University of Zululand

Theme
Exploring current trends in LIS
2011
Proceedings of the DIS 12\textsuperscript{th} Annual Conference 2011

Theme

Exploring current trends in LIS research

Editors

B.J. Mostert and N. Evans

University of Zululand, Richards Bay

2011
## Contents

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>The impact of technological trends on the work of information professionals</td>
<td>2</td>
</tr>
<tr>
<td>Theo Bothma</td>
<td></td>
</tr>
<tr>
<td>Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya</td>
<td>4</td>
</tr>
<tr>
<td>Henry Kemoni</td>
<td></td>
</tr>
<tr>
<td>The information and knowledge society: The role of indigenous knowledge in achieving the Millennium Development Goals (MDG’s)</td>
<td>44</td>
</tr>
<tr>
<td>Mariene Holmer</td>
<td></td>
</tr>
<tr>
<td>The role of information ethics in the content management of digital libraries in Africa</td>
<td>67</td>
</tr>
<tr>
<td>Brenda van Wyk</td>
<td></td>
</tr>
<tr>
<td>Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya</td>
<td>76</td>
</tr>
<tr>
<td>Hesbon Nyagowa</td>
<td></td>
</tr>
<tr>
<td>Becoming on information and knowledge society: Rwanda and the village Phone Project</td>
<td>94</td>
</tr>
<tr>
<td>Olive Mukamusoni</td>
<td></td>
</tr>
<tr>
<td>Challenges and opportunities of the library in providing information services at the Catholic University of Eastern Africa</td>
<td>125</td>
</tr>
<tr>
<td>Maurice Kisenyi</td>
<td></td>
</tr>
<tr>
<td>Agricultural Researchers and extension workers information needs and challenges in Zimbabwe: Preliminary results of the pilot study</td>
<td>134</td>
</tr>
<tr>
<td>Tinashe Mugwisi</td>
<td></td>
</tr>
<tr>
<td>Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers.</td>
<td>155</td>
</tr>
<tr>
<td>Chiku Mchombu</td>
<td></td>
</tr>
</tbody>
</table>
Information needs and information seeking behaviour of international students at the University of KwaZulu Natal, Pietermaritzburg campus 183

Moise Majyambere

Assessment of outsourcing of information technology services by public University libraries in Kenya 208

Naomi Mwai

ICT skills and library usage of law students in Nigerian Universities 238

Olurunfemi Yemisi

The information needs and seeking behaviour of adult diabetic patients in Addington Hospital in Durban 251

Prada Naidoo

The status of records management at the University of Zululand 262

Xolile Patience Coetzer

E-government concepts defined 268

Ntando Nkomo

The influence of open access on journal cancellations in University libraries in South Africa 292

Ruth Hoskins

The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011 317

CJB Le Roux & Neil Evans

The intelligent number plate system: An investigation into the privacy and digital identity challenges of motorists on the N1 highway 338

Erin Hommes
Introduction

The 12th annual DIS conference held from 14 – 15 September 2011 provided for a host of papers delivered by esteemed scholars and students from academic institutions from all over Africa. Papers delivered were of a high standard and lead to interesting discussions both during the conference as well as during breaks. Our distinguished keynote speakers Profs Theo Bothma and Henry Kemoni provided us with insight into the latest developments in the electronic publishing arena, as well as, informed us about the latest developments in the LIS Masters programme in Kenya. Other invited speakers included: Dr Ruth Hoskins, Dr Marlene Holmner, Prof. Joseph Kiplang’at, Prof Thomas van der Walt, Dr Alice Kituyi Kwake.
The impact of technological trends on the work of information professionals

Theo JD Bothma

Department of Information Science
University of Pretoria
theo.bothma@up.ac.za

Abstract

The use of the term ‘information professional’ in this paper refers to any individual working in the information services and consultancy environment, irrespective of organisation or company, e.g. librarians, knowledge managers, information consultants, etc. This paper briefly reviews certain trends in information technology (IT) development that are relevant to the information profession, including connectivity (broadband, wired, wireless), mobile computing (smart phones, tablets), Web 2.0/ 3.0, social networking, usability and access (including open access), integration of services, and distributed and ubiquitous computing. The impact this currently has on end-user computing is discussed and illustrated using examples. Many non-traditional information service providers are currently edging into the traditional domains of information professionals. Many e-business services also now require a fairly sophisticated understanding of e- and web environments.

End-users are using advanced technologies on a daily basis for work-related tasks and leisure. Such end-users are, therefore, much more computer and information literate than they were a few years ago (even though this may only be their perceived ability and not actual IT capability). The role of information professionals and service providers (including libraries) should change dramatically in order to adapt to the available technologies, the (perceived) skill sets of users, and user expectations. Information professionals should
therefore be more aware of trends in IT in general and specifically relating to IT in libraries and other information organisations, including Web 2.0/3.0, digital repository software and technologies, virtual research environments, and data curation. They also need to attain a much higher level of general IT skills and extensive information literacy skills (including an understanding of how the web and search engines work, and how they handle issues such as relevance ranking and multi-language and cross-language information retrieval), and be able to perform intermediate and high-level end-user training. In other words, they should be able to render services at an advanced level and empower end-users through training (disintermediation) so that they may effectively and efficiently access and use information in all spheres of life in order to participate in the information and knowledge society.

These developments also have an impact on the Information Science curriculum (all permutations of LIS studies) at both the undergraduate and postgraduate levels. The paper concludes that information professionals should acquire sophisticated, high-level IT knowledge and skills (integrated with all their information science knowledge and skills) during their formal education and training as well as through lifelong learning if they are to remain relevant in the workplace.
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Henry N. Kemoni¹,

Department of Library and Information Studies,

School of Liberal and Technology Studies,

The Kenya Polytechnic University College, University of Nairobi

Email: hkemoni@yahoo.com

Abstract

This paper reports on the empirical research findings of a study conducted in Moi University, Kenya, between December and May 2011, to obtain students’ views on the Masters degree programmes in records and archives management and propose recommendations to enhance their course content and structure to meet the education and market needs of Kenya. The specific objectives of the study were to: i) Determine the status and characteristics of the students; ii) Establish students’ perceptions on the ability of the curriculum to meet market needs; iii) Establish whether the resources that were availed to students were adequate; iv) Determine the students’ research themes and the methodology that they adopted; v) Determine the challenges faced by the students while undertaking the programmes; and vi) Provide recommendations to improve course content and structure and meet the market needs of Kenya.

¹ Henry Kemoni, PhD, is Associate Professor, Department of Library and Information Studies, School of Liberal and Technology Studies, Kenya Polytechnic University College, University of Nairobi. He was a Guest Speaker at the Conference.
The study’s population consisted of 11 out of 21 students admitted into the MPhil and MSc (RAM) programme from the academic year 2007/2008 to 2009/2010. Purposive sampling was used to select all the cases for the study. Data was collected using open-ended interview schedules complemented by content analysis. The data was subjected to qualitative data analysis techniques. The study's findings revealed that the programmes had strengths and weaknesses; some courses needed revision to meet market demands; the resources offered to students were inadequate; and some lecturers took long periods of time to read and return students’ theses.

The study recommends revising some courses, introducing a few new courses, acquiring more information resources, improving internet connectivity, and adhering to Moi University’s policy on postgraduate thesis supervision that stipulates a maximum of six to seven candidates per supervisor within one academic year.

Introduction and context

According to Varghese (2011), globalization, technological changes, the rise of the knowledge economy, and changing skill requirements in the labour market seem to influence changes in the landscape of higher education, not just in commonwealth countries but worldwide. Knowledge economies require people with theoretical knowledge to promote research activities, with professional skills to develop production, and with technical skills to produce and support production. The following discussion briefly outlines the forces that shape higher education, specifically:

- University education and industry needs;
- The internationalization of university education;
- Globalization; and
- Knowledge management and the knowledge economy.

University education and industry needs

To a large extent, university education should meet the needs of industry. The University World News (2009), citing the African Commission Report, observed that there is a weak link between the demands of the industry and what is provided in Africa’s institutions of higher
learning. The report points out that the technical and vocational skills’ link in Africa suffers from weak ties with the job market as well as a shortage of qualified staff and ill-adapted programmes. The report recommends that the potential of African universities to promote positive change in society needs to be enhanced as universities have a particular responsibility for generating and diffusing knowledge into the economy and creating opportunities for innovation.

In a paper entitled “African higher education and industry: what linkages?”, presented by Barry and Sawyerr (2008) of the Association of African Universities during the Annual Bank Conference on Development Economics [ABCDE] in Cape Town, South Africa (June 9 - 11, 2008), the authors highlighted the effects of the ageing faculty staff in virtually all the universities in Africa on the continent’s higher education and industry ties. They observed that senior faculty staff had aged and moved on to retirement without being replaced at the rate required to maintain the appropriate levels of leadership of research and graduate programmes. For example by 2004, 50 % of the academic staff in South Africa was over 50 years. The overall results include:

- Heavy teaching loads resulting from massively expanded enrolment that is unmatched by commensurate faculty staff increases or the benefit of modern teaching aids;
- Involvement of academic staff in non-academic activities as a way of supplementing low official incomes, which cuts down on the time for staff development and research; and
- The absence of mentoring by senior colleagues and a critical mass of other researchers, heightening the isolation of young researchers and reducing the scope for “learning on the job” (Barry and Sawyerr, 2008).

To enhance higher education and industry linkages, Barry and Sawyerr (2008) proposed a policy framework and intervention to strengthen both the supply and demand sides and bridge the gap between knowledge producers and industry. This takes on a variety of forms, from creating the necessary competences on the supply side through to the support for
graduate training and research in selected priority areas in universities and the establishment of official structures to facilitate collaboration and information flow.

**Internationalization of higher education**

The International Association of Universities [IAU] citing Knight (2005), explains that the internationalization of higher education is the process of integrating an international, intercultural and/or global dimension into the goals, functions (teaching/learning, research, services) and the delivery of higher education. According to Knight (2003), evidence on the internationalization of higher education includes:

- A growing number of students, professors and researchers participating in academic mobility schemes;
- Increase in the number of courses, programmes and qualifications that focus on comparative and international themes;
- Growth in the cross-border delivery of academic programmes;
- Development of new international networks and consortia in education;
- Encouragement given to the recruitment of foreign students;
- Rise in the number of joint degrees; and
- New regional and national level government policies and programmes supporting academic mobility and other internationalization initiatives.

