

*Higher Education and ICT in the Information Society:
A Case of UWC*

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ABSTRACT

That universities can, and should play a key role in the development of an Information Society has become a popular view within intelligentsia. This paper examines whether, and how the use of ICT for academic purposes in higher education institutions is contributing to the development of an Information Society in South Africa, as suggested by the National Plan on Higher Education. Efforts of the University of the Western Cape (UWC) – to integrate ICT into teaching and learning are discussed, and the motivations outlined. A recent document analyzing whether the motivations documented in institutional policies are being put into practice is used to show whether the institution is walking the talk in this respect. The vision of the university strategy is compared with the suggestions of the National Plan on what higher education institutions should do to contribute to the development of an Information Society. It is concluded that in terms of the working definition of IS used in this paper, and the outcomes of its investigation, that UWC's efforts are in line with transformation objectives of the 1996 Green Paper on Higher Education, and do support the development of an Information Society as suggested by the National Plan on Higher Education.

KEY WORDS:

Information Society, higher education, ICT, e-Learning, Access, HictE, UWC

‘Higher Education has a critical and central role to play in contributing to the development of an information society in South Africa, both in terms of skills development and research.’

Source: National Plan for Higher Education in South Africa (February 2001)
<http://www.polity.org.za/html/govdocs/misc/higheredu1.htm>

INTRODUCTION

That higher education has a critical role to play in an information society (IS) is widely accepted among the intelligentsia. What is not so obvious however, is the extent to which this critical role is being translated into practice at university level. It is in this line of thinking that investigates the role of higher education institutions in an information society. The first section discusses various perspectives on what the functions of a university should be, and the relevance of ICT in higher education processes. The concept of an information society is discussed in the second part of this paper. The main part main part of this paper asks whether (and how) higher education institutions are contributing to the development of an information society in South Africa (SA). It draws on the National Higher Education Green Paper (1996) to clarify the functions of a higher education (HE) institution; the National Plan on Higher Education (2001), the National Research and Development Strategy (2002), and from President Mbeki’s State of the Nation Address (2001) to highlight the role that universities should play in the information society.

A recent study entitled *‘ICT for Teaching & Learning in SA Higher Education – A Case of UWC’* (Mlitwa, 2005, unpublished) is used to show whether & how the initiatives and objectives of one university are (or are not) contributing to the development of an information society in South Africa.

The paper opens with a discussion of the objectives of universities and their role in the development of the information society (IS), according to national policy perspectives, and institutional strategies. A discussion of the perspectives of a university on educational ICT (and the information society) is included in the first section. Next is a definition and contextualization of an information society, as well as the role of a university in an information society. The main part of the document addresses the question ‘whether universities are playing their part on what is seen as their role in an information society’. The paper concludes with an evaluation of developments in at least one institution - the University of the Western Cape, of its use of ICT in teaching and learning. It answers the question whether UWC is (or is not) contributing to the development of an information society while fulfilling the objectives of a higher education system as suggested in a national policy documents.

Objectives of a Higher Education System & the Role of ICT

From academic debates to cocktail-party gossips, to national policy statements, arguments diverge on what the core functions of a higher education (HE) institution should entail, and who should inform the objectives and the actual agenda that a higher

education institution should pursue (Green, 1994)¹. Perspectives range from those who see an academic institution purely as a vehicle to supply the economy with qualified (Barnett, 1994, in Tam (2001:48) workforce - and its agenda therefore, should be dictated by free market capitalism (Zezeza, 2002)², the industry (Reynolds, 1990), and the forces of globalisation³. Some see higher education as a mechanism to preserve the social order - including phenomena such as culture, language⁴, political beliefs, and the extension of life chances (Barnett, 1994, in Tam (2001:48). Others propose HE independence where institutions should ‘*continue the transmission and advancement of knowledge*’ (Tam, 2000:48)⁵, produce independent thinkers, and generate critical inquiry (belief here is that institutions should define their own operational agenda)⁶.

Indeed UNESCO (1998) sees higher education as embracing all these functions, and acknowledges the significance of partnerships between HE institutions, the government, the public, the private sector, the forces of globalisation⁷, and all interested stakeholders⁸ to inform the HE agenda. Common between all perspectives is the centrality of knowledge and its transmission for several purposes. An overlap of educational processes to all life disciplines is equally evident.

The key objective of a higher education system according to the Government of South Africa is to provide the effective advancement of all forms of knowledge and scholarships – in line with ‘*internationally observed standards of academic quality, with sensitivity to the diverse problems and demands of the local, national, Southern African and African contexts*’ (Green Paper, 1996 Sec 3.4). Clearly, International (*or global*) issues of academic quality, with considerations for the local (or provincial), national (or South African), regional (i.e. SADC context), and the continental (African) contexts, as well as technological developments are important to the advancement and pursuit⁹ of all forms of knowledge and scholarships (Ibid). Convergence of multiple contexts to shape a university’s objectives and functions in the knowledge-based society has motivated an increased adoption and use of educational ICT in many institutions globally.

A recent survey on the adoption and use of educational ICT (Middlehurst, 2003) among 500 universities across Europe, Australia, and the Commonwealth countries in 2003 confirms this trend. It refers to *Political; Social; Economic; and Technological Drivers and Trends* – in a *regional, national, and global scale* – as having various kinds of impacts in higher education (HE) institutional strategic choices on ICT adoption and usage (Middlehurst, 2003). One such impact according to the technology acceptance model or TAM (Davies, 1989) is when these macro-level factors or ‘external variables’ as Davies (1989) calls them, influence micro-level (personal or psychological) factors such as perceptions on usefulness (PU) of a technology, perceived ease of use (PEOU), the attitude (A) towards using a technology, and ultimately the behavioural intentions (BI) of decision makers (see TAM in *figure1(a)* in the annex section) to adopt and use technology.

