Background

On the 26th of May 2010 GeSCI and PanAf jointly hosted an eLA pre-conference research workshop on issues and opportunities related to ICT in Education & Development research in Africa. The workshop process was framed by the GeSCI commissioned ICT Education Meta-review Research conducted by Professor John Le Baron and Beth Mc Donough in 2009. Key findings from the research report revealed a) an apparent disconnect between ICT in Education and mainstream Education research and b) a general absence of the southern voice in ICT in Education literature.

The workshop brought together researchers and collaborating partners in a panel discussion serving as a knowledge exchange on African ICT in Education research at the eLA conference. The research panel presentations provided a forum for researchers from different institutions and partnerships to share their original work, models and insights about the research development process in the Africa region. An open discussion then produced suggestions and recommendations to address opportunities for innovative research in the African ICT in Education & Development context.

The primary goal of the workshop was to provide an intellectual space for reflection on existing models and experiences of research partnerships in the area of ICT in Education, and potential opportunities for developing and enhancing research efforts relevant to regional contexts.

Workshop Objectives:

- to present GeSCI and PanAf experiences of African ICT in Education research
- to promote reflection and debate on the voice of Southern research
- to explore new opportunities to inform education policy and practice decision-making with African research, through contributions to international academic literature

Useful background information on the workshop hosts and their work in ICT Education Research and Development can be accessed on the:

- PanAf Observatory website - literature on the Pan African Research Agenda for the Pedagogical Integration of ICTs in Education and the Observatory on the Pedagogical Integration of ICTs.
Workshop Opening Remarks

The opening remarks were made by Dr. Jyrki Pulkkinen, GeSCI CEO who considered the research workshop process an opportunity to engage with partners and networks to share ideas and research projects, and to explore models and funding mechanisms for promoting ICT in Education research in the Africa region. He outlined the context of GeSCI’s work in a global arena where the gap is widening between developing countries and the industrialized world due to lower investments in ICT, education and innovation processes in developing countries. He explained GeSCI’s work with governments and ministries of education in the developing world, to empower their policy making and strategy capacity for ICT in Education. Dr. Pulkkinen remarked on GeSCI’s focus on knowledge building and research as underpinning its advisory services and products. He considered that the key research challenge is to broker the connection between research, policy making and educational development.

The workshop programme included two sessions focussing on the following thematic areas: Sharing ICT4E research models and projects – short presentations on original work, models and insights about ICT4E research from invited researchers in GeSCI-PanAf networks in the Africa region; Public/private research partnerships for ICTs in education & development – an interactive panel discussion with invited panellist representatives from the public/private sector.

Summaries of each session in the following sections demonstrate the scope of issues arising from reflections on the subject of research & partnerships in the Africa region with concrete suggestions and recommendations for GeSCI-PanAf to consider.
Ms. Mary Hooker, Research Manager, GeSCI, presented an overview of GeSCI’s Meta-review of ICT in Education Research which was developed in two phases. She presented findings from the Phase 1 (P1) report which indicted that for efficacious technology integration to happen, there are definitive implications for educational restructuring in that:

- ICT integration success depends on transformed practice
- ICT in Education research needs better alignment with learning research
- Holistic development trumps piecemeal approaches
- ICT introduction must disrupt traditional practice to generate true change
- Implementation must respond to local culture
- Policy needs multi-sector, cross-hierarchical coordination
- Equity means more than hardware deployment

Ms Hooker presented findings from the meta-review Phase 2 (P2) report which represented a more in-depth analysis of three major themes identified from the P1 scan – ICT & leadership and the metaphors of traditional educational administration & delivery (‘grammar of schooling’) that inhibit the transformational promise of ICT; ICT & transformational migration to a new century and the potential of technology to support well-vetted progressive educational trends initiated in the 20th Century as well as newer ones; Equity of access to technology resources and the important questions on curriculum design and school structure to support inclusive agendas for quality access.

