Editorial: The role of ICT in the classroom, community and nation building

Stewart Marshall
The University of the West Indies, Barbados, West Indies

Wal Taylor
The Information Society Institute (TISI), South Africa

Welcome to Volume 4 Issue 4 of the International Journal of Education and Development using Information and Communication Technology (IJEDICT). You may have noticed that there has been a slight website work-over. Check the Navigation Bar on top of the journal website - the issue now comes with the relaunch of the *Distance Learning in Developing Countries* website - http://members.tripod.com/stewart_marshall/index.html. As ever, the issue also brings more postings to the blog: "*CEDICT: Communication, Education and Development using ICT*" - http://cedict.blogspot.com/ - also accessible from the Navigation Bar.

In this issue we have articles on planning, policies, frameworks and strategies for ICT provision and use, especially in teaching, in Bhutan, Canada, Iran, Jordan, Kenya, Malaysia, Oman, Republic of the Philippines, Tanzania, and the West Bank, Palestine. You'll find a conceptual essay, followed by five articles that deal specifically with teaching, and the remaining articles deal with aspects of access, attitudes and potential use in marginalized communities.

When Jenny Arntzen, Don Krug and Zhengyan Wen reviewed literature on ICT and technological *tools* in education from 1995 to 2008, they found an increasing number of articles substituted "*tool(s)*" for more specific terminology. In their article **"***ICT literacies and the curricular conundrum of calling all complex digital technologies 'Tools'***",** they argue that, given the need to understand ICT within the constantly changing social and cultural contexts of local and global societies, it is misleading when digital hardware, software and infrastructure are reduced to being called a "*tool*".

In his article - "*Attitudes and skills of Omani teachers of social studies to the use of computers in instruction*" - Ahmed Hamed Hamdan Al- Rabaani examines the knowledge, skills and attitudes of Omani social studies teachers to the use of computers in instruction. The results of his study showed that social studies teachers lack computer skills but had positive attitudes towards their application in teaching. The results also showed that half of social studies teachers do not know any websites of Social Studies Centers or journals in either English or Arabic. The study recommended developing teachers' computer skills and knowledge about journals and centers' websites.

Jimmy Tevar Masagca and Noel M. Londerio in "*Teachers' perspectives on the integration of information and communication technologies (ICT) in school counseling*" present the different perspectives of teacher-participants from selected areas in Luzon, Philippines on the use and application of ICT in guidance counseling and the school counselor's advocacy role. Certain property of story-telling or conversation (*kwentuhan* or *pakikipagkwentuhan*) was employed. The participants generated issues and problems mostly relate to the economic aspects, costs, administrators' attitudes towards the use of ICT, quality of information and on the issue of commercialism. Innovative programs presented dealt on the individual needs of the pupils and on the career services, but not on the ways to improve the professional capabilities of the guidance counselor. It was recommended that continuous re-training and establishment of a well-defined capacity building programs for guidance counselors focusing on individual skills of the counselors as to the other uses and application of ICT should be undertaken.

Intelligent Tutoring Systems (ITS) represents some of the knowledge and reasoning of good one-to-one human tutors, and consequently are able to coach students in a more detailed way as compared to the Computer Assisted Instructions (CAI) packages. In their article "*Utilization of Intelligent Tutoring System (ITS) in Mathematics Learning*", Tsai Chen, Aida MdYunus, Wan Zah Wan Ali and AbRahim Bakar discuss the benefits of using an ITS as complement to the use CAI materials such as the courseware in promoting the learning of mathematics. Benefits of using an ITS have been proven in aspects such as generating useful feedbacks to students in learning mathematic, assisting learning of higher order subject matter and cultivating higher order skills, offering a learning environment that motivates learners, giving useful instant feedback to learners, and providing positive effects on student's achievement.

Primary stage teachers today face the challenge of using and integrating computers into their instruction in a way that develops children's learning. In their article "*Jordanian student teachers' use of computers to develop primary stage pupils' literacy skills*", Ali Ahmad Al-Barakat and Ruba Fahmi Bataineh describe a study that investigates 33 Jordanian student teachers' use of computers to develop young children's literacy skills. The findings reveal little diversity in the way computers are used, with a few student teachers using computers as a resource for playing games, drill and practice, homework, and assessing children's literacy skills, whereas the majority use them for presenting instructional content and designing instructional media and worksheets. In light of these findings, the authors put forth a number of recommendations for the Teacher Training Program at Yarmouk University, the Jordanian Ministry of Education, student teachers and future researchers.