Within the globalisation discourse for example, decision makers in an institution may perceive technology to be breaching the walls ‘*created by distance, time zones, and the need to work directly with physical objects...*’ (Bowen, 2000:11). The usual expectations here is that ‘*...as new technologies emerge and the costs of hardware, software, and connectivity continue to fall*’ that more benefits will emerge, hence a positive attitude,

translating into adoption patterns. The emergence of new providers of HE (*competition driver*), of new kinds of HE provision (*innovation driver*), and of the demand for education (*demand driver*), further motivates universities to adopt and use ICT to address their changing local and international *economic* and *social* challenges (Middlehurst, 2003). Technology therefore, has become a central mechanism for advancing higher educational ends, and to empower universities to operate, cooperate, and compete with other institutions within and beyond national borders. Most universities are turning to ICT to survive in the information era, and in their attempts to leapfrog into the information society and the knowledge economy.

But what is the Information Society?

Simply stated, Information Society (and the Knowledge Society) directly or indirectly implies the opposite of the digital divide. The digital divide represents ‘*a lost opportunity for people that are unable to effectively use ICT*’ because they either do not have access to it, ‘*do not know how to use it, they are uncomfortable using it, they cannot afford it, or they do not understand how it can be relevant to their lives*’ (bridges.org, 2001: spanning/chpt1). On the other hand, Information Society (IS) describes a society and an economy that makes the best possible use of new information and communication technologies (ICT's), where people get maximum ‘*benefits of new technology in all aspects of their lives: at work, at home and at play*’ (Information Society of Ireland, 2004; also see www.pnc.gov.za/is). Even new developments in technology can, according to the European Information Society (2005), provide ‘*a real chance to turn the risk of a digital divide into digital cohesion and digital opportunities....thereby bringing the benefit of the Information Society into all segments of the population.*’

While a lack of or limited access to ICT and information, affordability challenges, literacy, knowledge (and the ability to use it to improve life opportunities), poverty, as well as social divisions and discrepancies – are characteristics of the digital divide, the ‘*information superhighway*’ which is a ‘*high-speed communications system*’ that enables ‘*access to government, industry, and educational data banks for all people*’ (Freedman, 1996:428 – 9) is characteristic of the Information Society. It is characteristic of what Manuel Castells (2000, 1996) calls ‘the network society’ of the new age of ‘Informationalism’ where our intercontinental neighbours are now essentially just one button-push away. Instead of social disconnectedness associated with the digital divide, partnerships between the government, civil societies, business, and academic institutions – to achieve sustainable development, are emphasized in an Information Society (President Mbeki, 2001, in www.pnc.gov.za/is).

In fact, Information and Communication Technology (ICT) features strongly in almost all accounts of an Information Society (IS). Indeed, academic, media, and non-governmental organizations (NGO) reports – ranging from *bridges.org*'s¹⁰ ‘e-Readiness Assessment of the City of Cape Town (2003)’, to the *World Resource Institute's* (2002) ‘Digitally Empowered Development’¹¹, and the *World Bank Institute's* (1998) ‘Ten Lessons for ICT and Education in the Developing World (Hawkins, 2003)’¹², are rife on how governments, commerce, and educational institutions respectively, can benefit from ‘e-government’, ‘e-business’, ‘e-commerce’, and ultimately ‘e-learning’ practices. Belief is

also growing within academia – that ICT can advance higher education objectives (Rosswall, 1999), that it is an enabler of innovative change, and that it is a catalyst for pedagogical transformation (Czerniewicz, Ravjee, & Mlitwa, 2005)¹³. Even institutional policy documents and national policy texts suggest that ICT *‘leads to various kinds of improvements in higher education – ranging from increasing access to higher education, reconfiguring libraries and institutional management and administration, to improving the quality of teaching and learning’* (Czerniewicz, Ravjee, & Mlitwa, 2005:33)¹⁴, and to help them integrate into the knowledge society (University of Pretoria Strategic Plan, 2002 -2005, p6)¹⁵.

While access to ICT is seen as a basic right of the 21st century citizenship (Murdoch 2002), the digital divide – where exclusion means a severe limitation of life chances (Burbules and Callister, 2000) remains a major threat to the development of an Information Society in developing countries, including South Africa (bridges.org, 2001). Transformative change towards a more literate and knowledgeable society is needed if South Africa is to leapfrog into, and take advantage of, the Knowledge-based Information Society. A university can play a significant role in developing the society towards this end.

THE ROLE OF UNIVERSITIES IN AN INFORMATION SOCIETY

An expectation exists within government quarters and academic circles that universities should play a key role in the establishment of the Information Society. For example:

- ⇒ President Mbeki suggested in his State of the Nation Address (2001) that higher education institutions can play a key role in the development of an Information Society, and enable South Africa to *‘get onto and stay on the information super-highway’* (President Mbeki, 2001).
- ⇒ The National Research and Development Strategy (2002) of the Department of Science and Technology recommends for the higher education transformation agenda to ensure *‘that as many of our people as possible master modern technologies and integrate them in their social activities, including education, delivery of services and economic activity. This relates in particular to communication and information technology’*. It adds that to achieve this, *‘...we have to devote the necessary resources to scientific and technological research and development... (p 3)’*, something which is a speciality of universities.
- ⇒ Indeed *‘if knowledge is the electricity of the new informational international economy, then institutions of higher education are the power sources on which a new development process must rely’* (Castells, 1993, in National Plan for Higher Education, 2001).
- ⇒ Similarly, the National Plan for Higher Education (2001) sees higher education as having *‘a critical and central role to play in contributing to the development of an Information Society in South Africa, both in terms of skills development and research’* (Sec. 1).

⇒ Accordingly, the National Plan proposes for the higher education system ‘*to ensure that all graduates are equipped with the skills and competencies necessary to function in modern society, in particular, computer literacy, information management, communication and analytical skills...irrespective of the balance in enrolments*’ (Sec.4.3), as part of the higher education transformation agenda.

Are Universities Playing their Part?

The problem however, is that it is not clear whether (and how) universities are responding to this call. Furthermore, there is no evidence in the literature to show that universities are playing an active part in contributing to the development of the Information Society.