In South Africa, the main debate within South African higher education over the past years has focused on transformation and restructuring and the integration of an international, intercultural or global dimension into the purposes, functions and delivery of higher education (Smout, 2003). Furthermore, as a collective voice of public universities in South Africa, the South African Universities Vice-Chancellors’ Association is an important national role player in the transformation and restructuring of higher education. The African Network for the Internationalization of Education (ANIE) based in Moi University, Kenya, aims to be a leading organization in enhancing the understanding and development of the
international dimension of higher education in Africa by expanding knowledge and building, strengthening and sustaining a cohort of competent professionals in the field (ANIE, 2011).

Globalization

According to Knight (2003), globalization processes form part of the environment in which the international dimension of higher education is becoming more important and changing significantly. The author observed that in the 1990s, the notion of globalization became omnipresent in the minds of policymakers, academics and professionals, no matter the sector or discipline. Globalization refers to the flow of technology, economy, knowledge, people, values and ideas across borders.

Globalization has brought about benefits and opportunities to many people in many parts of the world; many others have been excluded from its positive impact. Extreme poverty remains a daily reality for more than 1 billion people who subsist on less than $1 a day (United Nations Department of Economic and Social Affairs, 2011). The United Nations General Assembly (2008) Report of the Secretary General on “The impact of globalization on the achievement of the internationally agreed development goals, including the Millennium Development Goals”, noted that in terms of balance, globalization has unleashed a wide array of opportunities as well as new obstacles to realizing the internationally agreed development goals. It further pointed out that:

The relationship between globalization and development outcomes is complex. Each of the forces powering globalization - finance, trade, investments, technology and migration has economic, social and Environmental impact and affects the formulation and implementation of policies at national, regional and international levels.
Among the United Nations Secretary General Report’s (2008) recommendations were greater consistency in the macroeconomic, trade, aid, financial, environmental and gender equality policies of all countries; the need for efforts to establish fair and equitable trade, investment, technology and knowledge regimes; the reformation of multilateral institutions and global governance; and greater participation of developing countries in the decision-making processes of international institutions so that their needs in managing globalization are fairly represented and addressed at international level.

Knowledge management and the knowledge economy

One of the factors influencing higher education in the commonwealth is knowledge management (Varghese, 2011). Knowledge management is a fundamental global economic resource; the term ‘global knowledge economy’ is presently being used to describe the contemporary world economy (Roberts, 2009). According to Roberts (2009), the characteristics of a knowledge economy include the following:

- Growing importance of knowledge as an input into the economy;
- Increasing importance of information and communication technologies;
- Rising importance of knowledge as an economic input;
- Growing commercialization of knowledge through intellectual property rights;
- Growing proportion of knowledge workers;
- Increasing impact of knowledge across all sectors of the economy;
- Rise of knowledge management practices; and
- Globalization as a force driving the expansion of the knowledge economy

The World Bank developed the Knowledge for Development (K4D) programme to raise awareness among national policy makers of the powerful growth effects of knowledge. The K4D programme works with the World Bank’s client countries to design knowledge-based strategies that leverage the country’s strength to attain its development goals (World Bank, 2000). The K4D programme is based on the following framework consisting
of four pillars to help countries articulate a strategic transition to the knowledge economy, namely:

- An economic and institutional regime that provides incentives for the efficient use of existing and new knowledge and flourishing entrepreneurship;
- Educated and skilled populations that can create, share, and use knowledge well;
- Efficient and innovative system of firms, research centres, universities, think-tanks and consultants that can tap into the growing stock of global knowledge and assimilate and adapt to local needs to create new technology; and
- Information and communication technologies that can facilitate the effective communication, dissemination and processing of information.

The K4D programme developed an interactive online benchmarking tool - Knowledge Assessment Methodology (KAM) - that allows countries to identify the problems and opportunities they face in making the transition to the knowledge economy and the kinds of policies needed to encourage future investment (World Bank, 2000). The most commonly cited KAM index is the Knowledge Economy Index which summarizes each country’s performance on 12 corresponding variables to the four knowledge economy pillars as indicated in table 1. The KIE is constructed as the simple average of the normalized values of those indicators from 0 (weakest) to 10 (strongest).

Table 1 showing the four pillars of the knowledge economy, KAM Basic Scorecard, and the KIE (World Bank, 2000).

Table 1: Pillars of Knowledge Economy

Table 1: Pillars of Knowledge Economy

<table>
<thead>
<tr>
<th>Pillar</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic and Institutional Regime</td>
<td>Provides incentives for the efficient use of existing and new knowledge and flourishing entrepreneurship.</td>
</tr>
<tr>
<td>Educated and Skilled Populations</td>
<td>Can create, share, and use knowledge well.</td>
</tr>
<tr>
<td>Efficient and Innovative System of Firms, Research Centres, Universities, Think-Tanks and Consultants</td>
<td>Can tap into the growing stock of global knowledge and assimilate and adapt to local needs to create new technology.</td>
</tr>
<tr>
<td>Information and Communication Technologies</td>
<td>Facilitate effective communication, dissemination and processing of information.</td>
</tr>
<tr>
<td>Pillar</td>
<td>Indicator</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Economic and Institutional Regime</td>
<td>• Tariff and non-tariff barriers&lt;br&gt;• Regulatory quality&lt;br&gt;• Rule of law</td>
</tr>
<tr>
<td>Education and Skill of Population</td>
<td>• Adult literacy rate&lt;br&gt;• Gross secondary enrolment rate&lt;br&gt;• Gross tertiary enrolment rate</td>
</tr>
<tr>
<td>Information Infrastructure</td>
<td>• Telephones per 1000 people&lt;br&gt;• Computer per 1000 people&lt;br&gt;• Internet users per 1000 people</td>
</tr>
<tr>
<td>Innovation System</td>
<td>• Royalty payments and receipts, US $ per person&lt;br&gt;• Technical journal articles per million people&lt;br&gt;• Patents granted to nationals</td>
</tr>
</tbody>
</table>

**Records and archives management education and training**

The value of good records and archives management in the promotion of accountability, good governance and human rights cannot be overstated. However, this can only be possible when a pool of well-trained human resources exists in the field of records and archives management. The curriculum should produce able managers and policy makers to implement records and archives management programmes in both the public and private sectors (Obura, 2009).

A study conducted by Yusof and Chell (1999) on records management education and training worldwide established that courses in records management are being offered in different guises. In some institutions, they are being strongly influenced by archival traditions, while in others they are influenced by information science, management science,
and information systems’ fields. Although most courses are offered by information and library studies’ departments, others are delivered through the Departments of Archives Studies, Schools of Business Management, Schools of Art, MIS Departments, Computer and Mathematical Science Departments, and History Departments.

The Society of American Archivists (2010a) states that a graduate programme in archival studies should provide students with a solid foundation in archival studies and should consist of: core archival knowledge – this provides the theoretical and practical basis necessary to work as an archivist; and inter-disciplinary knowledge – introduces students to other disciplines and knowledge to deepen their understanding of archival work. The programme should also provide students with a solid foundation in the theory, methodology and practice of archival studies and in the scholarship of their discipline (Society of American Archivists, 2010b).

Rankin (2003) observed that in Scotland, research studies, mid-career professionals, employers and other stakeholders have identified a range of areas for special attention in a curriculum relevant to records management. These include: applied [hands on] records management; wider management training - budgeting, project management and other transferable skills; general ICT skills awareness; digital preservation; electronic records management; information policy; and cross-sectoral awareness. Others include leadership, cultural diversity and social inclusion, advocacy, publicity and fundraising, and specialist modules (e.g. health records, pharmaceuticals/ scientific records, business records).
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

A lively programme of research and publications would be critical to the viability, success and reputation of a new course. Invigorating professional discourse and accreditation by professional bodies would be another important prerequisite (Rankin, 2003). According to Obura (2011), curriculum designers of RAM need to develop partnerships with both national and international bodies to help enrich the process of curriculum development. Other key considerations include the involvement of stakeholders, SWOT analysis of existing programmes to avoid duplication, analysis of regulatory and policy frameworks within the country, and the use of consultant services and mechanisms to counter professional resistance.

Requirements of curriculum development

Any discussion on curriculum development objectives ought to make reference to Benjamin Bloom’s taxonomy of educational objectives. According to the University of Queensland (2010), Bloom’s three domains of educational objectives are:

• The cognitive domain (knowing). This has a hierarchy of six levels, namely knowledge, comprehension, application, analysis, synthesis and evaluation.
• Affective domain (attitudes, feelings). This has a hierarchy of five levels, namely receiving, responding, valuing, organizations, and characterization.
• Psychomotor (doing). Levels of this domain are characterized as reflex, fundamental movements, perceptual abilities, physical abilities, skilled movements, and non-discursive communication.

The determinants of a good curriculum include:

• Promoting holistic development and individual excellence in the learner through cognitive, attentive and psychomotor attributes;
• Being inclusive and non-discriminatory;
• Promoting human rights, democracy, justice and the rule of law;
• Focusing on the achievement of national development goals;
• Taking on board contemporary and emerging issues and problems such as globalization, technological development, social justice, interdependence, sustainable development, terrorism, and HIV/AIDS (Otunga, 2010).

Bukenya (2010) further points out that a curriculum design should follow certain principles. These include:

• Epistemological - what should count as knowledge and knowing
• Political – the control, selection and distribution of knowledge and institutions
• Ideological – knowledge that is most worthy
• Technical – making curriculum knowledge accessible to students
• Ethical – ideas of moral conduct and community which serve as the basis of the ways in which students and teachers are treated
• Historical – traditions in the field that already exist to help us answer arising questions

In the present study, researchers collected data from respondents with respect to adequacy and the relevance of the curriculum. This included courses that need to be reviewed, new courses that should be introduced, core areas/ themes in the industry that the curriculum should address, whether the curriculum meets the needs of the industry, and the major strengths and weaknesses of the curriculum.

**School of Information Sciences**

The School of Information Science is among twelve schools that constitute Moi University. Moi University was established in 1984 as the second public university in Kenya. The vision of the university is to be “the university of choice in nurturing innovation and talent in science, technology and development” (Moi University, 2010 a). The mission of the university is to:

• Preserve, create and disseminate knowledge;
• Conserve and develop scientific, technological and cultural heritage through quality teaching and research;
• Create a conducive work and learning environment; and
• Work with stakeholders for the betterment of society (Moi University, 2010 a).

The School of Information Sciences (SIS) was established in 1988 to offer education and training to information professionals at undergraduate and postgraduate level. The vision of the SIS is to “be recognized internationally as a centre of excellence in information sciences”, while its mission is to “offer education and training by developing high-level manpower for the management of information systems, services and resources in the country through practical and development-oriented programmes, research, continuing education programmes, and community-based information activities (Moi University, 2010b).