She revealed unexpected findings from the P2 report including a) an apparent disconnect between ICT in education research and mainstream educational research and b) a general absence of the southern voice in the ICT-Education literature. Ms Hooker related the rationale for the research workshop to profile original African research and to promote discourse and reflection on the opportunities and challenges for funding and developing original ICT Education research for developing solutions in the Africa context.
PanAfrican Research Agenda on the Pedagogical Integration of ICTs

Session 1 “Sharing ICT4E research models and projects”

Moderator: Dr. Djénéba Traoré, Regional Coordinator, ERNWACA and PanAf Co-Director

Panellists: Dr. Issifu Yidana, PanAf Principal Researcher in Ghana, University of Education, Winneba
Dr. Paul Thabano Tapela Nleya, Principal Researcher, Botswana Expansive School Transformation (BEST) Project
Dr. Christopher Gakuu, PanAf Principal Researcher in Kenya, University of Nairobi
Dr. Evode Mukama, Principal Researcher, ICT in Teaching & Learning, National University of Rwanda

Dr. Djénéba Traoré, Regional Coordinator, ERNWACA-PanAf, presented an overview on the PanAfrica Agenda for the Pedagogical Integration of ICT (www.panaf-edu.org) - an initiative of ERNWACA and the University of Montreal (Canada) since 2007. The PanAf project is conducted in 12 African countries and aims to analyze and find out how the effective pedagogical use of ICT in Education can improve the quality of teaching and learning in order to implement better education policies and practices in Africa.

The first phase (2007-2009) of the project was focused on data collection and classroom observation where more than 20,000 data units related to 180 indicators have been uploaded onto the PanAf Observatory (www.observatoiretic.org). The project has implemented a research network across 12 African Universities and developed new partnerships with the World Bank and UNESCO.

The second phase of the PanAf project has been dedicated to scientific writing: building researcher capacity and capability for writing scientific articles for publication in international peer-reviewed journals. The focus in phase 2 is on fostering dialogue between researchers and education stakeholders, particularly policy decision-makers, at the national and regional scale. To this end, Dr. Traoré explained that the second phase of the project includes a critical component on ‘communication for influence’ to build strategies for research impact on national ICT in Education policies.

Dr. Traoré presented the following questions as a basis for the panel discussion and discourse:

- Why are African researchers underrepresented in scholarly writing, particularly on the subject of ICT in Education?
- How can we enhance the dialogue between African ICT in Education research, policy and education practice?
- What is an appropriate role for multi-sectoral partnerships in supporting development research?
Dr. Issifu Yidana, PanAf Principal Researcher in Ghana, University of Education, Winneba, presented his original research work about ICT in Education in Ghana, where he elaborated on research papers published and in progress, including: 'Faculty Perceptions of Technology Integration in a Teacher Education Curriculum: A Survey of Two Ghanaian Universities’ – a study analyzing the inter-relationship between a number of faculty perception factors influencing technology use and uptake in Higher Education Institutional practices including - faculty attitudes, motivation & incentives, perceived barriers & challenges, perceived understandings on instructional technology effects on pedagogy & learning, professional development needs; ‘Paradigm pedagogical shift: using Project Based Learning (PBL) and authentic assessment in Instructional Delivery’ – a research study exploring the potent role of technology for transforming teaching and learning in undergraduate courses via PBL; ‘Pedagogical Integration of ICT-ERNWACA-PanAf Research Project: Phase 1 Ghana Report’ – part of a multi-case-study research project assessing the status of the pedagogical integration of ICT in schools in the region – with the Ghana case study findings indicating a low status of ICT integration due to its negligible usage by teachers in instructional practice and the absence of examples of ICT-based productions by learners.

Dr. Yidana considered that the under-representation of African writers in the ICT literature can be attributed to factors of late adoption of ICT on the continent, inadequate ICT integration skills by the majority of academics, the limitations of overload in the under-resourced instructional culture, financial constraints, inadequate expertise for publication in academic journals and inadequate access to the content of highly rated journals. He suggested that research, practice and policy synergies can be achieved through mentoring novice researchers by more experienced researchers, financial support to southern researchers, and holding regular regional forums (such as eLA) for researchers to communicate their study findings. Multi-stakeholder partners can support research by providing consultancies for southern researchers, funds for large scale and longitudinal studies to solve authentic educational/development problems and dissemination and application of Education Technology Research findings to influence actual pedagogical integration of ICT in national educational policies and orientations.