For this reason, this paper examines the efforts of the University of the Western Cape (UWC) – in integrating ICT into teaching and learning, and investigates how this process supports the ideals of an Information Society as suggested by the National Plan. This investigation however, is preceded by an overview of the actual motivations for higher education institutions, and ultimately that of UWC (within the HictE initiative)¹⁶ for integrating ICT into teaching and learning.

Motive for Educational ICT at UWC

UWC and the rest of the institutions of higher education in the Western Cape are committed to improving the quality of teaching and learning through innovative use of ICT. In fact these institutions: UWC, the University of Cape Town (UCT), University of Stellenbosch, the Peninsula and the Cape Technikon (who are now the Cape Peninsula University of Technology) formed a collaborative initiative to promote the quality of teaching and learning through effective use of technology in 2002. The ICT in Higher Education (HictE) initiative received a generous funding from the Carnegie Corporation of New York, to see its objectives through.

UWC is a leading member of the HictE collaborative initiative and as such, identifies with the HictE vision to enhance the quality of teaching and learning through the innovative use of ICT. As to how ICT is being integrated into teaching and learning at UWC, and what the expected impacts of such integration on students and staff are, remains the subject for investigation in this paper. Answers to this question are drawn from key policy and research documents of both UWC and the HictE initiative. In particular, the UWC e-Learning Strategy v1.3 (2004); and the HictE Sub-Project 3 report: Integration of ICT into Teaching and Learning in SA Higher Education: A Case of UWC (May, 2005).

OBJECTIVES OF THE UWC E-LEARNING STRATEGY

The direction to, and motivations for the integration of ICT into teaching and learning at UWC is outlined in the Integrated Information Strategy (www.uwc.ac.za/ics/strategy/iis_strategy-1_1.pdf) as translated into the e-Learning Strategy (2004, Draft, Vol 1.3) of the institution.

How ICT is integrated into teaching and learning at UWC, and the impact that such integration is intended to have upon students and staff is summarised into three e-learning goals of the institutions, which is to *ensure physical access, ICT usability, and capacities*:

- ⇒ *Ensuring physical access* – by increasing student to computer density generally and access times to 24hr – 7 days a week for labs where both demand and feasibility exist. The motive is to improve equity of access to information, and to improve academic efficiencies for all students and staff, across academic disciplines (Keats, 2004 - UWC e-Learning Strategy v1.3 draft).
- ⇒ *Ensuring usability of content and applications* – by integrating ICT into the curriculum and with pedagogy (alongside constructivist principles), grow e-learning partnerships (following the open content tradition), and linking online learning management systems with other online systems. The motive behind this goal is to improve equitable access, to empower students to become independent learners, to improve learning flexibility and creative knowledge construction – with access to the right information, in the right format, whenever and wherever needed (Keats, 2004 - UWC e-Learning Strategy v1.3 draft).
- ⇒ *Building user capabilities (literacies)* – by providing basic computer literacy, digital information literacy and fluency, as well as knowledge to create digital knowledge – for students and staff. The idea is to empower students to use technology to find, understand, apply, analyse, synthesis, evaluate, and report on information from a variety of sources, and to produce graduates who are competitive for the 21st century careers. The outcome will be the expertise to produce high quality learning content and research output (Keats, 2004 - UWC e-Learning Strategy v1.3 draft).

Similar to Mark Waschauer¹⁷, the strategy conceptualises ICT and access in terms of resources. Meaningful access for Waschauer (2002) implies access to physical, digital, human, and social resources.

The e-strategy emphasises the goals of ‘access’ to ICT, with an assumption that there is a positive co-relation between actions/procedures of an institution and the impact of ICT on the quality of teaching and learning.

At UWC, ICT is expected to empower students to use technology to find, understand, apply, analyze, synthesize, evaluate and report on information from a wide variety of sources. ICT will help students become independent learners. It will improve learning flexibility and creative knowledge construction. ICT is expected to improve student access to the right information, ensuring that it is available in the right format, whenever needed (or free from geographic & time-tabling restraints), and to enable the institution to deliver life-long learning. For staff, ICT should empower academics to ‘produce high quality learning content’. It should also improve academic efficiencies for staff (and students), as well as the flexibility in teaching and research. Technology will also be used to improve communication, both for students and staff. What remains to be seen however, whether there is action to back-up the talk.

A study was conducted through the HictE initiative in 2004, to investigate the extent to which this vision is being put into action at UWC. The study incorporated a survey, interviews, and audits. The survey investigated among other things, the levels of access to ICT, abilities (in terms literacies and support), attitudes in terms of believing in, and the willingness to use ICT for teaching and learning. Audits were conducted to understand the quantity and working conditions of available computers, networks, and other infrastructure. Interviews of staff members in strategic ICT positions within the university (i.e. senior management of ICS, operational level management of the infrastructure division of ICS, and the library personnel who have direct contact with students) was conducted to make sense of any discovery made in the audit.

RESULTS OF THE INVESTIGATION

The HictE Sub-Project 3 report presents an investigation into the innovative application of ICT at the University of the Western Cape (UWC). This investigation was set to examine the objectives for ICT adoption, available infrastructure, and usage by students and staff (and reasons thereof). The intention was to know whether the integration process, ICT types, quantity, as well as access to, and usage of ICT by students and staff are of the mix that can enhance quality and equity in higher education in this institution – both in terms of the institutional objectives and in terms of the literature and best practices. This section outlines the methodology and the findings of the HictE investigation.

