



Higher Education Transformation Network
Presentation to Conference in ICT Infrastructure and
Development in Higher Education, Protea Hotel
Balalaika, Sandton, 30 March - 5th April 2012



Presentation by
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About the HETN

- ❖ An independent network of alumni from various higher education and further educational institutions across South Africa committed to the process of transformation of education and training.
- ❖ Lobbying, providing policy advocacy and promoting quality research output in collaboration with government, tertiary institutions, private sector and development agencies to improve access to and quality of higher education.

Quality RESEARCH for Higher Education Transformation



Our Mission

An education system that is:-

- **More accessible especially by the marginalised and the poor.**
- **Underpinned by progressive values of democracy, non-racialism, redress and broad participation.**
- **Whose value system identifies with the aspirations of the people to embrace the rich diversity of South African society.**
- **That narrows the divide between intellectual and manual labour.**
- **That serves the present and future social and economic needs of a peaceful stable South African society.**
- **The elimination of socio-economic disparities through education**

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Objectives of Presentation

- To discuss the link between Labourforce Education, Employability and Income Levels
- Discussion on ICT Policies for Education in Africa
- Utilizing ICT in Higher Education to address Unemployment & Poverty



Link between ICT Skills, Education & Labour Productivity

- Strategic link exists between national educational levels, literacy, economic competitiveness as well as individual income exists.
- Nelson and Phelps (1966: 69 -75) macro-economic growth and investment levels of nations are complementary with the educational levels of the nation's workforce corps.
- In rapidly changing information-based economy cognitive abilities of individuals to analyze and process new information is key.
- More educated or trained individuals are generally more productive and innovative (Boddy *et al*, 2005; Dearden *et al*,

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Link between ICT Skills, Education & Labour Productivity

- Autor *et al* (1998: 2) - Capital investments in ICT strongly complements skilled workers in performing complex tasks whilst it substitutes lower skilled workers in manual tasks.
- Autor *et al* (2003: 3) - Computerization of work is associated with reduced labour input of routine manual tasks and increased labour input of non-routine tasks.
- Akojee, Arendt and Roodt (2007: 1), HSRC - Importance of ICT skills to economic, political and social development in a globalised context cannot be overestimated.

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Link between Labourforce Education, Employability & Income Levels

- Rodrik (2006:14) - Higher education is correlated with better employment outcomes and greater labour market participation.
- Rodrik (2006: 14) – It takes a completed university degree to mostly escape unemployment in South Africa”.
- Lloyd-Ellis (2000: 3) - Countries where tertiary education for dependants is responsibility of parents (as opposed to state), parental incomes affect the human capital acquisition of their dependants.
- Children of parents who cannot afford quality tertiary education are most likely not to send their offspring to tertiary education leading to low future earning potential for the offspring.

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Benefits of ICT Trained Employees

ICT trained skilled workers derive value to employers due to:-

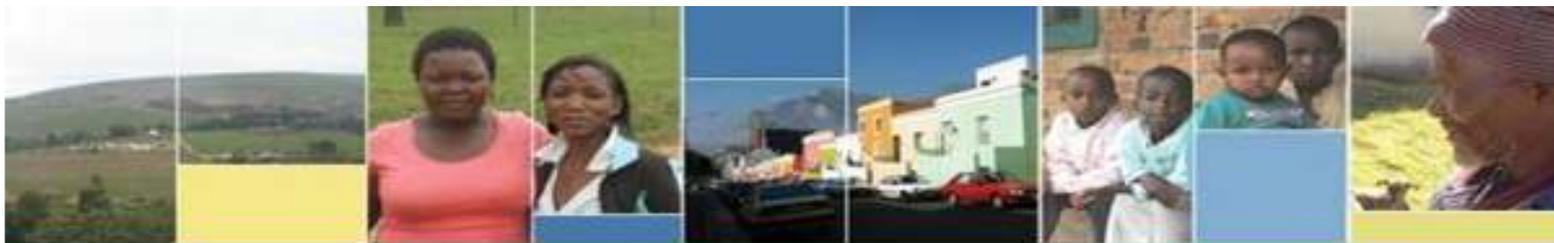
- **Innovativeness**
- **Easily harness new technologies and production methods**
- **Have greater problem-solving and communication abilities**
- **Learn faster, adapt better to changing economic**
- **Are generally more productive (Coulombe *et al*, 2004).**

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Link between Labourforce Education, Employability & Income Levels

- Dearden *et al* (2005) and Boddy *et al* (2005) - Nations more endowed with skills tend to harness and utilize existing technology more efficiently and entrepreneurs are apt to become better innovators.
- Empirical findings by Schwerdt and Turunen (2007) and Baldwin and Gu (2007) - European Union countries and Canada have gained a substantial increase in labour productivity of employees due to improvements in educational backgrounds of their national labour corps (labour quality)



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Link between ICT Skills, Education & Labour Productivity

Endogenous Economic Growth Theorists

Barro (1991), Mankiw and Weil, (1992), Dowrick, (2002), Akinlo (2006) and Landau (1983) –

- ❖ National macroeconomic growth can be achieved by increasing exports.
- ❖ Only through sustained investment in labour corps skills can higher economic and productivity growth be attained.

