

## **Editorial: Emergent Research from Southern Africa**

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### **INTRODUCTION**

Welcome to this Special Issue of IJEDICT which features peer-reviewed papers from the e/merge 2006 online conference on the use of online and mixed mode collaborative learning in Southern African tertiary and secondary education.

Educational technology is being taken up in African countries in difficult conditions, arising from both national infrastructural challenges and specific challenges faced by the education sector itself. The uptake of ICTs for education is to a large extent dependent on how enabling the national environment is, particularly in terms of the availability of national telecommunications and ICT infrastructure. This is particularly relevant in the developing world (Shabani, 2007). Although the 'digital divide' is said to be shrinking with respect to fixed line telephones, mobile telephones and the internet, crucial gaps still exist. There are still enormous gaps between low income countries and high income countries; for example the US has approximately 40 times more telephone main lines per 1000 people than Ghana.

A second generation of the digital divide is emerging through differential access to bandwidth. Limited access to bandwidth restricts access to information and communication and the ability to use new media applications, social software and virtual worlds. The cost of international bandwidth is also a major constraint for developing countries which often have to pay the full cost of a link to a hub in a developed country, thus up to more than a thousand times more<sup>1</sup>. For example the cost of bandwidth in Uganda is 288 times more expensive than the in US yet Internet connections in Uganda are 8 times slower than the US.

How can educators find ways to use educational technologies in these diverse and difficult contexts? While lobbying for better conditions and infrastructure is an ongoing essential strategy, other effective strategies include the harnessing of ubiquitous technologies such as cell phones, clever uses of relatively low-end technologies and the sharing of human capital in the form of collaborative work. The papers in this Special Issue provide examples of interesting and innovative uses of technologies in difficult circumstances, and the way that these innovations are being conceptualized and understood.

The papers are themselves an output of an African collaborative venture -the e/merge online conference - designed to share experiences, enable synergies and facilitate research/practice interaction.

### **ABOUT E/MERGE**

The e/merge online conferences were initiated in June 2004 with funding from South Africa's [TENET](#) (Tertiary Education Network) as a conscious response to the lack of interaction between educational technology researchers and practitioners across Southern Africa. In fact it was observed that Southern African educational technologists often had closer collaborative relationships with research partners in other continents than with colleagues in the same country or city. One of the worrying implications was that good practices developed in one setting were often unavailable to colleagues across the region. Both the 2004 and 2006 conferences were designed to share good practice and knowledge about educational technology innovation within the tertiary and secondary education sectors in the region, as well as to strengthen communities of researchers and practitioners. They also shared a focus on collaborative learning involving a

blend of online and face to face interaction in the Southern African context of unequal access to technology.

[e/merge 2006](#) involved 237 participants including 40 presenters from 12 African countries and across 5 continents in two weeks of asynchronous and synchronous interaction in July 2006. The 29 presentations and 4 online workshops were scheduled in four phases of online interaction which focused on high level examination of the environment and research methodologies, online and mixed mode learning in organizations, collaborative learning communities and online learning environments. Each phase of conversation lasted three days to allow for the mostly asynchronous conversation to develop. Many of the presentations inspired lively conversation well beyond the end of their scheduled phase. All of the abstracts and ten of the papers were peer reviewed. Between e/merge 2006 and this Special Issue of IJEDICT one of the peer reviewed papers was withdrawn and a further two e/merge 2006 papers have been peer reviewed. A few of the authors in this issue are well established and extensively published researchers while several represent a new generation of researchers which will provide the future leadership in this field.

The papers in this IJEDICT are a contribution to the growth of research into educational technology in developing contexts. In many Southern African universities and school systems the establishment of educational technology systems is likely to take higher priority than researching these rollouts. Educational technology is still a severely under-researched field even in South Africa when compared with regions such as Europe, North America and Australasia. Thanks to funding from the Ford Foundation we will soon be able to announce the dates for e/merge 2008. We hope that many of you will be able to join us as participants or authors.

## **MAKING SENSE OF THE RELATIONSHIP BETWEEN EDUCATION AND TECHNOLOGY**

Educational technology issues in Africa are both deeply specific and closely aligned with global educational technology issues. Global issues are refracted through local contexts, and sometimes their omission is as telling as their presence and in the way they are expressed.