Units of analysis, the description, and data sources are summarized in table 1 below

Table 1: Units of analysis and data sources

Units of Analysis	Description	Data Source
Objectives of UWC efforts	Motivations for ICT integration at UWC.	<ul style="list-style-type: none"> Institutional policy documents
Capital infrastructure	Status of servers, bandwidth, computers, systems, networks, as well as working conditions, and connectivity levels of computers for students and staff	<ul style="list-style-type: none"> Interviews of middle management Audits and observation
Usage (and reasons therefore)	Who uses facilities, for what purposes, where, and when? Motivators and hindrances?	<ul style="list-style-type: none"> Survey on UWC Staff and Students
Source: Mlitwa, 2005 – HictE Sub-Project3 Report		

A strategic sampling method was used to survey students and staff. For example, UWC had a total of 9,997 (8,769 undergraduate and 1,228 graduate) registered students on the date of sampling (11 February 2004)¹⁸ where 10% of the original population (9,997 students) totals were calculated to arrive at the sample of 1000 (877 undergraduate and 123 graduate) students. However, 1,277 questionnaires were distributed manually, while an infinite number was made available online.

Questionnaires were distributed to students during lectures and tutorials in both natural and management sciences on the one hand; as well as humanities and social sciences on

the other hand. The sample represented both on-campus and off-campus resident students of mixed age, race, gender, and socio-economic backgrounds.

Academic staff was invited through the office of the Executive Director of Information Communication Services (ICS) – Prof. Derek Keats, to participate in the survey. E-mails were also sent from the rector reminding staff to make an input. A total of 113 staff responded. Whilst this represents approx 10% of academic staff, it is a small number and a skewed sample most likely capturing people who were interested and confident with regards to using ICT's – and could respond online.

Evaluative Tool and analysis. While data from policy documents and interviews were presented in a descriptive format, audit and survey data were quantitatively analysed.

Each sub-question comprises of indicators for both the fitness for purpose and transformative aspects of quality (see section 1.2.4), and were ranked in a 0 – 4 scale where 0 represents non-existent, while 1 represents poor, 2 for average, 3 for good, and 4 for high quality (fitness for purpose and transformative). Quality as transformative refers to the extent to which the educational experience enhances the knowledge, ability and skills of graduates (Harvey, 1995: 11, in Warn and Tranter, (2001: 191), empowering students (Harvey and Knight, 1996:8, in Warn and Tranter, 2001: 191) by developing their capacity for critical reflective thinking. In other words, the '*transformative view of quality is rooted in the notion of qualitative change, a fundamental change of form*', that '*is not restricted to apparent or physical transformation but also includes cognitive transcendence*' (Harvey and Green, 1993 in Tam, M. 2001: 51). It implies an educational change, impact that higher education processes make, or value that it adds on the individual. Similarly, quality as fitness for purpose requires higher education to develop generic competencies for achieving a specific purpose i.e. for a future worker to fit in the workplace, or become a good researcher, etc.

Where qualitative statements were ranked, the percentage of the sample that makes a positive response was placed in a scale of 0 (for 0% or no support of the statement), 1 (where between 1-24% responses support the statement), 2 (for 25-49% support of statement), 3 (for 50-74% support of the statement), and the highest score of 4 (for 75% and above of statement support). The average sum of indicators becomes the score of a variable. All indicators carried equal weight.

The findings of this study informs this paper on the extent to which UWC is (or is not) translating its e-Learning Strategy vision into action.

How UWC is Translating its e-Strategy Vision into Action

The HictE study suggests that major strides have been, and continue to be taken at UWC, to translate the e-Learning Strategy vision into action. However, the status of infrastructure and access can be ranked slightly above the average quality level rather than fitness for purpose of the capital infrastructure, adoption and use of ICT by students and staff at UWC. Question and the summary of the findings are discussed together - in the following passage:

- ⇒ Status of ICT integration into the core academic functions (teaching, learning, research, and communication) to enhance HE quality in the institution: Question 1 - Does the institution (senior management), academic staff, and students consider ICT as important for integration into the core functions of the institution? This category investigated attitudes seen in policy frameworks, and management actions such as attempts to provide capital infrastructure to enable effective ICT integration, as well as students and staff statements.

Outcome: A high level of quality readiness in terms of attitudes and infrastructure emerged. However, more is required to ensure campus-wide adoption and usage, as well as long-term sustainability of ICT initiatives

- ⇒ Status of physical access to educational ICT among students and staff: Question 2 - Do students and staff have access to ICT tools and resources?

Outcome: A significantly high quality level was scored, but the institution needs to work towards 24:7 times of access in computer laboratories and make additional provisions for disabled students.

- ⇒ Affordability hindrances to ICT access and usage for poor students: Question 3 - Is ICT access and usage affordable for the poor students on and off-campus?

Outcome: A slightly above average quality level was scored. In other words a fair amount of students on and off-campus can afford ICT. However, on-campus students don't pay, whilst most off-campus students incur prohibitively high costs of access at Internet cafés. They also experience major difficulties in terms of times and distances to ICT access points.

- ⇒ Ensuring Digital access: Question 4 – Are networks and systems enabled with academic content and applications?

Outcome: A below average quality level largely due to a gap in the integration of ICT with pedagogy and curriculum. This will be addressed in the middle of 2005.

- ⇒ Improving social and human access: Question 5 - Do students & staff have skill to use ICT, and the understanding of the potential and implications of ICT use?

Outcome: Staff and students recorded high levels of skill and understanding of educational ICT (and associated implications) at UWC. However, numbers were distorted by high response rates in faculties of science, commerce, and Law compared to humanities.

- ⇒ Implementing ICT strategy and encouraging actual usage of ICT: Question 6 - Is available ICT being used by students and staff for teaching, learning, research, and communication?

Outcome: Students and staff are using ICT for a number of purposes, but very few use it for teaching and learning, largely due to limited integration of ICT with curriculum and pedagogy. This was already in the agenda due for implementation in the middle of 2005 (Keats, 2005).

⇒ *Ensure technology adequacy*: **Question 7** - Is it the right technology for teaching, learning, research, and communication?

Outcome: A slightly above average quality level was scored, indicating low but reasonable adequacy. However, congested bandwidth was regarded as a major impediment to student effective usage between 9h00 and 4h30 pm daily, especially in the library. Major progress has been made to address the situation, since the beginning of the 2005. More bandwidth is being sourced, server infrastructure updated, and network security system strengthened (Keats, 2005).