ICT projects in Sub Sahara Africa have a high failure rate due to inadequate (participatory) approaches and contextual differences. In their article **"***Evaluating a participatory approach to information and communication technology development: The case of education in Tanzania***"**, Nicolaas P. Moens, Jacqueline E. W. Broerse and Joske F.G. Bunders evaluate the outcomes of a participatory and multi-stakeholder approach to develop ICT applications in education in Tanzania, called the Roundtable process. This process is an interpretive approach grounded in Constructive Technology Assessment. The outcomes are measured in terms of sustainability, scalability of projects and impact on users. Sense making and learning-by- doing are key words in order to 'grow' ownership. At sector level it turns out to be difficult to create a 'paying' market and to stimulate relevant policy-making.

The article *"A practical ICT for development framework: The ICT Center of Excellence"*, by Khalid S. Rabayah, describes an initiative to implement a network of competency building centers that can assume a central role in shaping the Information Society. The initiative involves the establishment of ICT Centers of Excellence in close proximity to Palestinian universities. The initiative enables IT to act as a transformational agent for economic and social development of the Palestinian society. To that end, it works to generate highly qualified IT professionals, badly needed by the IT industry. The center further works to create strong links to the private, public, and to NGOs communities to enhance their roles in the development drive. Among the strategic goals of the initiative is to provide capacity building that help entrepreneurs build viable IT businesses, through providing facilities, resources, and tools to develop both a research and development culture and activities in a rich environment for innovation and creativity.

In their article - *"Analyzing ICT use and access amongst rural women in Kenya"* - Kituyi-Kwake, A. and Adigun, M.O. describe a study to explore the current use and access of ICT amongst rural women in Kenya, and suggest mitigating solutions. Using survey research, rural women aged 16-60 were sampled. In total, 200 respondents formed the sampling size, randomly selected from census household data in Kenya. Besides the marked correlation between the respondents' level of education, type of ICT accessed and information needs and purposes, it

was observed that ICTs alone are insufficient for significant benefits to emerge.

ICT plays an increasingly greater role in the development of nations. It has become an indispensable tool for achieving international goals such as the United Nations Millennium Development Goals (MDGs). However, the poor connectivity of Internet in the least developed countries is one of the major factors underlying the digital divide between the developed and developing nations. In their article - *"Can ICT (Internet) overcome the natural geographical barriers of Bhutan in developing the nation?"* - Sonam Tobgay and Kencho Wangmo point out that this situation becomes worse if the country is landlocked as well as being underdeveloped. Their article tries to bring out the realities of ICT usage in Bhutan, being a landlocked country that is the least developed in southwest Asia.

Integrating ICT in an agricultural research system is an appropriate capacity development mechanism. The appropriate application of ICT and a National Agricultural Information System requires a systemically developed strategic plan based on identifying and recognizing system wide organizational implications. The article *"Integrating information and communication technologies in the Iranian agricultural research system" by* Aboulqasem Sharifzadeh, Gholam Hossein Abdollahzadeh and Mahnoosh Sharifi explains the implications of integrating ICT in the Iranian agricultural research system. The article is based on qualitative interviewing with a selected sample, consisting of agricultural researchers and agricultural faculty members. Based on Iranian lessons learned explained in this research, some appropriate mechanisms for integrating ICTs in national agricultural research systems are indicated by the authors.

The article "*Remote Sensing Educational Ground Receiving System for interest creation in space science and technology in education*" by Norhan Mat Yusoff, Helmi Zulhaidi Mohd Shafri and Ahmad Razlan Mohamed may at first seem a strange one to include in this journal. It describes a remote sensing educational ground receiving system (EGRS) which is capable to receive imagery data from the National Oceanic and Atmospheric Administration (NOAA) weather satellite. The authors intend that it be used as an early part of introducing and understanding remote sensing and also to create awareness in children about the earth and its environment by introducing real time observation of climatic changes from space and to practically relate to the real happening on the ground.

The final item in the issue is a review by Ed Brandon of "*Efficient learning for the poor: Insights from the frontier of cognitive neuroscience*", who describes it as a curious but valuable volume, combining a comprehensive review of the problems and opportunities facing school systems in the poorest developing countries with the findings of cognitive neuroscience. For readers of this journal, its value lies in clearly setting out basic strategies for Education for All.

Stewart Marshall and Wal Taylor
Chief Editors, IJEDICT

Original article at: http://ijedict.dec.uwi.edu//viewarticle.php?id=679