The School of Information Sciences offers various programmes at undergraduate and postgraduate level, namely:

• Bachelor of Sciences (Information Sciences), started in 1988:
• Bachelor of Science (Informatics), started in 2010;
• Bachelor of Science (Media Science);
• Master of Philosophy (Records and Archives Management), started in 2007;
• Master of Philosophy (Publishing Studies);
• Master of Philosophy (Information Technology), started in 2007;
• Master of Science (Information Sciences), started in 2008; and
• Doctor of Philosophy (Library and Information Studies), started in 2003.
(Moi University, 2010 c.)
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Master of Philosophy in Information Sciences (Records and Archives Management)

Moi University is one of the few universities in Africa that offers education and training in record-keeping (Wamukoya and Kemoni, 2001). The programme seeks to provide education and training to record-keeping professionals to enable them to manage Kenya’s records/information/knowledge resources for sustainable socio-economic and political development (Moi University, 2010c). The programme places emphasis on problem solving, the synthesis of knowledge in adapting to change, and inquisitive and original thinking. It recognizes that records and archives are the key resources underpinning accountability and transparency in public service delivery and good governance in society. The programme seeks to:

- Enable students to acquire knowledge and skills in records and archives management through the study of core and inter-disciplinary courses;
- Provide students with theoretical knowledge and skills through teaching, practice, consultancy, research, and publications in the records management field and its related disciplines;
- Provide students with relevant record-keeping knowledge and skills for socio-economic development, public service delivery, and the attainment of the UN’s Millennium Development Goals (MDGs); and
- Produce graduates capable of managing records and archives in both the public and private sectors for socio-economic and political development (Moi University, 2010d).

The programme takes twenty four months and extends over four semesters. Semesters one and two in the first year are devoted to coursework, developing a research proposal, and writing practical projects. The first semester in the second year is devoted to thesis work, while semester two is devoted to thesis work and coursework. The course consists of 55 units/lectures or their equivalent. The thesis consists of 20 out of 55 units. According to the Moi University Graduate School (2007) Rules and Regulations covering postgraduate studies, the Masters programme in any department should consist of a minimum of forty (40) units and a maximum of fifty eight (58) units consisting of coursework, examinations,
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

and theses distributed over four semesters. Tables 1 and 2 show the course distribution, content and structure of the MPhil in Information Sciences (RAM) programme in the first and second year, while Table 3 shows the academic staff distribution.

Table 2: Course Distribution, Year 1

<table>
<thead>
<tr>
<th>YEAR 1: SEMESTER 1 - CORE COURSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>COURSE CODE</td>
</tr>
<tr>
<td>INS 800</td>
</tr>
<tr>
<td>INS 801</td>
</tr>
<tr>
<td>RAM 810</td>
</tr>
<tr>
<td>RAM 811</td>
</tr>
<tr>
<td>RAM 812</td>
</tr>
<tr>
<td>ELECTIVES</td>
</tr>
<tr>
<td>RAM 813(E)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>COURSE CODE</td>
</tr>
<tr>
<td>RAM 815</td>
</tr>
<tr>
<td>RAM 816</td>
</tr>
<tr>
<td>INS 802</td>
</tr>
<tr>
<td>INS 804</td>
</tr>
<tr>
<td>INS 805</td>
</tr>
</tbody>
</table>
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM 817</td>
<td>Advanced Preservation Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**ELECTIVES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM 818(E)</td>
<td>Record-Keeping and Accountability</td>
<td>2</td>
</tr>
<tr>
<td>RAM 819 (E)</td>
<td>Managing Legal Records</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 3: Course distribution, Year 2

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>COURSE CODE</th>
<th>COURSE TITLE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INS 804</td>
<td>Thesis (Field Research)</td>
<td>9</td>
</tr>
</tbody>
</table>

**Semester 2**

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>INS 822</td>
<td>Information Policy Studies</td>
<td>3</td>
</tr>
<tr>
<td>INS 804</td>
<td>Thesis</td>
<td>9</td>
</tr>
</tbody>
</table>

**ELECTIVES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM 820(E)</td>
<td>Managing Church Records</td>
<td>2</td>
</tr>
<tr>
<td>RAM 821(E)</td>
<td>Managing Financial Records</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4: Academic staff (n = 15)
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

<table>
<thead>
<tr>
<th>RANK</th>
<th>NO.</th>
<th>SPECIALIZATION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LIS</td>
<td>RAM</td>
</tr>
<tr>
<td>Professor</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Senior Lecturer</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Lecturer</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Tutorial Fellow</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Graduate Assistant</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>15</td>
<td>11</td>
<td>5</td>
</tr>
</tbody>
</table>

**Key:**

LIS - Library and Information Studies

RAM - Records and Archives Management

Source: School of Information Sciences - Staff (2010)

**Aim of the study**

The aim of this study was to obtain a student assessment of the Mphil and MSc in Information Sciences [RAM] and propose recommendations to enhance the course content and structure of these programmes to meet the education and market needs of Kenya.
Objectives of the study

The specific objectives of the study were to:

- Determine the motivation behind students’ admission into the programmes;
- Establish the relevance and adequacy of programme courses in relation to market trends and industry needs;
- Determine the major strengths and weaknesses of the programmes;
- Establish the adequacy/ inadequacy of the resources provided to students;
- Determine the students’ research themes and the methodology that they adopted;
- Determine the students’ experiences with thesis supervision and writing;
- Determine the challenges faced by students in undertaking the programmes; and
- Propose recommendations in order to make the programmes dynamic in relation to market needs.

Research questions

The study was guided by the following research questions:

- To what extent is the curriculum relevant and adequate in relation to market needs?
- What are the major strengths and weaknesses of the curriculum?
- What are the student research themes and the methodology that they adopt?
- What challenges do students face in undertaking the programme?
- How can the identified challenges be addressed?

Scope and limitations

The Commission for Higher Education [CHE] in Kenya has formulated criteria and standards to evaluate the programmes or curricula of institutions of higher learning (The Inter-University Council of East Africa, 2008). These include qualified staff, the size of the
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

programme, goals and aims, admission of students, content of the programme, assessment process, academic resources, and evaluation and teaching. In the present study, researchers sought respondents' views on some of the criteria for programme evaluation as stated by the CHE, namely: motivation for admission and numbers enrolled since the programme commenced, curriculum content and relevance, adequacy of academic resources, evaluation of staff in relation to teaching, and supervision experience (see Appendix 1 - research instrument).

Most of the respondents were from the MPhil [RAM] programme, with only one respondent from the MSc [RAM] programme, mainly because the MPhil [RAM] programme admitted its first students in the 2007/2008 academic year, while the MSc [RAM] admitted its first students in the 2008/2009 academic year. Consequently the MPhil [RAM] students had made greater progress with their studies in terms of coursework and research and some had already graduated. Furthermore, 16 (76 %) out of 21 candidates were enrolled into the MPhil [RAM] during the period of study, while only 5 (24 %) were enrolled for the MSc [RAM] programme.

Methodology

While the study intended to collect data from the total population of 21 students, it was not possible to get responses from the respondents because of their different locations and busy schedules. This resulted in a population sample of 11 (52 %) out of 21 students admitted into the MPhil and MSc [RAM] programmes from the academic year 2007/2008 to 2009/2010. Purposive sampling was used to select all the cases for the study as shown in Table 5.
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Table 5: Study’s sample size [n=11]

<table>
<thead>
<tr>
<th>Academic year</th>
<th>Total no of students</th>
<th>No interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007/2008</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>2008/2009</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>2009/2010</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

The interview method was used to collect data because of the qualitative nature of the study, which required in-depth data. Consequently data was analyzed using thematic categorization. However, because it also yielded some quantitative data, figures, tables and charts were also used.

**Data presentation and analysis**

The study sought to determine students’ assessment of the Mphil and MSc in Information Sciences [RAM] and propose recommendations to enhance the course content and structure to meet the education and market needs of Kenya. Data is presented and analyzed below based on the objectives of the study.

**Characteristics of the respondents**

The respondents were asked to indicate their current employer and their designation and duties. The data revealed that the respondents were employed in records management units in various institutions, as shown in Table 6.

**Table 6: Current employers**
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

<table>
<thead>
<tr>
<th>Current Organization</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenyatta National Hospital</td>
<td>2</td>
</tr>
<tr>
<td>Kenya Power &amp; Lighting Company</td>
<td>2</td>
</tr>
<tr>
<td>Moi University</td>
<td>3</td>
</tr>
<tr>
<td>Office of the President (Tanzania)</td>
<td>1</td>
</tr>
<tr>
<td>Inoorero University College</td>
<td>1</td>
</tr>
<tr>
<td>Ministry of State for Public Service</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 6 reveals that only one of the respondents was not employed at the time of study. Most respondents indicated that they were Chief or Senior Records Officers in their respective organizations. Their duties ranged from the management and preservation of records to planning and coordinating records activities, the supervision of staff, and teaching in institutions of higher learning.

On gender, the study found that there were more female than male students joining the programme. Figure 1 reveals that 8 respondents (82 %) were female and only 3 (18 %) were male.

**Figure 1: Respondents gender**
Motivation for admission into the programme

The respondents were asked to indicate what motivated them to seek admission into the programme and their responses are indicated in Table 7.

**Table 7: Motivation for admission**

<table>
<thead>
<tr>
<th>Motivation to apply for admission</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career development</td>
<td>6</td>
</tr>
<tr>
<td>Knowledge advancement</td>
<td>4</td>
</tr>
<tr>
<td>Conducive environment</td>
<td>2</td>
</tr>
<tr>
<td>Sponsorship</td>
<td>1</td>
</tr>
<tr>
<td>Passion for records management</td>
<td>1</td>
</tr>
<tr>
<td>Academic mentors</td>
<td>2</td>
</tr>
</tbody>
</table>

*Multiple responses*
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Table 7 shows that most respondents (6) sought admission into the programme for career development while the least cited motivation was a passion for records management and sponsorship.

Relevance and adequacy of the programme courses

In order to obtain data on the relevance and adequacy of the programme courses in relation to market needs, the respondents were asked if there were courses that they thought should be revised. Ten (10) of the eleven (11) respondents agreed that some courses needed revision and cited the following:

- INS 805 Practical Project – year 1 semester 2
- INS 811 Advanced Archives Management – year 1 semester 1
- INS 812 Advanced Electronic Records Management – year 1 semester 1
- INS 815 Records Management and Service Delivery – year 1 semester 2
- INS 817 Advanced Preservation Management – year 1 semester 2

Respondents suggested that the courses should be in line with Kenya’s Vision 2030 and should be practical-oriented. They also suggested that some new courses should be introduced into the programme as indicated below:

- Health Information Management
- Intranets Management
- Computerization of Records and Archives Services
- Records Management and Socio-economic Development
- Advanced Database Management Systems
- Content Management
- Risk Management

Responses to whether the programme met Kenyan market needs are indicated in Figure 2.