⇒ *Providing technical and user support*: **Question 8** - Are there literacy and technical support to enhance ICT user skills for students and staff?

Outcome: A number of staff cannot use KEWL because they don't know how. Some level of support exists but somehow, still not accessible by all academics. Efforts are being devised to investigate concerns, and to promote further productive usage of the system.

It is evident in terms of the findings of the HictE report that the objectives of the e-Learning Strategy are being taken seriously. Though perfection cannot be claimed, efforts to translate policy into action are visible. Having confirmed that the objectives of e-learning are indeed backed-up by action at UWC, the following section analyses how these efforts support the ideals of an Information Society as stipulated in the National Plan for Higher Education (2001).

How the objectives of the e-Learning Strategy support the ideals of an Information Society?

The National Plan for Higher Education (2001) suggested that universities should contribute into an Information Society by making efforts (1) *to ensure that all graduates* (2) *are equipped with the skills and competencies necessary to function in modern society, in particular,* (3) *computer literacy, information management, communication and analytical skills...irrespective of the balance in enrolments.*

Assumptions and implications of these points are outlined in table 2 below, and used to compare the motives of the e-Strategy of the University of the Western Cape (UWC).

Table 2: Comparing the Motives of UWC e-Strategy with the Ideals of the IS of the NP on HE

National Plan on Higher Ed		UWC e-Strategy	
IS Ideals	Implication(s)	e-Strategy Motives	Implication(s)
Reference to All graduates	Equity: eliminating all forms of discrimination	<ul style="list-style-type: none"> Ensure digital access content and applications - Improving equity of access to information for students across academic disciplines. 	Supports the IS ideal of equity. ICT is used to improve equity of access
Equipping graduates with <u>skills & competencies</u> necessary to function in the <u>modern Society</u>	Taking account of the local, national, continental, and the global contexts of the social, economic, and political complexities of modern life.	<ul style="list-style-type: none"> Improve human and social access: empower students to use technology to find, understand, apply, analyze, synthesize, evaluate and report on information from a wide variety of sources. Produce graduates who are <u>competitive for twenty-first century careers</u>. Grow e-learning partnerships, following the open content philosophy in knowledge distribution 	Supports the ideal of equipping students with all skills needed to be effective in various contexts of the twenty-first century life and careers. By commitment to open content philosophy, supports partnerships and collaboration in knowledge generation
Emphasis on <u>computer literacy, information management, communication</u> and analytical skills	ICT is part of all productive careers. All students should be prepared as such	<ul style="list-style-type: none"> Providing basic computer literacy, digital information literacy, digital information fluency, and digital knowledge creation for students and staff. Delivering life-long learning opportunities to students (both on-campus and distant), and alumni. 	Supports I.S. ideals of enhancing computer literacy, information management, and analytical skills. But goes beyond the traditional student audience, to encompass the life-long aspect of adult learning.

This paper has set to investigate how universities are contributing to the development of an Information Society. To enable the investigation, suggestions of the National Plan for Higher Education (2001) on how universities should contribute in the development of the Information Society have been used as a yardstick against which the efforts of the university can be analysed. The University of the Western Cape (UWC) is analysed for this purpose in this study. Indeed one cannot claim UWC to be a representative sample of all South African universities, but the analysis is conducted to give an indication of how, at least one institution, is responding to the calls that universities should contribute to the development of an Information Society in South Africa. The institution was selected because of the availability of recent studies that provide required information, and without major difficulty for the author.

The National Plan Guidelines vs UWC e-Learning Strategy Objectives

The National Plan on Higher education for example, had recommended for universities to make special efforts providing higher education to all those who need it – with emphasis on ‘all graduates’ or **equity** – which implies the eliminating all forms of discrimination (see table 2). All graduates are to be equipped with ‘skills and competencies necessary to

function in the Modern Society’ (see table 2). This modern society is identified by the time as or identified with the century as the society of ‘twenty-first century’ (UWC eLearning Strategy, 2004), or referred to as the ‘*knowledge society*’ in other platforms (Cape Online e-Strategy, 2001: p5). This society is also characterized by ‘*Knowledge Work*’, ‘*IT as a production system*’, the ‘*sharing of knowledge*’, and ‘*Integrated Technologies*’ - where human capital is viewed ‘*as the most important asset*’ (Cape Online e-Strategy, 2001: p5). The National Plan emphasises that universities should prepare graduates for the local, national, continental, and the global contexts of the social, economic, and political complexities of modern life. It suggests that computer literacy, information management, communication and analytical skills are part of this preparation. ICT is part of all productive careers, and all students should be prepared as such.

As shown in table 2, the e-Strategy of UWC strives to:

- ⇒ Ensure digital access (content and applications) - so as to improving **equity** of access to information for students across academic disciplines (see table 2). This objective parallels that of the National Plan discussed in the preceding passage.
- ⇒ Improve human and social access - empowering students to use technology to find, understand, apply, analyze, synthesize, evaluate and report on information from a wide variety of sources. Similar to the suggestions of the National Plan, the aim is to produce graduates who are competitive for twenty-first century careers.
- ⇒ Promote the growth of the e-learning partnerships (following the open content philosophy in knowledge distribution), in emphasizing the significance of knowledge sharing. This is in line with the Cape Online E-Strategy (2001) definition of the *Knowledge Society* as outlined in the above paragraph.
- ⇒ Provide basic computer literacy, digital information literacy, digital information fluency, and digital knowledge creation for students and staff. This objective directly supports the guidelines of the National Plan (2001) which emphasizes a variety of skills (including computer skills) for all graduates. UWC goes on to deliver ‘life-long learning opportunities to students (both on-campus and distant), and alumni’ – in an attempt to distribute these skills to wider sectors of the community.