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Link between ICT Skills, Education & Labour Productivity

- ❖ SA economy does not create enough employment opportunities
- ❖ High Population Growth
- ❖ Poor Entrepreneurship Ethics
- ❖ Job Shedding in the name of improving enterprise efficiency and productivity.
- ❖ Entrepreneurship discouraged under Apartheid.

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Scope of SA ICT Sector

- ❖ ICT Empowerment Charter (2004: 10) - ICT sector is of strategic importance to the future growth and prosperity of South Africa's economy.
- ❖ ICT sector is ranked amongst the top five sectors in terms of its contribution to the Gross Domestic Product (GDP) of South Africa.
- ❖ Moleke, Patterson and Roodt (2003: 635) – ICT are major driver of employment in the developed world.
- ❖ ICT Empowerment Charter (2004: 10) - Socio-economic initiatives of SA govt (poverty alleviation, grant administration, education & training as well as national healthcare system) depend on availability of sound national ICT infrastructure.
- ❖ DTI/ ISETT SETA Skills Audit (2005: 1), SA ICT industry one of fastest growing sectors of the economy,
- ❖ Sector domains as a successor to the industrialization era.



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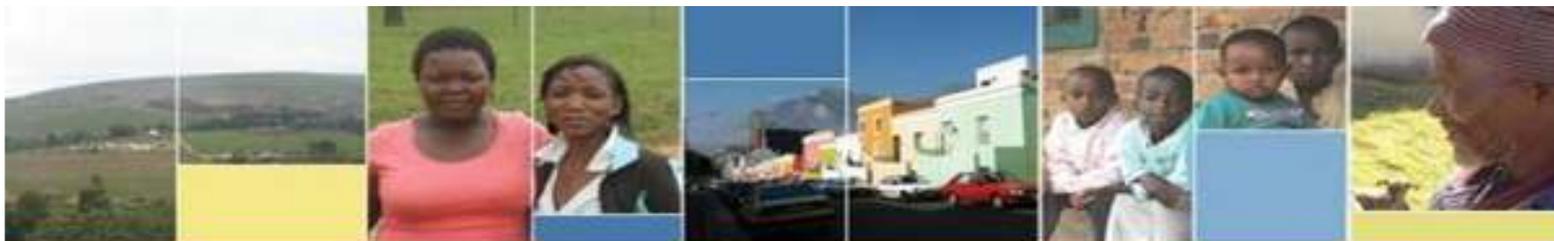
Scope of SA ICT Sector

According to the data findings from the ISETT SETA Skills Survey (2005), the total size of the ICT labour force is depicted as per table below:-

Breakdown of the ICT sector per Subsector

Sector	Sub-sector				Total	% of Total
	IT	Telecomms	Electronics	Unknown		
ISETT	22 907	91 623	15 826	0	13 0356	57.2
Non-ISETT	22 451	64 249	10 506	338	97 544	42.8
Total	45 358	155 872	26 332	338	227 900	100.0
% of total	19.9%	68.4%	11.6%	0.1%	100%	

- Source: ISETT SETA (2005)



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Implementation of ICT Policies in Africa

Farell and Isaacs (2007: 2), - Great deal of variance in ICT policies for education among African countries. There are leading countries such as Mauritius, Ghana, Botswana and SA

- **2nd Largest group** - Countries that are in transition from a sustained period of conflict and economic instability.
- **3rd Group** - Countries that are still plagued with political instability and internal conflicts that make progress on the ICT for education agenda impossible.



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Factors Enabling Adoption of ICT Policies in Africa

A. Public-Private Partnerships

- ICT private companies, government ministries, educational institutions, donor and development agencies, and civil society
- Bilateral Partnerships (Microsoft, Cisco, Intel, Hewlett Packard) and national ministries of education
- International higher education partnerships (Agence Universitaire de la Francophonie (AUF) and American Partnership for Higher Education in Africa)

B. Initiatives aimed at International Connectivity

- Eastern Africa Submarine Cable System (EASSy) to develop an undersea fibreoptic cable

C. Donor Assistance

- International Development Research Centre (IDRC), the World Bank, UNESCO, UNDP and USAID



Factors Enabling Adoption of ICT Policies

- **Steiner, Nyaska, Nielsen and Karanja (2006)**- Pan-African survey on the state of ICT infrastructure in African universities and deduced that access to ICT infrastructure is “too little, too expensive, and poorly managed.”.