Global educational technology trends are not neatly divisible by location: the divide is not only between developed country and developing country, although the broadband divide is certainly maintaining this abyss. Divides may also be between the connected and the disconnected within countries; it has been noted that new geographies of space and access have reconfigured the world and we are now defined by our place within or outside of information based nodes (Castells 1996).

In a world that is shifting and changing at so many levels, how does one make sense of the relationship between education and technology? Three of the papers in this Special Issue address this question, from three different perspectives - political, strategic and theoretical.

Neetha Ravjee's paper asks hard questions about the role of ICTs in relation to higher education as a sector and specifically considers the nexus of ICTs and educational change. This paper problematises generally held assumptions, and provides a probing political analysis of the approaches informing the relation of new ICT-mediated practices to higher education change. The paper supports a framework that both embraces the possibilities offered by online pedagogies, and problematises central aspects of the political economy and cultural politics of e-learning in higher education.

Nhanhla Mlitwa asks how to make sense of ICT in HE, and specifically what theoretical lenses will provide assistance in order to adequately explain emerging patterns. The paper explores a possible framework for the analysis of goal-directed applications of technology in teaching and learning environments, arguing for the value of both activity theory and actor-network theory.

Shaheeda Jaffer, Dick Ng'ambi and Laura Czerniewicz take a strategic view of the possibilities of ICTs for addressing HE challenges and for ensuring that technological possibilities are viewed in the context of educational needs. Using case studies from one higher educational institution, this paper shows how specific and carefully considered interventions using ICTs can be used to address these teaching and learning concerns.

### **SOCIAL-ECONOMIC ISSUES**

The socio economic issues which frame and are influenced by ICT in education include the pressure to produce new kinds of ICT-literate citizens for a transforming knowledge society; the possibilities of “borderless education” as an outcome of the networked society; new forms of digital divides emerging out of existing social divisions based on class, gender, nationality and disability; the need for specific national policies to enable educational technology in education to build information societies; and the profound resource challenges dogging education throughout Africa.

In such fraught resource and policy terrains, informed decisions about appropriate use of scarce funds are essential, making the kind of research undertaken by Andrew Paterson and reported on in his paper quite crucial.

Andrew Paterson observes that despite the steady decline in the relative cost of acquiring ICTs, the cost of owning and maintaining sustainable computer systems in schools is rising, while simultaneously, Ministries of Education in sub-Saharan Africa are under pressure to invest. Based on a survey of total costs of owning computer rooms in 62 schools across Botswana, Namibia and the Seychelles, the argument is made that high expenditure is not necessarily associated with efficiency of resource usage, and that internationally benchmarked research is needed in order to support optimal decision making.

### **ORGANISATIONAL ISSUES**

As the use of ICTs in institutions becomes an expectation and a demand, complex organisational issues arise. These include the development and implementation of ICT integration strategies, given that organisational culture shapes the implementation of ICTs for teaching and learning; the need for appropriate educational technology structures; the pressure for effective staff development. It is these multi-faceted staff development strategies, so essential to the successful integration of ICTs into teaching and learning, which are addressed in a cluster of papers in this Special Issue.

Juliet Stoltenkamp, Carolynne Kies and James Kariuki reflect on the lessons learnt from creating a new structure and institutionalising ICTs in one university. A newly established centre experienced rapid growth, and required complicated alignment with existing structures. Hard lessons were learnt regarding realistic expectations in the face of the wide range of attitudes held by educators. The shift from a pioneering phase to a mainstreaming phase where elearning is implemented as a core strategy of the whole institution included the design and implementation of a systematic training programme for staff and students.

Similar challenges are faced at a university in the neighbouring country of Botswana, where a more formal programme is run with an accredited certificate as one of the outcomes. Daniela Gachago, Spoon Mafote, Anne Munene-Kabanya and Marilyn Lee's paper reports on the evaluation undertaken to ascertain the effectiveness of the programme. While workshops were considered valuable by academics, only a small percentage of academics managed to fulfill the certificate requirements, highlighting institutional constraints and raising important issues about accreditation and recognition.