It is encouraging to learn from table 2 that the efforts of the University of the Western Cape (as presented in its e-learning strategy) – and confirmed by the HictE Project 3 report (2005) as being carried out in practice, that they are also surpassing the requirements of the National Plan for Higher Education (2001) – on how universities should do in developing the Information Society. It is also encouraging to note that these efforts are in line with what the Green Paper on Higher Education (1996, Sec 3.4) had identified as the key objectives of a higher education system: to provide the effective advancement of all forms of knowledge and scholarships – in line with ‘*internationally observed standards of academic quality, with sensitivity to the diverse problems and demands of the local, national, Southern African and African contexts*’.

CONCLUSION

All being said however, it should be noted that the status of perfection at UWC is not implied in this paper. Instead, it is argued that adequate measures are in place to suggest compliance with some of the transformative suggestions of the Green Paper (1996), and the few appearing in the National Plan on Higher Education (2001). In addition, that ICT trends at UWC supports those in the literature – showing the local, national, and global contexts to be influencing decisions of higher education institutions, in making ICT strategic choices. For example, sensitivity to equity is part of the national transformation agenda advocated by major National Policy documents, including the Green Paper (1996) and the National Plan for Higher Education (2001). Commitment to equipping students with literacies necessary to be competitive in the twenty-first century and to enable students through e-learning to access the right information, anytime, and anywhere, is in line with the principle of internationalisation. Finally, the fact that ICT is seen as important for all these purposes further suggests that UWC is not an exception to the unfolding trend of aggressive adoption of ICT among the Australian, European, and the rest of the Commonwealth universities as indicated in the study by Rob Middlehurst (2003).

Mindful of the complexity of an Information Society concept, and that the working definition adopted in this paper is open to dispute, the author hereby limits the conclusions of this paper – only to the context of the definition used.

End Notes

¹ Green (1994:15) attests that it remains difficult to determine ‘*who should define the purposes of higher education*’, and asks whether it should ‘*be the government, the students, the employers of students, the managers of institutions, or the academic professionals?*’, and ‘*who would determine the priorities?*’

² Zeleza (2002) argues that ‘...the reigning ideology of free market capitalism increasingly sees education not primarily as a social or public good, or as a human right, but as an economic investment’.

³ In his account of the benefits of the Internet on globalising the university, Zeleza (2002) says that ‘universities are both a cause and manifestation of globalisation...’. In fact, Agre (2000, in Middlehurst 2003: 14) feels that it is ICTs that ‘*create incentives to standardise the world*’.

⁴ Both the Universities of Stellenbosch and Potchefstroom, and the government are working on the language policy to balance the choices of preserving Afrikaans language by maintaining it as a medium of instruction while avoiding the prejudice of the rights of non-Afrikaans speakers, see Language Policy 1999 at <http://www.polity.org.za/pdf/languagepolicy.pdf>

⁵ Tam, M (2001:48) argues that a committed scholar would see the function of an HE institution as ‘... *to produce a steady flow of people with high intelligence and commitment to learning*...’

⁶ Bowen (2000:7) sees the essential purpose of universities as (1) ‘educating students broadly so that they may lead productive lives in a civilized society; (2) serving as engines of opportunity and social mobility; (3) creating new knowledge of every kind, including work that either has no immediate market value or may even threaten some commercial end; (4) encouraging and protecting the thoughtful critic and the dissenting voice, (5) defending cultural, moral, and intellectual values that no one can ‘price’ very well’. Similarly, a Multi-Modal Teaching and Learning Strategy of the Rand Afrikaans University (2002: 1) summarises the objectives of higher education as: the development of a scientific way of thinking and doing, including the development of scientific skills; and the development of adaptable, critical-thinking people who could make a productive contribution as high level human resources in society.

⁷ By globalisation we mean circumstances where territorial space is substantially transcended by the ‘trans-world connections’ and the ‘trans-border relations’ (Scholte, 2000: 49). Both Scott (2001) and Zeleza (2002) see the forces of globalisation as shaping higher education processes away from the national, to the global focus.

⁸ To this effect Burrows and Harvey (1992) in Tam, M (2001:47) argue that the stakeholders in higher education include students, employers, teaching and non-teaching staff, government and its funding agencies, accreditors, validators, auditors, and assessors

⁹ The words: ‘advancement’ and ‘pursued’ suggest an ongoing (and changing) process in knowledge generation – and is in line with the argument that Knowledge (especially scientific knowledge) building (or fact finding) is never complete to be closed and placed in a *black box*. It is an *open controversy* whose status will depend on later statements (or discoveries) (Latour, 1987).

¹⁰ In its recommendations to help the City of Cape Town bridge the digital divide – bridges.org recommends for the City to ‘position ICT as an enabler for broad socio-economic development in key target areas’ such as ‘Governance and government processes, Economic growth, Entrepreneurship and employment, Poverty reduction, and Access to ICT, bridges.org (2003:11), in <http://www.bridges.org/capetown>.

¹¹ ‘*Communications technologies*’, according to this report ‘*could accelerate development in far more than just the economic sphere. Indeed, wiring the planet will transform it beyond recognition. It will increase access to educational materials, basic health information, and other critical resources in local languages*’. Al Hammond (2002: p4), in Digital Dividends, <http://www.digitaldividend.org/pdf/0201ar04.pdf>

¹² Robert Hawkins emphasises the value of integrating Internet to improve quality of education in developing countries, and outlines 10 lessons for policy makers. Hawkins (2003: 38-43), World Links for Development Program, World Bank, 2003, <http://www.comminit.com/st2003/sld-7315.html>

¹³ For example, where the act of using a new kind of technology (usually networked computers) provides an opportunity for academics to reflect on their practice.

¹⁴ This is supported by the observation within academia that ‘computers enhance teaching and learning via: Presentations, more opportunities to practice and analyse, and more access to source material via Internet. Computers and Internet connectivity has been found to enhance communication and interaction between colleagues within faculties, between classmates, and between faculties and students’ (Brown, David G. 2002).