Enabling and limiting factors such as:-

- ❖ Emergence of policy frameworks
- ❖ Evolution of networks
- ❖ Growing commitment to ICT in education on the part of government leaders



Problems of E- Waste

- ❖ Grant (2007) - Development of ICT infrastructure is coupled with the problem of *e-waste* (electronic or electrical equipment that has been discarded or has become obsolete).
- ❖ Fastest growing forms of waste around the world.
- ❖ 50 million metric tons of e-waste generated annually
- ❖ Imported into African counties.
- ❖ Challenge of regulating second-hand computer product imports.
- ❖ Schools & universities across Africa have experienced significant use of second-hand computers
- ❖ Limited number of initiatives to recycle and create awareness



South African Youth Unemployment

- Nattrass (2001: 1) - Households without any members in employment are typically poor & households with unemployed members and no pensioner are the poorest of the poor (Seekings, 2000).
- Banerjee *et al* (2006) – Many Households still survive the hardships of unemployment due to the state old age pension system.
- Posel, Fairburn & Lund (2004) and Edmonds, Mammen & Miller (2003)
 - State old age pension system facilitates the departure of prime-age women from households to permit them to migrate in search of work.



Youth Unemployment Trends

Banerjee et al (2006:17) –

- Youth from the majority of the unemployed.
- Job Search Success Affected by:-
- Geographical Location (Distance from Job)
- Rural vs Urban Location
- Social Class of Workseeker
- Functional Area and Type of Qualification
- Literacy and IT Literacy
- Quality of Post- School Education
- Access to Personal Networks
- Labour Market Discrimination Patterns



Youth Unemployment Trends

- Job transitions by urban Africans (from outlying township areas) from informal to formal sector jobs are rare due to latent discrimination against the employment of African workers.
- Employment is increasingly a function of social networks. Young unemployed persons from different neighbourhoods and social classes will have varied access to jobs.
- Youth unemployment characterized by segmentation
 - Chronically excluded groups of (urban youth socialised into gang culture and may not even want formal employment).



Youth Unemployment Trends

- Banerjee et al (2006: 16)
- - Composition of the SA labour force has changed substantially since 1994, share of Africans in labour force has increased .
- Supply of labour within the SA conomy increased after 1994 due to unprecedented influx of lesser skilled African women into the labor market.
- Demand for unskilled labor did not increase in mining and agricultural sectors (shrinkage)
- Skill-biased technical change occurred globally
- Shrinking demand for and huge influx of unskilled labor caused unemployment among the less-skilled and/or less-experienced workers to balloon.



Utilizing ICT in Higher Education to address Poverty & Unemployment

Czerniewicz, Ravjee and Mlitwa, (2006) - Various approaches to the utilization of ICT in higher education can be classified.

- **Determinist** approaches view technology as neutral developing autonomously with powerful social impacts. Technology is seen to be changing everything, from the nature of society to social practices, identities, lifestyles, interactions and leisure, to the ways that people learn and teach.



Utilizing ICT in Higher Education to address Poverty & Unemployment

- **Instrumentalist approaches** view the logical means-ends relation as important. Neutral Technology is seen as means to social justice, empowerment, transformation, economic competitiveness, active learning, student-centred learning.
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- **Substantive approaches** emphasize deep substantive effects of technology on society.
- **Critical theories** of emphasise the social contexts of technology and see technology as embedded in the social world. Technology is seen as site of social struggle.



Utilizing ICT in Higher Education to address Poverty & Unemployment

- **Czerniewicz, Ravjee and Mlitwa, (2006: 43) –**
E-learning / blended learning must be seen within the context of institutional interventions seeking to transform the colonial fabric and cultures of SA higher education institutions. ICT must be seen as ‘one thread in a complex net of transformation, including historical redress, curriculum transformation, diversity, equity.

It Provides:-

- Flexibility of time and place
- Reality of unbounded educational discourse.