Dr. Yidana proposed a range of areas for Educational Technology research incorporating themes on learning, teaching, models & strategies, assessment, schooling & social issues
Dr. Paul Thabano Tapela Nleya, Principal Researcher, Botswana Expansive School Transformation (BEST) Project presented a paper on “Facilitating Expansive School Transformation Using ICT: A Botswana Pilot Project” in which he described the historical development of the BEST project in terms of its objectives and achievements. Initially launched under the auspices of the World Information Technology Forum (WITFOR) held in Botswana during 2005, the BEST project has adopted a socio-technical approach to ICT integration - a more people-centred approach - compared to educational trends towards techno-centric models in the region – models that tend to focus on the provision of hardware and software technology aspects. Dr. Nleya explained the purpose of the BEST pilot project to support teachers in enhancing their competencies in using of ICT to collectively transform instructional and learning practices. Dr. Nleya elaborated on how Cultural Historical Activity Theory (CHAT), Developmental Work Research (DWR), Change Laboratory (CL) and other associated conceptual frameworks are being engaged to bring about the desired transformation in schools and communities using educational technology.

Dr. Nleya clarified the trans-national and multi-sectoral collaborative networks for research & development that the BEST project has nurtured involving: the University of Helsinki University of Technology (HUT), Life Long Learning Institute Dipoli; the Helsinki University (HU), Centre for Activity Theory and Developmental Work Research; the University of Cape Town (UCT), SA; the University of Mauritius (UM), Virtual Centre for Innovative Learning Technologies (VICILT); the University of Botswana (UB), Department of Educational Technology (DET); the Ministry of Education (MoE) Botswana, and its ten (10) pilot schools and Teacher Training and Development (TT&D) division; the Ministry of Communication Science and Technology (MCST), Botswana, (MAITLAMO Policy); the Botswana College of Distance Open Learning (BOCODOL) (SADC-CDE); & the Activity Theory Interest Group (ATIG) of Botswana.

With regard to the dissemination of the BEST model to the wider community, Dr. Nleya reported that research findings from the project are being prepared for presenting at conferences in SADC and internationally. A co-edited book on how to support ICT-based educational transformations using Change-Laboratory interventions in developing countries is in progress. Finally, a Centre for Activity Theory and Developmental Work Research within the University of Botswana responsible for carrying out Developmental Work Research in Botswana is envisaged in the future to support these initiatives.
Dr. Christopher Gakuu, PanAf Principal Researcher in Kenya, University of Nairobi, presented his original research work about ICT in Education in Kenya, where he elaborated on a number of research studies published and in progress, including the ‘Pedagogical Integration of ICTs in Selected Kenyan Secondary Schools: Application of Bennett’s Hierarchy’ – a study using Bennett’s framework to determine the levels of ICT use in curriculum delivery in selected urban/ rural, public/private secondary schools in Kenya. Study results indicated that the integration of ICT in curriculum delivery is influenced by the ownership of the school, its ICT policy and the school manager’s level of ICT skills. While private schools seem to have a clear policy on ICT integration, public schools have none. The implication of the study findings is a requirement for a national ICT policy on education and for leadership capacity building in order to drive ICT adoption and learning processes in the Kenyan school system; ‘Factors that Influence Lecturers Participation in Distance Education: The Case of the University of Nairobi’ - a study on the main factors that influence lecturer participation in Distance Education and the major differences between specialist disciplines in technology uptake; ‘Ready to Change Gears? An Analysis of How Issues of Concern that Influence Lecturers Rate of Adoption of e-Learning’ - a study on how lecturers issues of concern can influence their readiness to adopt e-learning strategies in their practices.

