Developing ICT use in East African schools:

Matching policy and practice

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EXTENDED OVERVIEW

This presentation was built on our extensive synthesis of the research literature on the role of information and communications technology (ICT) in improving the quality of learning and teaching in primary and secondary schools in Sub-Saharan Africa (SSA), with a particular emphasis on East Africa[1]. While ICT is considered a principal driver of economic development and social change worldwide, technology alone can only be an enabler, not a driver of development. It is now firmly established that its introduction into schools does not by itself improve the quality of education or raise attainment. Properly formulated and coordinated policies, planning and implementation are needed to harness ICT opportunities into meaningful national development.

The five countries forming the East African Community[2] have formulated national ICT policies and most of them have drawn out plans for ICT integration in schools. These policies[3] were all formed at the turn of the millennium (about the year 2000) against a backdrop of haphazard and uncoordinated ICT developments; with a national ICT policy preceding the education-sector-specific ICT policy formulation. Although the reasons for the formation of these policies varied from one country to another, the bottom line was the eradication of poverty through the training of skilled human resources and provision of education in line with the Education for All (EFA) agenda. The formulation processes were led by the respective government ministries with evident donor support.

In their ICT for education policies, all the East African countries express the need for integrating ICT in both formal and informal education. There is a stated commitment to invest in ICT infrastructure in schools with deliberate plans to ensure that the digital divide between rural (poor) and urban (rich) schools does not escalate and that children with special needs are catered for as well. The policies point to a desire for a nationally coordinated effort in the creation, dissemination

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[1] This is available at http://www.educ.cam.ac.uk/centres/cce/projects/ict/Lit_review_longer_paper.pdf..

[2] Kenya, Tanzania and Uganda formed the East African Community and were later joined by Burundi and Rwanda

[3] A detailed reference list to all of the policies is given in the bibliography to the review mentioned in note 1 above.

and sharing of e-learning content to improve the quality of teaching and learning in schools. Management and maintenance of the ICT infrastructure as well as use of ICT in school management (business processes) are also catered for in the policies. Training of teachers in both ICT skills and pedagogical application of ICT is given prominence alongside the development of relevant curricula for teaching ICT at the different levels of the school system. The role of coordinating different ICT investments in schools which were until then uncoordinated and fragmented was vested in the respective country ministries responsible for education. The use of Public Private Partnerships (PPP) and a phased approach to investment in ICT in education by governments are some of the mechanisms set out for the achievement of policy objectives. These ICT policies are indeed comprehensive and well-articulated statements of intention. It is imperative, however, to examine evidence available for their implementation and in so doing expose some of the apparent gaps therein.

There is strong evidence to show that PPP have been exploited: ICT initiatives based on such partnerships are the most prevalent in schools in East Africa. Notable among these are SchoolNet, One Laptop per Child (OLPC), New Partnerships for African Development (NEPAD) e-schools initiative, the Microsoft Partners in Learning Program, and Connect-ED, among others. The ICT in teacher education programme carried out by the Tanzanian government which equipped all of the teachers colleges in the country with internet-enabled computers with support from the Swedish International Development Cooperation Agency (SIDA) and other partners is another notable example. The PPP initiatives have focused on equipping schools or colleges with computers and associated hardware and software, provision of internet connectivity, training of teachers and teacher educators in ICT use, and the development and selection of digitised pedagogical content. Such initiatives have led to increased access to ICT in schools, although information on their actual impact is scant. What is evident, though, is that the rate of roll-out of these projects has frequently fallen behind planned targets and that monitoring and evaluation has been a common concern.

The Ministries of Education in the respective countries are mandated by the policies to coordinate, monitor and evaluate all the different ICT school initiatives. The reviewers did not find elaborate ministry reports from which the impact of the different initiatives could be deduced. This pointed to poor dissemination systems which limits the ability of others to learn from such experiences and presents scope for wasteful replication of efforts. The Education Management Information System (EMIS) set up in all the East African countries with the aim of providing quality education statistics in a cost-effective and sustainable manner is a useful coordination mechanism that has not been appropriately harnessed. Information on the current levels of investments in ICT in schools, for example, was not readily available from the respective education ministries. The EMISs could have been designed to provide such information which would be handy in monitoring the progress of ICT integration in schools.

Other areas of concern in the integration of ICTs in schools centre on increasing equity and reducing disparities in access, and in particular, improving the quality, reach and focus of initial teacher education and professional development. We are of the view that the continued offering of the ICT curriculum to only those schools that can afford it increases the disadvantage faced by the less privileged schools and that a balancing point is needed where each school is able to offer the course with basic equipment, in about the same way as the teaching of science continues in schools without elaborate science laboratories, but with reliance on teacher innovation. Further we suggest that e-content development and dissemination should go in tandem with access to avoid doubly disadvantaging the under-served schools. Ingenious dissemination models, like use of mobile phones and low-power MP3 players, can be tried out to ensure wider access to ICT learning and teaching materials. In all these, the critical issue of quality teacher professional development programmes comes to the fore; and this forms the second part of the presentation.

Governments in SSA, as elsewhere, are now emphasising teacher development as the key to effectively implementing policy and curricula, to using ICT to enhance teaching and learning, and to raising educational standards. Teachers need to be supported to get the most from using ICT in classrooms. Particularly where resources are limited, as is common in SSA, ICT initiatives need to be driven by the provision of appropriate technological solutions for the challenges faced by communities, rather than by an interest purely in these physical technologies themselves. Factors that exert influence on teachers' use or lack of use of technology in the classroom can be both internal and external. Internal factors include perceptions and beliefs about ICT and their motivating effects, technological literacy and confidence levels, pedagogical expertise related to technology use, and the role of teacher education. It is recognised that the internal factors are themselves influenced by significant infrastructural and other external – social, logistical, technical and resource – constraints that are also operating. Key features of successful programmes for teacher education are found to include being (a) ongoing and aligned with national and local policy interests; (b) culturally contextualised; and (c) pedagogically principled rather than technically focused. The latter refers especially to integrating ICT use into subject teaching rather than treating it as a discrete subject in school, teachers themselves modelling interactive and participatory rather than transmission-based pedagogy, and offering sustained, collaborative and active learning opportunities for both teachers and learners. These are the areas where professional development for ICT use in East Africa ought to be focussed to ensure maximum utility from the expensive ICT in education investments.

In conclusion, we call for a holistic and comprehensive framework within and across East African countries to include infrastructure enhancement, sustainable development of ICT use in schools and large-scale professional development; this requires significant investment and strategic leadership by governments working closely with other partners, and decision making grounded in evidence from more systematic evaluation of what works in this developing context. Striving towards bringing East African schooling into the 21st century in these admittedly ambitious ways will hopefully help countries to harness ICTs in supporting further educational and economic development.