**Figure 2: The programme and Kenyan market needs**
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Figure 2 reveals that 7 (64%) respondents answered ‘yes’ while 4 (36%) indicated ‘partially’ in response to whether the programme met market needs. Those who indicated ‘yes’ argued that the fact that those who had graduated from the programme had been employed in various organizations showed that the programme met market needs. They also felt that the courses covered contemporary issues in records management. Those respondents who indicated ‘partially’ said the courses lacked a practical perspective. The above shows that the courses offered by the programme need to be revised if their relevance and adequacy are to be guaranteed.

**Major strengths and weaknesses of the programme**

Respondents were asked if the programme had any strengths and weakness and their responses are indicated in Tables 8 and 9 respectively.
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Table 8: Major strengths of the programme

<table>
<thead>
<tr>
<th>Strength</th>
<th>No. of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique (not offered in other Kenyan universities)</td>
<td>1</td>
</tr>
<tr>
<td>Covers contemporary issues in RM</td>
<td>4</td>
</tr>
<tr>
<td>Comfortable study hours</td>
<td>4</td>
</tr>
<tr>
<td>Supportive lecturers</td>
<td>3</td>
</tr>
<tr>
<td>Meets market needs</td>
<td>3</td>
</tr>
<tr>
<td>All-round curriculum</td>
<td>1</td>
</tr>
</tbody>
</table>

*multiple responses

Table 8 shows that the most cited strength of the programme was its coverage of contemporary issues in records management and its comfortable study hours.

Table 9: Major weaknesses of the programme

<table>
<thead>
<tr>
<th>Weakness</th>
<th>No. of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lacks a practical perspective</td>
<td>5</td>
</tr>
<tr>
<td>Too expensive</td>
<td>2</td>
</tr>
<tr>
<td>Overworked lecturers</td>
<td>2</td>
</tr>
<tr>
<td>Inadequate resources</td>
<td>3</td>
</tr>
<tr>
<td>Lacks local content</td>
<td>1</td>
</tr>
</tbody>
</table>

*multiple responses
Table 9 shows that a lack of practical perspective in the courses was considered by many to be the main weakness of the programme.

**Adequacy or inadequacy of the resources provided to students**

The study sought to reveal how adequate journals, books, internet access and computers were in the course of the students’ studies. Table 10 shows their responses.

**Table 10: Adequacy or inadequacy of the resources provided**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Very adequate</th>
<th>Adequate</th>
<th>Inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journals</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Books</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Internet accessibility</td>
<td>0</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Computers</td>
<td>0</td>
<td>2</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 10 reveals that the resources offered to students were inadequate. The implication of this is that if the programme is to be improved, then the adequacy of the resources needs to be addressed.

**Students’ research themes**

Table 11 shows the research themes undertaken by students in the department and the methodology that they adopted.
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Table 11: Students’ research themes and the methodology that they adopted

<table>
<thead>
<tr>
<th>Year</th>
<th>Research theme</th>
<th>Methodology adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007/2008</td>
<td>a) Management of e-records</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>b) Digital preservation</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>c) Records management and risk management in the banking sector</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>d) Business continuity planning for records management</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>e) Records management and human rights</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>f) Managing e-mails</td>
<td>Qualitative</td>
</tr>
<tr>
<td>2008/2009</td>
<td>a) Records management and service delivery in universities</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>b) Records management and implementing ISO 2000: 2008 quality management systems</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>c) Medical records and the provision of healthcare services</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>d) Records management and the Freedom of Information law [Kenya]</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>e) Personnel records and governance</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>f) Management of web-based records</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>g) Role of records management in support of local government reforms</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>h) Records management and Kenya Vision 2030</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>i) Records management and proposed FOI law [Tanzania]</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>j) Records management and risk management in public universities</td>
<td>Qualitative</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Qualitative</td>
</tr>
<tr>
<td>2009/2010</td>
<td>a) Land records and preservation of rights and entitlement</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>b) Records management in public schools</td>
<td>Mixed</td>
</tr>
<tr>
<td></td>
<td>c) KNADS e-readiness and provision of archival information to researchers</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>d) Indigenous knowledge for sustainable development and empowerment of local communities</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>e) Harnessing knowledge management in quality health care service delivery</td>
<td>Qualitative and quantitative</td>
</tr>
</tbody>
</table>

**Students’ experiences with thesis supervision and writing**

The respondents were asked to indicate the aspects of thesis writing that they felt were most challenging. Most felt that data collection and analysis were most challenging. This was because while collecting data, some respondents were not willing to provide the data that was required. Another aspect that they felt was also challenging was the literature review because the information materials were inadequate.
On supervision, three of the respondents indicated that their supervisors were excellent. These supervisors provided the much needed support in terms of information materials, the timely reading of work, and in suggesting corrections. Six (6) respondents also agreed that their supervisors were supportive, while two indicated that their supervisors were not supportive. In the latter, the reason given was that the supervisors took too long to read through their work and did not offer any support in terms of information materials.

Thus it would appear that students had varied experiences that depended very much on their supervisors.

**Challenges of the programme**

On the challenges faced while undertaking the programme, the respondents cited the following:

- Financial constraints. Most felt that the programme was expensive and posed a challenge, especially to those without sponsorship or scholarships.
- Overworked lecturers. The respondents reported that the small number of lecturers were often overworked as each of them had to supervise many students at any given time. They also reported that lecturers missed classes quite often because of many other responsibilities.
- Inadequate information materials. Respondents indicated that all the information materials were inadequate and this was a big problem, especially when attempting to write a literature review.
- Delay in thesis examination after submission. The respondents indicated that it takes a while for a thesis to be examined after submission, leading to delays in results and subsequent graduation.
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Respondents’ recommendations

Based on the above, the respondents offered the following recommendations:

- Reduce the programme fee
- Recruit more lecturers
- Acquire more information materials
- Communicate new board regulations to the students in time
- Keep up with the industry through regular surveys and reviews of the curriculum

Recommendations of the study

Based on the findings, the study’s recommendations are as follows:

- The study’s findings revealed that some courses needed revision in order to meet market demands. The study therefore recommends the revision of these courses, and particularly of those that require a practical orientation such as RAM 817 (Advanced Preservation Management). New courses should be introduced to blend those that have been revised.
- The findings indicate that all the resources offered to students were inadequate. The study thus recommends that the department should acquire more information resources, including books, journals and computers, and improve internet connectivity.
- Data indicated that some lecturers took longer periods to read and return students’ work and did not offer much needed supervisory support. Lecturers were few in number when weighed against students’ enrollment. The university should therefore employ more lecturers to cope with the teaching and supervisory workload.
- The Head of Department, Library, Records Management and Information Studies should encourage lecturers to meet deadlines in thesis supervision as stipulated by the Moi University (2007) Graduate School rules and regulations governing postgraduate studies.
The findings also revealed that the lecturers were overworked and at times missed classes as they had many students to supervise in addition to other responsibilities. The study recommends adherence to the Moi University [2007] Graduate School rules and regulations governing postgraduate studies supervision that stipulate a maximum of seven candidates per supervisor per academic year.

Suggestions for further research

Further research is necessary to obtain students’ views on the adequacy and relevance of the Master of Science in Information Sciences [RAM] programme. Similar studies should also be conducted in other African universities offering programmes in records and archives management at postgraduate level. Such studies would provide useful comparable data. Further research is also necessary to source the views of stakeholders (public and private sectors, professional associations) regarding the nature and relevance of the training offered at postgraduate level in relation to the Kenya Vision 2030 and the national development agenda.

Acknowledgement

The author wishes to acknowledge Ms. Elsebah Maseh and Ms. Nelly Mzerah, Tutorial Fellows, and the School of Information Sciences, Moi University, for the assistance that they provided during data collection and analysis.

REFERENCES

Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya


Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya


Moi University, School of Information Sciences Curriculum for the Degree of Master of Science in Information Sciences [undated].


Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya


Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya


Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

Appendix 1

STUDENT ASSESSMENT OF THE MASTER OF PHILOSOPHY IN INFORMATION SCIENCES [RECORDS AND ARCHIVES MANAGEMENT] DEGREE PROGRAMME IN MOI UNIVERSITY, KENYA

INTERVIEW SCHEDULE FOR STUDENTS

SECTION A

1. Current organization

2. Designation

3. Duties

4. Sex

5. Number of years in the current position

6. Year admitted into the programme

7. Year of graduation

   If not yet graduated, please indicate current level/status

SECTION B

8. What motivated you to apply for admission into the programme?
9. Are there courses you would like to see reviewed? If yes, please state them and provide justification
   …………………………………………………………………………………………………………………………………………..
   …………………………………………………………………………………………………………………………………………..
   …………………………………………………………………………………………………………………………………………..
   …………………………………………………………………………………………………………………………………………..

10. Are there courses you would like to see introduced in the curriculum? If yes, please state them and provide justification
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..

11. What do you consider to be the core areas/themes in the industry that the curriculum should address?
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..

12. Does the curriculum meet the needs of the industry? If yes or no, please justify your answer
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..
    …………………………………………………………………………………………………………………………………………..

13. What do you consider to be the major strengths and weaknesses of the present curriculum?
    Strengths
14. Kindly comment on the adequacy or inadequacy of the following resources:

[a]. Journals
What journals did you/ do you mostly use?

What journals would you like to see added to the collection?

[b]. Books

[c]. Internet accessibility
14. What is your thesis research topic?
........................................................................................................................................................................
........................................................................................................................................................................
What factors influenced your choice of topic?
........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................

15. What aspects of thesis writing did you find challenging?

16. What aspects of thesis writing did you/do you find challenging? (Notes: unclear – why is the question repeated?)
........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................
How did you/do you cope with the challenges?
........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................

17. How would you rate supervisor support in thesis writing? Kindly explain your answer
........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................