From an entirely different perspective, Andrew Deacon and Catherine Wynsculley use rhetorical analysis methods to illuminate the informal strategies utilized to build a sense of community amongst academics. They demonstrate how seminars in staff development programmes where academics share their experiences with one another take a form quite distinct from workshops, best practice seminars or research seminars. The original use of rhetorical analysis provides a credible lens to describe the ceremonial manner in which academics persuade one another of the value of their experiences.

## **PEDAGOGICAL ISSUES**

At heart, educational technology is about learning. There are a considerable number of inter-related issues which fall into the pedagogical domain. These include: the percolation of new ICT-mediated social practices into the educational arena; the challenges to traditional methods of content creation and sharing; the rise of open education resources, the increased possibilities for plagiarism, the ways that teacher-student relationships are being challenged and reconstituted; the disjunctures between new online activities and traditional forms of assessment; and the pressures faced by students as ICT-literacy becomes a foundational competence.

How does one ensure that ICTs really support deep conceptual learning? What happens when pedagogical activities and beliefs about assessment clash? How can new possibilities for ICT mediated informal learning be understood? Can unusual subject areas be effectively taught online? These are the questions addressed in the papers with a pedagogical focus in this special issue.

Andrew Scholtz's paper addresses the assessment issue head on when he explores the tension that exists between social constructivist-informed authentic assessment practices and the belief systems and expectations of educators, administrators, employers and parents. The paper highlights the concerns that psychometricians have with assessment in constructivist learning environments, particularly with respect to high stakes accountability testing. Scholtz concludes that this difference is of particular concern given that the literature is fairly unanimous in its support of social constructivism as the pedagogy of choice in technology-mediated learning.

Steven Yates' paper focuses on the unusual phenomenon of an online course in the area of martial arts. He uses an evaluation framework, called the 'eclectic-mixed methods-pragmatic paradigm' that allows for a flexible approach to the design, delivery and evaluation of interactive learning systems, and the systematic use of questionnaires, expert reviews, and course interactions. The findings indicate that learners gained favourably in knowledge, skills and attitudes.

Joanne Hardman's paper provides a deeply theorized way to understand learning in context. It demonstrates a methodology for studying the object of mathematics lessons (in a primary school classroom) by exploring notions of object-oriented activity, before discussing the conceptual challenges arising from its use in two contemporary versions of activity theory. The paper elaborates a methodology for using activity theory to analyse observational data and finds that an evaluative episode can serve as a moment in which the dynamism of an activity system is momentarily frozen, enabling one to model human activity in the system under investigation.

Raymond Kekwaletswe's paper shifts the focus from the formal to the informal. Learning does not only take place in classrooms and courses, and ICTs offer unprecedented opportunities for informal peer-to-peer communication in support of learning activities. This paper conceptualises a mobile learning environment that provides social presence awareness as a learner traverses different learning contexts. It highlights how through synchronous mobile instant messaging, social presence provides learners with continuous awareness of available social support, thus facilitating the on-demand and opportunistic sharing of knowledge.

## CONCLUSION

Reflection on practice and research on educational technology in developing and difficult contexts is an essential way for lessons to be learned and shared. This Special Issue is a contribution to this process. We hope that you will find the papers as illuminating, challenging and intriguing as we have. We are grateful to Stewart Marshall of IJEDICT for the opportunity to publish in an excellent journal which is focused on developing contexts. The authors will welcome engagement concerning their papers and research contexts, and can be contacted directly. We will soon be announcing the dates for e/merge 2008 which will be broadening its geographic base to include active recruitment of educational technologists in East, West and Central Africa as well as Southern Africa.

## ENDNOTE

<sup>1</sup> The range is enormous - from 2,448 US dollars per month in Mozambique for high speed broadband to 20 US dollars per month in the United States (ITU, 2005 Internet of things). If speed of the broadband is compared, the differences between the cost of broadband become more glaring with differences ranging from 512 kilobits per second in Uganda to 4 Megabytes per second in the United States (ITU, 2005 Internet of things).

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