¹⁵ For example, in its devotion to quality education - aimed at enhancing student learning, the University of Pretoria is experiencing rapid changes which it attributes to, among other things, the developments in information and

communication technology (ICT) and the associated emergence of the knowledge and information society (University of Pretoria Strategic Plan, Inspiring The Innovation Generation 2002 – 2005, p.6)

¹⁶ HictE stands for ICT in Higher Education. It is a collaborative effort between higher education institutions in Western Cape – to enhance the quality of teaching and learning through innovative use of ICT (HictE – www.hicte.uwc.ac.za)

¹⁷ Similar to bridges.org, Mark Warschauer (July 2002: fig.1) sees access as more than just physical computers and Internet. Warschauer uses research work to argue that ‘meaningful access’ means access to physical resources, to digital, human, and social resources. Similarly, bridges.org sets out 12 ‘real access’ criteria that include *physical access, appropriateness, affordability, integration, socio-cultural factors, legal and regulatory framework, ...etc*

¹⁸ Although the number increased to 14,648 by July 2004, original sampling was retained due to time and practicality factors.

REFERENCES

- Bates, A.W. (1995). *Technology, Open Learning, and Distance Education*. New York; Routledge.
- Bowen, William G. (2000: p11). *At a Slight Angle to the Universe: The University in a Digitized, Commercialized Age*. The Romanes Lecture for 2000, Delivered at the Oxford University, 17 October, 2000. Published in Princeton University Press, Princeton, New Jersey, 2001 URL: <http://arl.cni.org/newsltr/216/romanes.html>
- Burbules, N. and Callister, T. (2000). *Watch IT: The risks and promises of information technology for education*. Westview. Colorado.
- Bridges.org (2004); *The Real Access / Real Impact Framework for Improving the Way that ICT is Used in Development*, in http://www.bridges.org/real_access/RealAccess_overview_bridges_03Aug04ii.pdf [Accessed on 13 May 2005]
- Bridges.org (2003); *Digital Divide Assessment of the city of Cape Town*, <http://www.bridges.org/capetown> [Accessed on 13 May 2005]
- Brown, Stephen (1999). *Virtual University: Real Challenges*. In *Ed Media, World Conference on Educational Multimedia, Hypermedia and Telecommunications*. Ed Media 1999 Issue 1. URL: <http://www.aace.org/dl/index.cfm/fuseaction/view/paperID/4340> [Accessed on 2 July 2004]
- Carnegie Corporation, <http://www.carnegie.org/sub/program/education.html> [accessed on 2 June 2005]
- Castells, Manuel (1993), in *National Plan for Higher Education in South Africa* (February 2001), Department of Education. URL: <http://www.polity.org.za/html/govdocs/misc/higheredu1.htm?rebookmark=1#Section%203>
- Castells, Manuel (2000, 1996) *The Rise of the Network Society: The Information Age: Economy, Society and Culture. Vol. 1*. 2nd edn. Oxford: Blackwell Publishers.

- Centre for Higher Education Transformation (CHET, 2002). **Transformation in Higher Education: Global Pressures and Local Realities in South Africa.** Juta and Company (Pty) Ltd (2002), ISBN: 0-7021-5834-8
- Czerniewicz, Laura; Ravjee, Neetha; and Mlitwa, N (2005). Information and Communication Technologies (ICTs) and South African Higher Education: Mapping the Landscape [Draft – document for Commission on Higher Education (CHE)]
- Davis, F. D. 'Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology,' *MIS Quarterly*, 13, 1989, pp. 319-340.
- Department of Education (1996), Green Paper on Higher Education Transformation http://www.polity.org.za/govdocs/green_papers/hegreenp.html [accessed on 31 May 2005]
- Department of Science and Technology (2002). South Africa's National Research and Development Strategy (August 2002) http://www.dst.gov.za/legislation_policies/strategic_reps/sa_nat_rd_strat.pdf [accessed on 2 June 2005]
- Freedman, Alan (1996). **The Computer Desktop Encyclopaedia.** AMACOM Publishers, New York, USA
- Harvey, L and Green, D (1993:10): Defining Quality; Assessment and Evaluation in Higher Education 18(1) in Tam, Maureen (2001:47): *Measuring Quality and Performance in Higher Education*; Teaching and Learning Centre, Lignan University, Tuen Mun, Hong Kong, China; in *Quality in Higher Education Journal*, Vol. 7 No.1, 2001
- Held, D, McGrew, A, Goldblatt, D, and Perraton, J. (1999). *Global Transformations*; Stanford: Stanford University Press.
- Keats, Derek, et al (2002): *The Integrated Information Strategy (IIS) of the University of the Western Cape* (Vol.1.1), 26 March 2002, UWC, Bellville, RSA, in http://www.uwc.ac.za/ics/strategy/iis_strategy-1_1.pdf [Accessed on 26 July 2004]
- Keats, Derek, et al (2002): Poised for takeoff: using ICT to transform teaching-and-learning at the University of the Western Cape <http://www.foundation-partnership.org/linchpin/poised.htm>
- Mbeki, T (President of South Africa); State of the Nation Address (2001), in <http://www.anc.org.za/ancdocs/history/mbeki/2001/tm0209.html>
- Mcdonald, H. & Ingvarson, L (1997). Technology: A Catalyst for Educational Change. *Journal of Curriculum Studies*. 29(5): 513-528.
- Middlehurst, Robin (Prof). (2003); *Competition, Collaboration and ICT: Challenges and Choices for Higher Education Institutions*; University of Surrey, UK (Unpublished)
- Mlitwa, Nhlanhla (2005). ICT for Teaching & Learning in SA Higher Education: A Case of UWC. ICT for Higher Education (HicTE) project, UWC, Bellville, Cape Town, South Africa, May 2005 (unpublished). See www.hicte.uwc.ac.za