18. Did you/do you face any challenge[s] in working with your supervisor? If yes, please state the challenge[s]
........................................................................................................................................................................
Masters education and training in records and archives management within the context of market and national needs: Empirical findings from Kenya

19. Did you/do you face any challenges while undertaking the programme? If yes, please state them

20. Provide recommendations on how to enhance the programme in order to meet market needs

Thank you.
The information and knowledge society: The role of indigenous knowledge in achieving the Millennium Development Goals (MDGs)

M. Holmner²
marlene.holmner@up.ac.za
Department of Information Science
University of Pretoria
South Africa
Private bag x 20
Hatfield
Pretoria
0028
+27 12 420 5215

Abstract

Many countries have embraced the vision of becoming information and knowledge societies and subsequently benefitting from the process of globalization. However, achieving the status of such a society is much easier for countries that already comply with some of the prerequisite criteria of an information and knowledge society. These criteria include a stable economy, efficient physical infrastructure, and suitable ICT infrastructure, to name a few (Britz et al., 2006; Holmner, 2008). As many of the criteria of an information and knowledge society coincide with the eight Millennium Development Goals, it is much easier and faster
The information and knowledge society: The role of indigenous knowledge in achieving the Millennium Development Goals (MDGs)

for developed countries to achieve these goals and benefit from the global economy. For developing countries that are still experiencing the digital divide, these goals seem virtually unattainable. Because the deadline for achieving the Millennium Development Goals is only five years away, it has become imperative for developing countries to investigate other routes to help them attain these goals and at an increased speed. Using indigenous knowledge is one of the avenues that developing countries could use to reach this destination.

Keywords

Information and knowledge society, Millennium Development Goals, development, digital divide, developing countries, indigenous knowledge

1. Introduction

The twenty-first century is characterized by new opportunities and challenges posed by the evolution of the information and knowledge society. This is a society driven by information and communication technologies (ICTs) which are used by developed countries as a positive tool for development. Developed countries such as Norway, ranked first on the Human Development Index (UNDP, 2009), comply completely with the criteria of the information and knowledge society (Holmner, 2008) and are reaping the benefits that ICTs bring to the table. These benefits include advancing and improving the quality of education, broadening access to educational resources, and building new skills (GESCI, 2008). By complying with the criteria of the information and knowledge society, i.e. economic, ICT, political, social, cultural and physical infrastructure criteria (Martin, 1995; Britz et al., 2006; Holmner, 2008), developed countries, particularly in Europe, are attaining the Millennium Development Goals significantly faster and easier than developing countries. According to the Millennium

---

2 Marlen Holmer, PhD, is Senior Lecturer in the Department of Information Science, University of Pretoria, South Africa. She was a Guest Speaker at the Conference.
Development Goals Progress Report (United Nations, 2010c), Europe has already achieved or is extremely close to achieving the first five goals, namely eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equality and empowering women, reducing child mortality, and improving maternal health.

Unfortunately, the progress towards attaining the MDGs is very uneven in developing regions, and many of the targets are likely to be missed (United Nations, 2010b). While the share of poor people in the rest of the world is declining, the number of poor in South Asia and in sub-Saharan Africa continues to increase (UNDP, 2010). Reaching the other MDGs by 2015 seems unlikely for many of the developing countries, especially in sub-Saharan Africa and Southern Asia. Statistics for 2010 reveal that no country in sub-Saharan Africa was on course to achieve all the MDGs by 2015 (UNDP, 2010).

The author decided to write this paper with two objectives in mind. The first was to illustrate that parallels can be drawn between the criteria of the information and knowledge society and the Millennium Development Goals. The second objective, which builds on the first, was to illustrate that developing countries need to investigate other avenues that could help them achieve these goals faster, as the deadline is only five years away. One of these avenues is the use of indigenous knowledge; it is believed that with the help of indigenous knowledge, developing countries could reach these goals, become information and knowledge societies, and benefit from the global economy (UNDP, n.d).

A qualitative methodological approach was used in this paper. According to Creswell (2009, p. 4), qualitative research is defined as: “A means for exploring and understanding the meaning individuals or groups ascribe to social or human problems.” Because qualitative research is used to delve into people’s thoughts, behaviors, anxieties, ambitions, and lifestyles (Flick, 2009), this approach enabled the author to gain various insights into the criteria of the information and knowledge society in order to explore and understand the relationship between the information and knowledge society, indigenous knowledge, and the Millennium Development Goals.
The information and knowledge society: The role of indigenous knowledge in achieving the Millennium Development Goals (MDGs)

The paper is structured in the following manner: i) A discussion of the criteria and indicators that are necessary to be regarded as an information and knowledge society; ii) A discussion of the Millennium Development Goals, highlighting the correlation between the criteria of the information and knowledge society and various Millennium Development Goals; and iii) A discussion of the role and importance of indigenous knowledge in helping developing countries attain the Millennium Development Goals and thereby moving towards information and knowledge society status.

2. Criteria and indicators of an information and knowledge society

The ways in which the concepts ‘information society’ and ‘knowledge society’ have been defined and expressed in literature have attracted a fair amount of criticism, usually on the grounds of ambiguity or unsuitability. Although many projects and studies have focused on these topics worldwide, there have been few efforts to define these concepts, meaning that very little consensus on definitions has been achieved (Rohrbach, 2007). To compound this problem, many of the existing definitions are deficient in their conceptualisation, and without clear conceptualisation, it is difficult to decide whether countries have achieved information and knowledge society status or are still moving towards it (Hamid & Zaman, 2008). A further point of criticism is that extremely few models and indicators have been developed to measure what it means to be an information and knowledge society, especially with respect to developing countries (Nassimbeni, 1998; Hamid & Zaman, 2008).

In her doctoral studies, the author of this paper addressed this problem and investigated the phenomenon of the global information and knowledge society as one of the opportunities presented through globalization. After a detailed analysis of existing definitions and criteria of the information and knowledge society, a new and more comprehensive and operational definition was proposed. The author used this definition to
develop criteria to measure information and knowledge society status as well as identify indicators that the stated criteria are constructed from.

With the above background in mind, the following definition of an information and knowledge society was used as a framework to formulate specific criteria (Holmner, 2008):

A society that is reliant upon a sophisticated physical and ICT infrastructure for the improvement of everyday living and working conditions. A society that values the importance of information as a key to economic wealth and prosperity and where there is an increase in information related activities, as well as an enhancement of human intellectual capability. The information and knowledge society ensures the freedom of information through the use of information and communication technologies. In such a society, modern information and communication technologies are utilised to achieve the interaction and exchange of information between their local knowledge system (tacit knowledge and explicit knowledge) and the global knowledge system (explicit knowledge) to create usable, relevant contextualised content and knowledge. This interaction and exchange of data information and knowledge will, in turn, ensure the respect of other people’s beliefs, values, norms and religions due to the increase, and availability, of information regarding these aspects.

From this definition, the following seven criteria can be deduced (not in order of importance):

- Economic criterion
- Spatial & technological criteria
- Political criterion
- Social criterion
- Cultural criterion
- Physical infrastructure criterion
- Knowledge criterion
These criteria and indicators are discussed below.

2.1. Economic criterion
Although there is much more to the information and knowledge society than how people earn their living, the economic stability of a society is of the utmost importance. According to Spangenberg (2005), such a stable economy requires a high gross domestic product (GDP) and low inflation rates. This enables the citizens to maintain a high standard of living and quality of life. The standard of living of a country is generally measured by indicators such as income inequality, poverty rate, and the real income per person. There is also a close correlation between the economic development of a country and the development of an information and knowledge society. Through a strong economy, people are provided with more and better employment opportunities that can be measured by the unemployment rate of the country (Calanag, 2003).

The indicators of the economic criterion of the information and knowledge society are therefore: high GDP rates and low inflation rates; high standard of living, which consists of low income inequality, a low poverty rate and high real income per person; and lastly, a low unemployment rate.

2.2 Spatial & technological criteria
Not unexpectedly, the ICT requirement for the development of an information and knowledge society is very extensive and sophisticated (Martin, 1995; Webster, 2002). This sophisticated information and communication technology infrastructure includes telecommunication cables, computers, servers and hosts, and internet service providers. Hence the indicators of the technological and spatial criteria are: access and use of personal computers, internet access and use, access to broadband services, and telecommunication penetration with two sub-indicators - fixed/ main line penetration and mobile phone penetration.

2.3 Political criterion
According to the Tunis Commitment of the World Summit on Information Society, the information society relies on democracy, sustainable development, and respect for human rights and fundamental freedoms (WSIS, 2003). Therefore in order for an information and knowledge society to be successful, the society must have the necessary infrastructure and a high level of democracy to ensure freedoms such as freedom of access to information, freedom of expression, and intellectual property rights. Accordingly the indicator and sub-indicators of the political criterion are reliant on a high level of democracy, which encapsulates freedom of expression, freedom of information, intellectual property rights, and increased political participation.

2.4 Social criterion

The social criterion has an impact on all aspects of human life and is thus a very complex and extended criterion. Information has economic value and can be used to promote human development in areas such as health, education, social services and commerce (Martin, 1995). The health of the citizens of a country can be measured by looking at three sub-indicators: the mortality rate and life expectancy of the citizens of that country; the number of practicing physicians in the country; and the total expenditure on health as a share of GDP. Within an information and knowledge society, effective education and training systems are vital to ensure economic competitiveness and social inclusion. This indicator is measured by addressing two sub-indicators: the literacy level of the country and the amount of years of compulsory education in the country. Effective social services within a country can be measured by looking at initiatives that aim to develop modern online public services and a dynamic environment for the citizens of the information and knowledge society. These include: e-government (including e-voting initiatives); improvements in the health public service sector through e-health initiatives; and the importance of e-learning initiatives in a society that is increasingly reliant on information and knowledge.

A further aspect of the social criterion, discussed by Britz et al. (2006) as one of the main pillars of the information and knowledge society, is content that is usable and affordable.
Access to information alone is not enough, and being connected to the best ICT infrastructure does not necessarily mean being informed. To enhance the quality of life within an information and knowledge society, people need information that is usable. Thus the sub-indicators of usable content are information that is affordable, timely, available, and readily accessible, and the language of dissemination.

### 2.5 Cultural criterion

Of all the criteria mentioned above, the criteria that entail changes in cultural values and mores are the most difficult to identify. According to Martin (1995), the cultural value of information in the information and knowledge society will be recognized through the endorsement of information values in the interest of individual and national development. Furthermore, the preservation of a country’s cultural heritage is of the utmost importance within an information and knowledge society. According to Europe’s Information Society Thematic Portal (2007): “Digital libraries make cultural resources more easily accessible and open new ways for people to experience their cultural heritage, and digital preservation helps keeping the past and the present for the future.” Access to ICTs can play an important role in providing access to such culturally diverse content. Through the use of modern ICTs, a nation’s rich cultural heritage and indigenous knowledge can be preserved through initiatives such as digital libraries. From an economic perspective, the cultural diversity and heritage of a country can further be used to increase the international exposure of the country. Advertising and marketing these cultural treasures can increase tourism to the specific country.