Dr. Gakuu would concur that there is a seeming absence of the Southern voice and collaborative partnerships in ICT education, research and development - perhaps as a result of a research focus on northern contexts which are social-culturally and economically different. He considers that there is a tendency for Southern researchers to copy research approaches from the North - forgetting that they face different environments that may require different approaches. Collaborative partnerships need to be negotiated to benefit both parties with the focus of such partnerships being “client-oriented”.

Dr. Gakuu suggested that the North should deliberately provide avenues for Southern voices in the literature – taking into consideration avenues for longitudinal or cross-sectional research; for mixed mode approaches; for local, regional, international & global scope.
Dr. Evode Mukama, Principal Researcher, ICT in Teaching & Learning, National University of Rwanda presented an overview of his conceptual research work in Rwanda on the theme of ‘Thinking and Learning in Computer Supported Social Practice’. He elaborated on a number of his studies published and in press inclusive of the following: ‘Coping with change in ICT-based learning environments’ – a study exploring the learning conditions that can either help or constrain newly qualified or student teachers to learn in ICT-based environments; ‘Strategizing computer-supported collaborative learning toward knowledge building’ – a research project analyzing the kind of discourses with which student teachers engage small groups in computer-supported collaborative learning activities; ‘Student interaction with web-based literature’ – a research study into the learning conditions that language brings to the study of web-based literature in small groups; The interplay between learning and the use of ICT in Rwandan student teachers’ everyday practice – an inquiry into the meaning reflected in newly qualified teachers’ or student teachers’ accounts of learning in computer-supported activities.

The major findings from his studies indicated to Dr. Mukama that there are a range of conditions required for the efficacious integration of technology in the learning culture of schools in Rwanda, namely:

- Decentralization and trust in teachers builds self-confidence and ownership – as opposed to centralization and teacher control which creates frustration
- Unconditional support of school managers
- Learning to both teach ICT and teach with ICT
- Teachers need to be allowed adequate time to use and experiment with computers
- ICT can foster the principles of problem solving and critical thinking
- Development of school-based ICT literacy curricula and related pedagogy

In his concluding remarks, Dr. Mukama observed that knowledge sharing through interaction between different groups of peers with various experiences can change in a positive and supportive way the interface of ICT use in school systems. He considered that the findings of his studies can be used by teachers, researchers and policymakers in their endeavour to integrate ICT in learning practices and to raise computer literacy among the population of education stakeholders.
The moderator opened the dialogue to the floor where the following points were raised and discussed:

- There was some **skepticism about the under-representation of African research findings in the literature** – with journals such as African Journal Online (AJOL) providing avenues for southern research.
- There is however **a general ignorance in the international literature of the knowledge, research and agendas in the south** which ‘do not fit’ with the northern paradigm.
- While African researchers should contribute to international research, **the key issue is critical mass** – as a few African researchers among the thousands of researchers will not make any dent in the pre-dominant northern paradigm.
- **The problem may rest with lecturers themselves** – building a wall around themselves and the university ivory towers in which they work. Applied research requires work and communication with people and practitioners – where lecturers need to start using social networking tools (blogs, wikis, twitter) to communicate writings – to allow others to see what they are working on.
- While the two worlds of scientific journals & social networks are important, **there is a peer-review process that is particular to research requirements** to ensure adherence to criteria for research quality & rigor as a critical basis for informing policy.
- **GeSCI and PanAf should jointly leverage their work in developing networks between researchers in Africa** – to build confidence among researchers and provide mentoring support that will lead to publication and knowledge exchange on the African experiences of ICT integration in education systems.