- Murdoch, G. (2002). Rethinking Communication Exclusion . In digital divide: A collection of papers from the Toshiba/Becta digital divide seminar: 19 February 2002. British Educational Communications and Technology Agency, Coventry, UK.
- National Plan for Higher Education in South Africa (February 2001), Department of Education. URL:
<http://www.polity.org.za/html/govdocs/misc/higheredu1.htm?rebookmark=1#Section%203>
- Presidential National Commission (PNC) on Information Society (IS) for the national vision on IS, at www.pnc.gov.za/is [accessed on 1 June 200].
- Rosswall, Thomas (1999). The role of ICT in higher education at the beginning of this new millennium. Rector of the Swedish University of Agricultural Sciences, in <http://online.kennis.org/eva/eva06/ictslu.htm> [accessed on 31 May 2005]
- The Cape Online E-government Programme *E-government Strategy* (August 2001)
http://www.capecgateway.gov.za/Text/2003/12/capeonline_strategy_aug2001.pdf
- UNESCO (1998): World Declaration on Higher Education for the Twenty-First Century -Vision and Action. Article 12: *The potential and the challenge of technology*; in World Conference on Higher Education, Paris, 9 October 1998.
http://www.unesco.org/education/educprog/wche/declaration_eng.htm [Accessed on 8 May 2004]
- Universities of Cape Town (UCT) Mission Statement, in <http://www.uct.ac.za/about.php> [accessed on 13 June 2005]
- University of KwaZulu Natal Mission Statement, in <http://www.ukzn.ac.za/aboutus/mission.asp> [accessed on 13 June 2005],
- University of Pretoria Mission Statement, in <http://www.up.ac.za/about/eng/index.html> [accessed on 13 June 2005],
- University of the Western Cape (UWC) Mission Statement, at <http://www.uwc.ac.za/about/missionvision.htm> [accessed on 13 June 2005]
- Warschauer, Mark (2002: fig1): *Re-conceptualizing the Digital Divide*, in First Monday Online Journal, vol.7 (July 2002), URL
http://www.firstmonday.dk/issues/issue7_7/warschauer/#fig1 [Accessed on 20 July 2004]
- Warschauer: M. (2003). *Technology and Social Inclusion: Rethinking the Digital Divide*. The MIT Press. Massachusetts
- Western Cape E-government Strategy (2001), at http://www.capecgateway.gov.za/Text/2003/12/capeonline_strategy_aug2001.pdf [accessed on 3 June 2005]
- Zezeza, P.T. (2002), African Universities and Globalisation: African Gender Institute (AGI). Peer reviewed e-Journal - Launch Issue, URL: <http://web.uct.ac.za/org/agi/pubs/> [accessed on 3 June 2005]

INTERVIEWS:

Keats, Derek (20 May, 2005). Interview by Nhlanhla Mlitwa, on the status of ICT infrastructure, the challenges experienced, progress made, and plans for the future. ICS, UWC

Madiny Darris, (20 May, 2005). Interview over e-mail by Nhlanhla Mlitwa, on the status of ICT infrastructure, the challenges experienced, progress made, and plans for the future. ICS, UWC.

ANNEXES

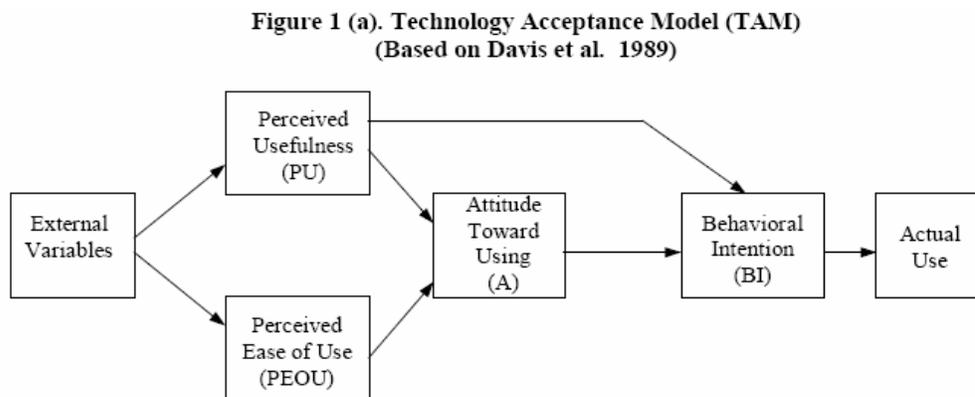


Table 3: Envisaged impact of ICT integration into teaching and learning upon students and staff at UWC

E-learning Goal	Action	Envisaged Quality Impact:	
		On students	On Staff
Ensure physical access	<ul style="list-style-type: none"> Increasing student computer density generally, and access time to 24:7 for labs with demand and where it is feasible. 	<ul style="list-style-type: none"> Improving equity of access to information across academic disciplines. Extending the variety of information sources for students to include digital (and print media). <p>For this goal to be attained, our framework suggests adequate access (both availability & fitness for purpose)</p>	<ul style="list-style-type: none"> Improved academic efficiencies for staff and students Improved means of communication
Ensure digital access (content and applications)	<ul style="list-style-type: none"> Integrating ICT into the curriculum Integrating ICT with pedagogy (alongside constructivist principles) Link online management systems with online systems (and the digital library technologies) Grow e-learning partnerships, following the open content philosophy in knowledge distribution 	<ul style="list-style-type: none"> Improving equity of access to information for students across academic disciplines. Empowering students to become independent learners. Improving learning flexibility & creative knowledge construction. Improving student access to the right information, available in the right format, whenever needed (or free from geographic & time-tabling restraints). Delivering life-long learning opportunities to its students (both on-campus and distant), and alumni. 	<ul style="list-style-type: none"> Empowered academic staff to 'produce high quality learning content' Improved academic efficiencies for staff and students Improved flexibility in teaching and research Improved means of communication
Improve human, and social access	<ul style="list-style-type: none"> Providing basic computer literacy, digital information literacy, digital information fluency, and digital knowledge creation for students and staff. 	<ul style="list-style-type: none"> Empowering students to use technology to find, understand, apply, analyze, synthesize, evaluate and report on information from a wide variety of sources. Produce graduates who are competitive for twenty-first century careers. 	<ul style="list-style-type: none"> Enhanced expertise to produce 'high quality learning content' and research output.

Source: UWC e-Learning Strategy v1.3 draft (2004)