Thus, it can be seen that within an information and knowledge society, the indicators of the cultural criterion are many and varied and include universal access to cultural content; digital libraries that can preserve cultural diversity; initiatives that protect the indigenous people of the country, their culture and their knowledge; and tourism that promotes and markets a specific country’s cultural heritage.
2.6 Physical infrastructure criterion
Physical transportation infrastructure is often overlooked and has been underemphasized in earlier definitions of the information and knowledge society. According to this criterion, an information and knowledge society relies on elaborate physical transportation infrastructure, consisting of elements such as available roads, motor vehicles, railways, airports, and warehouses. These items are thus the indicators of the physical infrastructure criterion. (Notes: other physical infrastructure? Buildings to house ICTs do not fall under this criterion?)

2.7 Knowledge criterion
In the Okinawa Charter on the Global Information Society (2000, p. 1), the G8 members renewed their commitment to include everybody within this society so that everyone can reap the rewards. Accordingly, the principle of inclusion states that: “Everyone, everywhere should be enabled to participate in, and no one should be excluded from, the benefits of the global information society. The resilience of this society depends on democratic values that foster human development such as the free flow of information and knowledge, mutual tolerance, and respect for diversity.”

Thus, the flow of information from the global information system to the community or country and vice versa must be established and maintained for the country to benefit from the advantages of becoming an information and knowledge society. The local country can access global knowledge from the global knowledge system, and by translating, analysing, and contextualising this knowledge, can use it to stimulate development. In order to make use of existing global knowledge, communities need sophisticated skills that enable them to analyse, translate, and synthesise global knowledge and then blend it with local knowledge in order to create new forms of local content (IKWW, 2002). These skills can be identified as the first indicator of this criterion.

In addition to the skills that are necessary for this interaction and exchange process to take place, there also needs to be information that can be exchanged. Hence, the creation of
local content and local e-content can be identified as the second indicator of the knowledge criterion. Thus the following indicators of the knowledge criterion can be identified: a high level of computer and information literacy skills, and the creation of local content/e-content.

This discussion reveals that the indicators and sub-indicators of the criteria of the information and knowledge society are very comprehensive and can be used as a benchmark for governments to ascertain information and knowledge society status. These criteria can also be used by policy makers and funding organizations to ensure that more attention and finances are directed at specific problem areas as identified through the use of the indicators and sub-indicators. In the section that follows, the author will discuss the Millennium Development Goals and investigate whether correlations can be drawn between the discussed indicators and sub-indicators and the eight Millennium Development Goals.

3. The Millennium Development Goals

In 2000, under the auspices of the UN, the leaders of the world came together and identified eight key areas of human strife that have to be alleviated by the year 2015. These eight areas are known as the Millennium Development Goals (MDGs). It is the author’s intent to show that correlations can be drawn between these eight Millennium Development Goals and the criteria of an information and knowledge society. This correlation can prove to be very important as it would place the information and knowledge society status of countries on the global agenda. As the current United Nations Secretary General, Ban Ki-moon, aptly states: “Meeting the goals is everyone’s business. Falling short would multiply the dangers of our world... Billions of people are looking to the international community to realize the great vision embodied in the Millennium Declaration” (United Nations, 2010b). Therefore, if correlations can be made between the criteria of an information and knowledge society and the MDGs, it would become ‘everyone’s business’ to achieve information and knowledge society status. More aid and assistance from the international community would especially help developing countries that face numerous barriers that prevent them from becoming information and knowledge societies.
The first Millennium Development Goal is the eradication of extreme poverty and hunger. This goal has three achievable targets that relate to both the poverty rate and the unemployment rate. The first target is to reduce the proportion of people who live on less than $1.25 a day by half (United Nations, 2010a). This target can be directly correlated to the second indicator of the economic criteria of an information and knowledge society, namely standard of living. As previously discussed, a high standard of living consists of low income inequality, a low poverty rate, and high real income per person. The second target of the first MDG is to achieve complete and productive employment and respectable job opportunities for all (United Nations, 2010a). This target can be linked to the third indicator of the economic criteria, namely employment opportunities. The last target for this MDG is halving the proportion of people who suffer from hunger (United Nations, 2010a). This target can be linked to all the indicators of the economic criteria of an information and knowledge society. If people in this society have a high standard of living resulting in a low poverty rate, low unemployment rate and high real income per person, these people would be able to meet their basic needs such as food and shelter, and hunger would be reduced.

The second and third Millennium Development Goals focus on universal education, in particular providing a full primary school education to all boys and girls alike and eliminating gender disparity in primary as well as secondary education (United Nations, 2010a). As education falls within the social sphere of society, these goals can be correlated to the social criteria of the information and knowledge society. As mentioned earlier, the second indicator of the social criteria addresses education opportunities and focuses on the literacy rates of a country as well as the amount of compulsory years of education within the country. These targets can also be supported by the third indicator of social criteria, i.e. modern online public services, specifically initiatives aimed at e-learning within the information and knowledge society. Such initiatives can help provide a full primary and secondary education to boys and girls and thus help achieve the second and third MDGs.
Child mortality is the focus of the fourth Millennium Development Goal, and together with the fifth and sixth MDGs, addresses the health and wellbeing of people. These goals all relate to the social criteria of the information and knowledge society. As previously mentioned, the first indicator of the social criteria relates to good health prospects that can be measured by looking at: the mortality rates and life expectancy of citizens, the number of practicing physicians in the country, and the total expenditure on health as a share of GDP. Within an information and knowledge society, there is a high spending on health as a share of GDP which enables the country to invest in more and better health facilities as well as pay for more practicing physicians. By increasing the amount of health facilities and qualified physicians in a country, the citizens of these countries would have access to more facilities and qualified medical personnel that could treat their ailments better and faster, thus resulting in lower mortality rates and higher life expectancy (Holmner, 2008). In doing so, child mortality can be reduced by two-thirds (fourth MDG), maternal mortality rates can be lowered (fifth MDG), and diseases such as HIV/ AIDS, Malaria and TB can be combated (United Nations, 2010a). As with the second and third MDGs, the fourth, fifth and sixth MDGs would also be supported by the third indicator of the social criteria, namely modern public services. With respect to the health of citizens, modern public initiatives such as e-health initiatives aimed at improving the health of people would be of central importance. It is thus of the utmost importance that governments pay special attention to meeting this criteria of the information and knowledge society, and in doing so support the achievement of the fourth, fifth and sixth MDGs.

Unlike the first six Millennium Development Goals, the seventh and eighth MDGs cannot be directly related to the criteria of an information and knowledge society. However, the author is of the opinion that indirectly, there are numerous correlations that can be drawn between environmental sustainability (seventh MDG), global partnerships (eighth MDG), and achieving information and knowledge society status. The seventh MDG focuses on reducing environmental as well as biodiversity loss (United Nations, 2010a). According to the European Information Society Thematic Portal (2007), an information and knowledge society embodies a shift away from an energy intensive, polluting economy to a
dematerialized, knowledge-based economy. Through the utilization of sophisticated ICT infrastructure, the second criteria of an information and knowledge society - the human environmental footprint - can be reduced, from manufacturing and transport systems to our personal residences (European Information Society Thematic Portal, 2007). However, much still needs to be accomplished. Damage to the environment is a cross-border problem necessitating national as well as global partnerships relating to the eighth MDG. This MDG is also aided by the second criteria of the information and knowledge society, namely the spatial and technological criteria. Through the utilization of modern ICTs, time and spatial limitations of communication are abolished, resulting in more efficient and effective global communication and the forming of global partnerships. The above discussion shows that correlations can be drawn between the criteria of the information and knowledge society and the eight Millennium Development Goals. Consequently becoming an information and knowledge society and adhering to the seven criteria of such a society would help countries achieve these goals and realize the great vision embodied in the Millennium Declaration (United Nations, 2010b). However, as this is a typical chicken and egg scenario, correlations can be drawn both ways. Achieving the eight Millennium Development Goals would therefore also help countries attain information and knowledge society status more rapidly. In the following section, the author will discuss how the indigenous knowledge of countries can be harnessed to help achieve the MDGs and thereby help countries attain information and knowledge society status.

4. Indigenous knowledge and the Millennium Development Goals

Traditional knowledge is very powerful. This knowledge is our birthright. It was given to our people when we were placed here on Mother Earth with sacred instructions on how to live as caretakers of Mother Earth. But if it is not used and shared, then it becomes useless.

These were the words of Alvin Manitopyes (2010) at the opening of the first International Roundtable Supporting Ancient Indigenous Knowledge, which was held at the Turtle Lodge in Sagkeeng First Nation (Manitoba) in 2010, and they echo the World Bank’s (1998) sentiment that indigenous knowledge is a powerful yet under-utilized resource in the development process. This section of the paper will focus on case studies and examples of
successful applications of indigenous knowledge to help support development and assist in the achievement of the MDs.

In literature, numerous examples and case studies document how indigenous knowledge can be successfully harnessed to solve local problems. These techniques are cost effective and usually based on locally available resources (Garg, n.d.). For example, in the northern province of India in the state of Uttar Pradesh, indigenous knowledge has been successfully harnessed to help eradicate poverty and hunger (MDG 1) through the implementation of the Sodic Project - a joint venture of the Uttar Pradesh government and the World Bank. This project has harnessed various indigenous knowledge farming techniques to help reduce poverty and hunger. One of these techniques has been the utilization of the disinfectant quality of the Margossa (Neem) leaves. The benefits of these leaves have been known to the Indian population for centuries. To prevent losses in stored food grains, farmers from various villages in the Uttar Pradesh district decided to make use of these leaves to keep weevils and other insects from infesting stored grain supplies. Farmers used shade-dried Margossa leaves laid in alternate layers with grains in storage bins. These bins were closed in airtight containers with the help of a paste prepared with mud and cow dung. This indigenous technique ensures that stored grain supplies stay free of infestations for more than a year if the bin is not opened (Garg, n.d.). This indigenous storing technique thus keeps stored grains edible for a much longer period of time without any additional financial expenses by farmers, which is why it contributes to eradicating poverty and hunger.

Indigenous knowledge can also act as an influential tool in an education environment to teach children (IK Notes, 2005). In Bangladesh, education has been strengthened through the use of indigenous languages (UNDP, 2010a). In the Chittagong Hill Tracts region, an indigenous language education program was introduced that aims to strengthen primary and secondary education within the community: “Children belonging to these ethnic communities are faced with a language barrier, so to overcome that [UNDP] has introduced mother tongue-based multilingual education whereby children in preschool get schooling in their own languages,” said Prashanta Tripura, Chief of Service Delivery for UNDP in
Bangladesh (UNDP, 2010a). This brings Bangladesh one step closer to achieving the second MDG.