The moderator, concluded the session with the observations that

- There is a need to improve communication channels between lecturers, universities and the world outside the theoretical walls of academia – towards a scenario where academic research is being used to address pertinent educational issues that can better inform the worlds of policy and practice.
- To publish in Africa is not so easy – because of the social context, the language and the requirement for capacity building.
- The main activity focus in phase 2 of PanAf and GeSCI research programmes is applied research: building capacity for scholarly writing (PanAf) on the basis of ‘living lab’ research (GeSCI) addressing the real issues and challenges of the pedagogical integration of ICT in the development context.
**Session 2**  
**Public/Private Research Partnerships for ICTs in Education & Development**

**Moderator:** Dr. Thierry Karsenti, Scientific Director, PanAf

**Panellists:**  
Astrid Dufborg, Lead Specialist e-Learning, SIDA  
Shafika Isaacs, ICT4D Consultant at Independent Consultants  
Geneviève Puiségur-Pouchin, President of Apréli@ (Association for the Promotion of African Open Educational Resources), Director of Reli@ (Open Educational Resources for African teachers)

Dr. Thierry Karsenti, Scientific Director, PanAf, introduced the panel for the second session of the workshop noting that they came to the discussion as representatives from public/private sector entities. They had been invited to bring their perspectives and commentaries on the role and use of research to bring about sustained change and innovation in educational policy and practice.

Dr. Karsenti presented the following questions as a basis for the panel discussion and discourse:

- What opportunities are most promising for public/private partnerships in the field of ICT and Education and research in Africa?
- What threats to research rigor are present in multi-sector initiatives?
- What actions are needed to develop innovative, policy and practice-relevant research on ICT in Education in Africa?

Ms. Astrid Dufborg, Acting Director, SPIDER, SIDA spoke about the complexity of the issues presented in the GeSCI meta-review and the UNESCO Global Monitoring Report 2010 (Reaching the Marginalized) during the research workshop and earlier in the conference in the inter-ministerial round table. Ms. Dufborg expressed her disappointment at the round table response in that there seemed to be no ideas for address the challenges of ICT integration in education systems other than the usual thinking focused on the technology solutions.

Ms Dufborg considered that the issues raised in the meta-review had not been really discussed. She suggested that research discussion in the development context should be a discourse about the real problems in societies. She believed that the deeply rooted structures and political cultures dominated for the most part by one party systems, presented a formidable wall of resistance.
for ICT introduction and the challenges therein for transparency and accountability.

Ms Dufborg wondered whether the kernel of development research required profound societal change and restructuring to have any impact. She wondered how any research agenda could possibly work without such restructuring. She questioned the feasibility of research investment in contexts where the status quo of unstructured policy & practice would continue unchanged despite the availability of qualitative research to inform policy development and reform. Ms Dufborg suggested that research parameters are perhaps been defined too narrowly – and are not really getting to the right questions. She opined that research needs to be driven from the problems that exist and need to form a basis for informing policy makers on how to address those problems.

Finally Ms Dufborg asked the floor for ideas and reflection on the role of the donor in the research conundrum – whether that role should be to provide funding solely or whether that role should be more strategic? She noted the positive experiences of SPIDER programmes in supporting peer-to-peer collaboration, capacity building for research which were driven by assessment of what is needed – and not simply research for its own sake – ending up on a shelf somewhere unread and unused.

Ms. Geneviève Puiségur-Pouchin, President of Apréli@ (Association for the Promotion of African Open Educational Resources), Director of Reli@ (Open Educational Resources for African teachers) spoke of the Apréli and Reli programmes in the Africa education landscape with work in:

- creating and developing African open educational resources – a critical pre-requisite for teacher education and development
- networking and nurturing fruitful partnerships for piloting resources in practice and assessing their suitability and scalability to teaching and learning in development contexts
- training teachers to integrate resources in experimental classroom practice
- integrating experimental programmes in the PanAf agenda for research and development
- setting up the first digital teacher training institution
- developing flagship programmes in Senegal – one of the most advanced countries for e-content development
- evolving from experimentation to modeling phases
- coordinating with ADEA ICT in Education Committee for programmes on ICT practitioner reflection & research
Ms. Shafika Isaacs, ICT4D Consultant at Independent Consultants, spoke of the work of the workshop co-host GeSCI in the groundbreaking research and the dialogue that GeSCI has created in the forum; and the work of the co-host IDRC focused on building African capacity through action research, developing institutional capacity and publishing papers produced by African researchers.

