings. They reported that students' with positive attitudes toward using computers also have positive attitudes toward using computers for their learning

This paper advances the perception of Coombs (1999) that new educational tools, which drive multimedia presentations, offer educators a unique opportunity to design ICT focused learning environments using multimedia to encourage synergy between ICT skills and New Zealand Curriculum learning outcomes through student- centred multimedia projects. These multimedia environments can lead to greater interest which, in turn, can lead to greater understanding and ultimately to greater success in defining and developing ICT strategies to the benefit of the learner.

Moreover, successful integration takes place when technology becomes transparent and both the teacher and students can concentrate on the content of the course, thus making it possible for students to use computers in the natural flow of classroom activities (Brunner, 1990; Rieber, 1994, Smith, 1995 and Partee, 1996). Accordingly, the impact of the computer depends on the developmental level of the school in the due regard.

The findings further revealed that teachers there is urgency for teachers to be adequately knowledgeable in ICT if they are to have any competitive edge in the world of education today. Besides, a new syllabus on Computer Science has also been developed for primary schools in Uganda; but for this syllabus to be effectively run, the teachers involved must have knowledge and experience in computers. One way of achieving this is by integrating computers in the dual process of teaching and learning. This as a matter of course, has a lot of financial and management implications for all distance educators but it ought to be prioritized.

. According to the study, the respondents did vary in relation to skills and experience in computer usage. Regarding such a scenario Morrison (1989) emphasised the use of computers depending on the level of experience which both tutors and students do have. But as fate always has it, tutors with the greater experience in teaching were of the old age who consequently proved to be vehement about any new changes being introduced in the system. This paper believes that the status quo is likely to change with the measure of time. For, as according to Phelps (2004) “limited time can lead to limited confidence constraints in which a resource is used” so does the contrariety hold water heretofore.

The study found out that there were other obstacles towards usability of computers in PTCs. For instance, the computers were per se very few in number compared to the number of users.

Besides the phenomenon of power shortage, the speeds at which internet facilities do operate tend to be one of the factors that affect both tutors and students in their usage of

computers. And, as if to justify the lament of Smerdon, Cronen, Lanahan, Anderson, Lannotti, & Angeles, (2000), printing problems and scanning were at times not accessible due to bureaucracy and congestion in the laboratory. Inadequacy of resources and materials created a conspicuous mismatch in the teaching –learning process at the Colleges.

## **CONCLUDING REMARKS**

Wider connectivity and the efficient deployment of ICTs within developing countries, according to Adam (1996), would improve the overall information infrastructure and thereby promote positive changes in socio-economic development. The foregoing is a truism in the case of Uganda. In the perception of Neema-Abooki (2009), ICT is apt to being utilized in several ways to improve people's health and wealth as it enables organisations to provide better services to the benefit of the entire society. While the transformation of education is a major issue among the many practical revolutions engineered by computer technology, The challenge is for any other level of education, tertiary or otherwise, to integrate new approaches in science and technology. This "techno-science" is indispensable for the integral development of the people and the country; thus the imperative for the government of Uganda to ever support PTCs in ICT-related issues.

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