Utilising an indigenous language as a medium for teaching and learning can also help achieve the third MDG, namely the empowerment of women. According to the program of action of the United Nations’ International Conference on Population and Development in Egypt: "Education is one of the most important means of empowering women with the knowledge, skills and self-confidence necessary to participate fully in the development process" (UNFPA, n.d.). Various programs have empowered women through this process, for example in a United Nation Population Fund supported project in Bolivia, women were being taught to read in their indigenous language while learning about reproductive health, safe motherhood, and health insurance (UNFPA, n.d.). In South Africa, the Ubuntu Institute has launched the Gender Equality and Empowerment of Women Program that educates female traditional leaders in their indigenous languages to help them address issues of HIV/AIDS, poverty, environmental sustainability, educational access, and access to economic opportunities (Ubuntu Institute, 2011).

As mentioned earlier, Millennium Development Goals four, five and six all relate to health, with a special focus on the mortality rate of children and mothers, as well as combating diseases such as HIV/AIDS, Malaria, Tuberculosis (TB), etc. In some Asian and African countries, 80% of the population rely on indigenous medicines for primary healthcare (WHO, 2008), and numerous case studies document the use of indigenous medicines to improve the health of people. One example is the use of twenty-three plant species to treat diarrhea in northern Maputaland, KwaZulu-Natal Province, South Africa (De Wet, Nkwanyana, van Vuuren, 2010). In Tanzania, the Tanga AIDS Working Group (TAWG) works towards alleviating the suffering caused by HIV/AIDS using indigenous knowledge. Over 5000 AIDS sufferers have already been treated with herbs prescribed by local healers. The impact has been very significant in reducing the opportunistic diseases brought on by the AIDS virus. These patients have responded very optimistically and have lived up to five years longer (IK notes, 2002). Maternal health has also been improved by employing traditional birth attendants (TBAs) in countries such as Sierra Leone, Uganda, Kenya and Rwanda, to mention a few. Many of these countries are investing in training these TBAs and are thus combining global health practices with indigenous health practices (Twahirwa, 2010).
Preventing the extinction of indigenous herbal medicinal plants and other traditional healing modalities can help maintain local biodiversity and support the seventh MDG by ensuring environmental sustainability (Smith, 2010). Various projects are underway to preserve indigenous plants, for example: Colombia created a rainforest reserve dedicated to the protection of medicinal plants (Butler, 2008), and Hawaii has made great progress in protecting their rare native plants (Eaton & Sullivan, 2010).

Developing a global partnership for development (MDG 8) is particularly important from an indigenous knowledge perspective as indigenous knowledge is a much under-utilized resource in the development process (IK Notes, 2003). An indigenous practice cannot be shared effectively if it is not captured, documented and validated, and sadly, most community-based organizations lack this capacity. Developing global partnerships with agencies such as the World Bank can provide the necessary financial and technical assistance to developing countries around the world. Such a partnership was developed between the World Bank, the East African region, and South Asia. The goal of this partnership was to integrate indigenous knowledge and practices into bank-supported operations. Numerous global partnerships have been established over the years to assist the development process through the utilization of indigenous knowledge. A very significant example of such partnerships is the Indigenous Knowledge for Development program that was launched by the African Department of the World Bank in partnership with over a dozen organizations in 1998 (Gorjestani, 2001), as well as the launch of "Local and Indigenous Knowledge Systems in a Global Society" (LINKS) by UNESCO in 2002 (UNESCO, 2003).

The above discussion shows that indigenous knowledge can contribute significantly to the achievement of the Millennium Development Goals. Many have argued that Africa’s indigenous knowledge is an untapped resource (UNECA, 2010). However, many developing countries do not have the capacity to harvest these indigenous knowledge systems. Through
the development of global partnerships, financial and technical assistance can be provided to these countries that would enable them to harness this knowledge, and in doing so, achieve the Millennium Development Goals.

5. Conclusion

Becoming an information and knowledge society, and benefiting from the resulting global flow of information that countries can access via sophisticated ICT infrastructure holds great promise for humankind (Chisenga, 2000). This promise combined with other advantages associated with the information and knowledge society has been the driving force behind numerous development initiatives around the globe. Unfortunately, because there have never been any measurable criteria to determine what constitutes an information and knowledge society, many of these development initiatives have been aimed at incorrect contexts in communities and countries. In this paper, the author has shown that numerous correlations can be made between the construed criteria of the information and knowledge society and the Millennium Development Goals. It was further shown that countries need to start harnessing their indigenous knowledge so that it can be successfully used to help achieve the Millennium Development Goals. Because there are direct correlations between the criteria of an information and knowledge society and the MDGs, harnessing this powerful yet under-utilized resource can help countries adhere to the stipulated criteria of the information and knowledge society and in doing so, also move towards achieving the eight Millennium Development Goals. In this way, countries can help keep “the most important promise ever made to the world’s most vulnerable people” as set out in the Millennium Declaration (United Nations, 2010b).

6. References


The information and knowledge society: The role of indigenous knowledge in achieving the Millennium Development Goals (MDGs)


The information and knowledge society: The role of indigenous knowledge in achieving the Millennium Development Goals (MDGs)


The information and knowledge society: The role of indigenous knowledge in achieving the Millennium Development Goals (MDGs)

The role of information ethics in the content management of digital libraries in Africa

Brenda van Wyk

University of Zululand Library
(bvanwyk@pan.uzulu.ac.za)

Abstract

The rapid expansion of digital libraries over the past twenty years has changed the way information is managed, stored and accessed. The nature of digital scholarship in digital libraries requires new approaches from the database or library manager and a corresponding re-evaluation of existing models and frameworks of information ethics. The content management of these libraries especially needs to address legal and ethical issues.

Introduction

The rapid development and expansion of digital libraries in the 21st century has come a long way in improving access to research information and shaping the way that conventional libraries are managed. This has also introduced new challenges to the librarian with respect to managing services with multidisciplinary characteristics that involve complex legal and technical issues. Libraries in the western world have adapted very well to the current environment of fast and continually innovative developments by creating content management strategies to address technical, legal, and ethical procedures, principles and frameworks. Information formats and information seeking behavior are constantly changing, and the librarian has to stay relevant by not only providing information services, but also by learning new skills and developing new insights in order to manage the increasingly complex environment of digital information through digital libraries. Researchers agree that Africa in particular

---

1 Brenda van Wyk is Deputy Director of Library Services at the University of Zululand Library, South Africa
The role of information ethics in the content management of digital libraries in Africa struggles to keep up with these developments and fails to adjust existing models to adapt to specifically African information needs. Despite existing models, agreements and conventions, it is especially in the legal and ethical arena where the ineffective content management of digital libraries leads to poor outcomes and sustainability of legal and ethical aspects.

Frameworks for addressing information ethics through the content management of digital libraries

There is no shortage of literature on information ethics and its applications. But despite the productive theoretical, epistemological and ontological discourse addressing ethics, information ethics, cyber ethics etc., Chaffey & Wood (2005: 610) warn that on a business and practical level, a blind eye is often turned to ethical issues because they are not highly prioritized: “It is a knotty problem attempting to unravel the ever changing ethics and laws (Chaffey & Wood, 2005). This statement rings true for many digital libraries where content management should attend to ethical issues. It can be a daunting task to identify a suitable framework to address the multi-disciplined and multi-layered environment of a digital library. Most digital libraries or commercial digital information databases are housed or managed in libraries. This involves a myriad of legal and technical processes and procedures.

Most ethical frameworks and philosophies are based on western models. Capurro (2008) explains that information ethics in Africa is still a young academic field, and it stands to reason that there is room for new models and adaptations to existing models to create frameworks that would address the African situation. This notion is supported by the statistics of available open access e-resources in Africa (OPEN DOAR, 2011). Africa still has less than 3% of the world’s digitized collections. Running parallel, and interwoven into information ethics are cyber ethics and media ethics. The philosophies of ethics and morals have a long history dating back to ancient times. Information ethics is a marriage between philosophy of information as well as the philosophy of information. Floridi in Ess brings another element in that he refers to as correlative
information ethics (Ess: 2009). This combined framework is well received and accepted by most prominent researchers. It serves as an ideal platform to accommodate very difficult and varying subjects. Ess (2009: 159) states that Floridi’s approach is one of the most significant developments for a global information and computer ethics framework. The naturalistic approach as well as the allowance for ethical pluralism assists to combine shared norms, values and practices which could pose serious challenges.

**Digital libraries: Morals, ethics and information ethics**

Digital libraries include institutional repositories, subject specific libraries, and subscription libraries or databases, to name a few. The ease of access to information created by digitization and open access initiatives may create the misconception that the permission to use the information from the rightful owner or author is no longer required. The moral principle of what is good and right in availing digital information is addressed in information ethics’ frameworks. The principle of fair use of information must prevail, and digital libraries must be managed in such a way that this principle is honored. Ethics depends on norms and standards. Mutula cites Mason (2010: 264) by identifying the main ethical issues in the electronic information arena as:

- Privacy, accuracy
- Property
- Accessibility
- Security
- Efficiency
- Consistency

From the SERQUAL Model of management, other elements are added such as courtesy and credibility. Mutula refers to the Information Systems Success Model (2010: 267), where the technical elements are addressed, and included are elements of:

- System quality
The role of information ethics in the content management of digital libraries in Africa

- User satisfaction
- Quality of information system output.

This model has a practical approach which is very appealing for the content management of digital libraries.

**Legal and ethical aspects of digital libraries**

Effective management of the legal elements of a digital library firstly requires knowledge of applicable laws and regulations, and an awareness of the consequences of non-adherence. Solutions for these requirements must be built into the content management systems and procedures of digital libraries.

The first legal issue that springs to mind where digital libraries are discussed is intellectual property, of which copyright is a significant part. In South Africa, the Copyright Law of 1978 states that copyright automatically vests with the author. The difficulties arise when an author gives his copyright to a publisher. Should the author wish to rather publish in the open access arena, copyright is not forfeited. The organization, SHERPA Romeo, assists authors with negotiated copyright in open access publishing. Proper acknowledgement of the use of an author’s work that is freely available in open access protects the rights of the author and creates recognition.

Copyright is not the only legal aspect that needs to be addressed in managing content in the digital library. Others include ownership, commitment, right holders, publishing agreements and embargoes, liability, preservation of information, and license agreements. Knowledge and awareness of how to deal with these issues are central to effective digital content management.