Blended Learning in Higher Education

- ❖ Effective and low-risk strategy in line with changing society and technological usages and expectation placed on higher education to meet the need for intellectual talent.
- ❖ Thoughtful integration of classroom face-to-face learning experiences with online learning experiences.
- ❖ Integrates strengths of synchronous (face-to-face) and asynchronous (text-based Internet) learning activities.
- ❖ Limitless design possibilities and applicability to so many contexts.
- ❖ Has ability to facilitate a community of inquiry.
- ❖ Communities also provide the condition for free and open dialogue, critical debate, negotiation and agreement—the hallmark of higher education.



Blended Learning in Higher Education

Heterick and Twigg (2003) –

- Students achieve better during examinations and are more satisfied with their studies.
- Large blended learning enrolment course replaces one or two lectures each week with any combination of online discussion groups, simulations, discovery labs, multimedia lessons, tutorials, assignments, research projects, quizzes, and digital content.

Garrison and Kanuka (2004: 95–105)

- Defining characteristic of blended learning is ability to provide interactive learning experience to large numbers of students in ways that are accessible and cost effective.

Juma (2003) & Butcher (2003)

- Emergence of full-scale ‘digital universities’, such as African Virtual University (more than 30 higher education institutions from 17 African countries)
- Increasing use of online learning in contact universities blurring traditional distinctions between distance-mode and contact-mode institutions



Blended Learning in Higher Education

Butcher (2003), Czerniewicz, Ravjee & Mlitwa, (2006), Jansen, (2004: 303)

- Stellenbosch and Pretoria two clear examples in SA where the number of distance students enrolled in traditionally 'contact' institutions increased by almost 500% between 1993 and 1999
- **Ravjee (2007: 27 -41)**, Emergence of new kinds of global e-learning collaborations of public and for-profit partnerships
- Creation of remote branch campuses for international students
- Formation of consortia such as eDegree (provision of online higher education through partnerships with universities in South Africa (University of the Free State, Stellenbosch, and UNISA), Kenya, Uganda, Tanzania, and the United Kingdom.
- **(Coombs, 2003: 90-91) and Dutton & Loader, (2002: 7) -**
- Benefit offered by blended learning is potential to increase access education



Resources Needed for Implementation

Financial resources - To initiate and support blended learning initiatives (seed money), support instructional design and development are required.

- **Human** resources – Inputs to develop and deliver blended learning courses.
- Instructional design developers, curriculum development and Systems Administrators to support faculties which are new to blended learning.

Individuals to provide motivational strategies to support teaching staff who are not convinced of the value of blended learning approaches are also required.

- **Technical** resources (**hardware & software**) that are easy-to-use dependable and transparent are required to ensure that the technology can enhance the learning process—rather than obstruct it.



Requirements for Proper Implementation

- ❖ **The creation of clear institutional direction and policy**
- ❖ **The quantification of potential benefits, increased awareness and commitment**
- ❖ **The establishment of a single point of support, quality assurance and project management**
- ❖ **The creation of an innovation fund to provide the financial support and incentives**
- ❖ **The investment in establishing a reliable and accessible, technology infrastructure**
- ❖ **The strategic selection of prototype projects that prove to be exceptionally successful exemplars of effective learning**
- ❖ **The development of formal instructional design support available through a blended format**
- ❖ **The systematic evaluation of satisfaction and success of the teaching, learning, technology and administration of new course**
- ❖ **The creation of a task group to address issues, challenges and opportunities as well as communicate**



Blended Learning in Higher Education

- Higher education managers must apply the core values of higher education to how they conduct their core business.
- Adoption of ICT's in higher education is happening more on the research front but less on the learning front in higher education.
- Must commit resources to blended learning, where the financial investment is modest and the academic return can be enormous.
- **Will** to act important and focus on meaningful change to combat poverty and unemployment
- Focus should not only be on making money and excluding a significant proportion of SA society



Blended Learning in Higher Education

Czerniewicz, Ravjee and Mlitwa, (2006)

- Some HEI's see blended learning and telematics as the central solution to the problems experienced by disadvantaged students.
- Increased access of black students through e-learning and telematic distance education programmes – students who are 'neither seen nor heard', should **not be** allowed to be parade as a commitment to equity of access. (National Plan for Higher Education, NPHE)
- HEI's must react to technological change with understanding and vision but with courage and decisiveness to free resources to produce desired results and realize potential. Most HEI's wary of utilizing ICT.



Blended Learning in Higher Education

Contribution of ICTs to transforming higher education, and the nature of that transformation, will depend on extent to which current ICT practices actively support, undermine or ignore several competing perspectives on higher education change, namely:-

Globalisation project with its focus on skills training and affirmative academic practices,

Alternative Transformation Projects such as the decolonisation and democratisation projects that emphasise critical thinking and transformative academic practices.



Thank You



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