Ms. Isaacs noted that a lot of the focus in the workshop discussion seemed to revolve around academic research. She recounted her experiences with SchoolNet Africa where every programme had an in-built research component consisting of:

‘…a research process that was premised on the assumption that as Africans we don’t know – that collectively we have a shared ignorance – and that as we try and practice this thing called ICT in Education – as Africans we determine the agenda – an issue that was often met with alarm by northern counterparts – that the southern voice should be shifting the thinking…’

The SchoolNet research agenda enabled stakeholders to develop understanding on the issues of technology deployment. It represented a research model where the research was integrated into practice – and as such it was often lambasted by academia for lacking research rigor. Ms Isaacs questioned the authority of academia to usurp the ownership of the research agenda – from practitioners who were now challenging that ownership and using research to both improve their own practice and inform ways in which general practice can be improved.

Ms Isaacs considered that the fundamental question in ICT Education research is to identify the problem that technology integration is to address – to develop a shared understanding of what that problem is – to survey the contradictions in our experiences of ICT integration in solving the problem – to explore the use of technologies in different contexts to support educational change & reform – to address the fundamental challenges that are not being addressed by policy – and to recognize that we are none of us experts in the emergent field of ICT in education – that we are dealing with depths and complexities and all manner of disruption – disruption which could lead us – to new opportunities for improving our systems of educational delivery.
The moderator questioned whether **rigorous research should be categorized as a product or a process.** He reflected that getting to the product is the ideal, and that the process in getting there involves everyone in some level of rigorous research. The moderator opened the dialogue to the floor, where the following points were raised and discussed:

- **Education systems seek transformation - and transformation implies structural (revolutionary) change over incremental and superficial changes.** Both theoretical and applied research should be scientifically sound if they are to inform an agenda for educational transformation.

- **Action research that is practice oriented** has confronted the diminution of its ‘rigor’ credentials by the academic high ground since the later part of the 20th century. The problem is not confined to a “southern voice” issue.

- Research should improve policies and policies should be linked to practice. There is a need to **change the research paradigm to link theory with practice, to assist policy makers understand what are the innovations that can/ cannot be scaled up, to provide information that will enable them to see change results and improve educational delivery.**

- In Africa research is more focused on personnel development than on contribution to society. Academic promotions depend on the papers that researchers write. Perhaps there is a need for a re-think on institutional personnel systems of incentive and reward. Generally there is a need to **support and build the soft side of researchers’ skills** – social networking skills for research communication that will motivate researchers on a level apart from the normal paycheck.

- There is also seems a need to **create structures that facilitate the transfer of research to policy & practice agendas.** Researchers alone cannot do this. Bridges are needed.

- There is a need for open discussion on the potential opportunities for **public-private sector research – with requisite funding mechanisms - to involve private companies in collaboration with the public sector to pursue a rigorous research agenda that facilitates and develops solutions through the knowledge partnerships.**

- Private partners are beginning to have more **social oriented policies that engage with a social agenda for supporting governments in research and development projects that can inform critical issues of educational delivery.**

- The research community needs to understood what it is driving towards in environments where **ICT in Education policy evolves slowly overtime** – policy for technology integration in the curriculum – policy for technical training support – policy for professional development that has shifted.
Dr. Thierry Karsenti, Scientific Director, PanAf, concluded the workshop discussion remarking that policy makers do not necessarily always use research. They can be selective. He observed in his own native Canada the high level of research survey work that is conducted continuously. He reflected on the challenges of research in the development context to influence policy makers. He noted that out of the fifteen countries in which the PanAf project has been engaged, it has to date influenced perhaps two countries.

Dr. Karsenti described the PanAf data collection process involving questionnaires, videos, classroom observation, to promote on one level more transparency through the open data repository of the PanAf Observatory. On another level the data collection process is one of promoting reflection on two trends in ICT integration in classroom practice – ICT as a subject matter on the periphery and the pedagogical integration of ICT across all curricular areas of classroom practice. He concluded that the objective of PanAf research agenda is to better understand the latter trend as in:

“…to better understand how can the pedagogical integration of ICTs substantially improve the quality of teaching and learning at all levels and scales of African education systems...”
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