**Managing digital libraries – from theoretical to practical**
The role of information ethics in the content management of digital libraries in Africa

The content of digital libraries is born digital, turned digital, and/or gained digitally (Mahesh & Mittal, 2008). As such, Mutula (2008) lists the important ethical issues of information exchange in this digital field as privacy, accuracy, intellectual property, and accessibility. Should these elements not be managed effectively in a digital library, trust in digitized information would suffer. In this respect, the role of the library has changed from custodian of created information to creator of content. Content management and content creation will have to be done in a way that assures researchers of the integrity, confidentiality and accuracy of the information. Librarians, content managers and information specialists need to broaden their knowledge of intellectual property, copyright, and exclusive and non-exclusive licenses. Open access initiatives such as the Berlin Declaration and copyright and intellectual property conventions such as the Bern Convention, WIPO Agreement and others assist a great deal in creating synergy and clarity on how to improve information ethics and regulate legal aspects of digital libraries (Mossink, 2006). Clearly, legal and ethical issues play a very important part in the content management of digital libraries, and therefore the two issues cannot be discussed in isolation.

Mossink (2006: 9) warns that open access is, in most cases, free access with a set of specified use rights. In the absence of these specified rights in the form of a license, the same limitations and expectations exist as with all copyright laws (Mossink, 2006). It could also be argued that the perceived complexity and nature of legal and ethical issues deter practitioners from getting involved, leaving these debates to the academics. It is crucial that practitioners, such as digital managers and information specialists, develop an understanding and awareness of these issues in order to ensure that the information that they provide in the open access environment does not transgress laws, and if this happens, that corrective procedures can take place.

**Content management principles in digital libraries**

Mutula (2008: 65) defines content management as a set of processes and technologies that support the generation, dissemination and use of content. The management of
content in digital libraries requires a content management system. According to Chaffey and Wood (2005: 164), a content management system is a software tool for creating, editing, and updating documents accessed via intranets, extranets and the internet. Examples of popular content management systems in digital libraries include Dspace and Greenstone. Most of these database systems operate using open source (OS) software and are relatively easy to administer and maintain. This is good news for the cash strapped institutions in Africa. Not everyone agrees on what the content of the digital library should be. Some authors like Conway (2008: 343) feel that content and asset management should be driven by faculty scholarship while many feel that the content should be institution-wide and should be an indication of the scholarship of an institution. When Conway says that the understanding of what should form content in a digital library has expanded over the past 15 years, he is talking about the western world because this is still not the case in Africa. However, Conway (2008: 348) mentions that the core elements that impact on content management in digital libraries are property rights, structure, source and possession. Fewer complexities are experienced when the property rights of a university or institution are clearly defined and when the university retains its rights to capture, store, preserve and provide access to digital scholarship. Possession also poses some difficulties. Many digital resources are not owned by the university or library; rather temporary access is provided and managed by license agreements. Evidently, content management is a complex but very necessary aspect of digital library management. Without content management, trust cannot be established in the product that the digital library aims to provide.

Trust in digital libraries and digital scholarship

Digital scholarship is a network of academic and research content that is communicated and accessed through digital technology (Mutula, 2010). It requires technological infrastructure that supports seamless access. But beyond this, trust on the part of clients will determine the viability of the digital library. According to Mutula (2010: 266), accuracy, confidentiality, and the currency of the information in African digital libraries are compromised because African researchers often do not have access to the latest research.
The role of information ethics in the content management of digital libraries in Africa

Mutula (2010: 266) explains that elements of trust are addressed in models such as the social-psychological model, the social-cultural model, and the institutional performance model. The main elements of trust, however, can be summarized as:

- Reliance on integrity
- Ability or nature of a particular digital library
- Reliance on an institution
- Re-assurance that the digital library will deliver

Trust in African digital libraries needs to be established not only in the case of the African information seeker, but also the information seeker on the global stage. Mutula and Ocholla (2011:276) use an integrated model for trust which has five pillars:

- Ethical/human
- Information/content
- Technical
- Policy/legal
- Political governance

**Summary**

The content management of digital libraries is a demanding and constantly evolving challenge. The effective management of legal and ethical issues can enhance trust in the digital library which could in turn enhance the use and credibility of the source. Information ethics as applied in digital libraries largely relies on and draws from the legal frameworks developed to direct, monitor and control information and consequences of misuse in the open access arena. Content management systems for digital libraries such as Dspace and others accommodate some of the legal and ethical considerations required in their procedures, such as agreements. The digital library manager cannot always apply these on face value. Managing digital content requires constant adaptation and renewal of skills and knowledge on a multidisciplinary level.

**References.**
The role of information ethics in the content management of digital libraries in Africa


The role of information ethics in the content management of digital libraries in Africa


Abstract

Electronic schools (e-schools) in Kenya were surveyed in order to establish the success of the New Partnership of Africa’s Development (NEPAD) e-school pilot programme. The study specifically investigated benefits accruing from the implementation of electronic schools. Six e-schools distributed across six provinces in Kenya were purposively selected. 1508 teachers and students participated in the survey, and the e-schools’ principals were also interviewed. Their responses revealed that they believed the pilot project had accrued some benefits. In particular, the popularity of the e-schools had increased among the parents of students over time. The performance of the e-schools in the national examinations had also improved tremendously, with one school moving up in rank from 53rd position to 5th in the Kenya Certificate of Secondary Education (KCSE) Examination index, four years after the implementation of the e-school. Students were positive about their interaction with the e-school system, believing that it improved their chances in the knowledge economy.

Hesbon O. Nyagowa\textsuperscript{4} - nyagowa_hesbon@yahoo.co.uk

and

Dennis N. Ocholla\textsuperscript{5} – docholla@pan.uzulu.ac.za, University of Zululand

Stephen M. Mutula\textsuperscript{6} – smutula@gmail.com, University of KwaZulu Natal

\textsuperscript{4} Hesbon Nyagowa is the Registrar at the Kenya Polytechnic University College of Nairobi University. He is currently completing his PhD at the Department of Information Studies, University of Zululand, South Africa.

\textsuperscript{5} Dennis N. Ocholla, PhD, is Professor and Head of the Department of Information Studies as well as Vice Dean, Faculty of Arts at the University of Zululand.

\textsuperscript{6} Stephen Mutula, PhD, is Professor of Information Studies at the University of KwaZulu Natal, South Africa.
Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya

The e-schools could not, however, optimize benefits partly because of challenges in implementation. The study found that the use of information and communication technology (ICT) infrastructure was not aligned to the overarching goal of integrating ICT into teaching and learning. The training of the teachers was also inadequate for this purpose. Resources were also insufficient, resulting in limited access to infrastructure and the inability of the schools to sustain subscription for internet service provision.

The paper therefore highlights issues the NEPAD e-Commission should consider before it rolls out the main project and provides recommendations to future e-school projects on ways of improving their benefits to students and society in general.

**Keywords:** E-school, Kenya, NEPAD, success of e-schools, benefits of e-schools

1 **INTRODUCTION**

1.1 **Structure of an e-school**

The e-school system consists of four subsystems, namely the students’ subsystem, teachers’ subsystem, library subsystem, and administrative subsystem (Nobles et al., 1989). These are interfaced in a way that ensures that user groups are restricted to content and modules that are relevant to their roles. It is widely believed that the implementation of e-schools can have a positive impact on schools’ operations and management, just as information systems (IS) have helped to improve the wealth creation of organizations. This belief has led many countries to adopt e-school systems. The students’ subsystem includes an electronic database of material relevant to curricula that interfaces with the teachers’ subsystem to enable the teachers to push tasks to students and review the students’ progress. The teachers’ subsystem provides tools for developing learning materials, presenting lessons, recording students’ attendance and performance, and communicating with fellow teachers, students and parents. The library subsystem interfaces with electronic databases and facilitates librarians’ provision of documents to e-library users and control of the borrowing and lending of restricted articles. Lastly the administrative subsystem facilitates the record
keeping of data entered through the teachers’ subsystem and communication with all stakeholders.

The structure of e-schools therefore facilitates seamless communication between teachers, students, parents and the administration at any time. It also provides stakeholders with a platform to monitor students’ progress. This forces students to be diligent and concentrate on their work.

1.2 **NEPAD e-school programme**

The New Partnership for African Development (NEPAD), through its Department of e-Africa Commission, is spearheading the development of information and communication technology (ICT) infrastructure on the African continent. Of their projects, undersea fiber optic cabling and electronic school (e-school) pilots in various schools across the continent come to mind as the most promising recent ICT initiatives. The e-school programme is a project that aims to instill ICT skills in students graduating from both primary and secondary schools in Africa. In order to achieve this goal, the e-Africa Commission is coordinating strategic partnerships between technology developers in the private sector and the governments of African countries that signed a memorandum of understanding (MOU) with the e-Africa Commission. Private sector partners develop and implement ICT infrastructure and human capacity in schools to facilitate the integration of ICT in teaching and learning. The governments, on the other hand, coordinate resource mobilization through budget allocations.

The e-schools are equipped with computers that are interconnected through local area networks (LANs). Individual LANs are linked via satellite to form a wide area network (WAN) that stretches across the continent. The Regional African Satellite Communication Organization (RASCOM), with the support of the International Telecommunications Union (ITU), designed, assembled and launched a satellite - RASCOM-QAF 1 - into orbit on the 21st of December, 2007 ([http://www.spaceflightnow.com/ariane/v180/](http://www.spaceflightnow.com/ariane/v180/)), to support the e-Africa Commission’s
Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya

activities. Through this satellite, rural regions in Africa have been able to access affordable telecommunication services and internet connectivity using the Very Small Aperture Terminal (VSAT) [www.rascom.org/info]. NEPAD’s e-school initiative was designed to tap into the cost benefits of connectivity through this satellite link and to connect schools in Africa regardless of their location within the different national boundaries. NEPAD e-Africa Commission is piloting the NEPAD e-school project in 17 African countries, i.e. Algeria, Burkina Faso, Cameroon, Democratic Republic of Congo, Egypt, Gabon, Ghana, Kenya, Lesotho, Mali, Mauritius, Mozambique, Nigeria, Rwanda, Senegal, South Africa and Uganda (NEPAD, 2005). The NEPAD e-school initiative is a novel innovation that earned NEPAD the Global Intelligent Community Visionary of the Year award in 2005. The initiative provides a framework for (and a systematic approach to) ICT integration in education on the African continent. The e-school initiative’s specific objectives are to: instill ICT skills in students that enable them to participate in the knowledge society upon graduating; enhance teachers’ capacities through the use of ICT in teaching; and improve school management and increase access to education (http://www.nepad.org, ). This study set out to follow up on the envisaged benefits of NEPAD’s planned e-school programme by assessing the success of its current pilot programme.

2 LITERATURE REVIEW

Electronic schools are designed to facilitate the integration of information and communication technologies (ICT) in teaching and learning. ICTs are used to deliver curriculum content to students and make reading material easily and readily available (Beasley and Smyth, 2004). E-schools are expected to provide users with opportunities to cross reference from several sources when learning and therefore develop a better understanding of the subject matter, but this has not been confirmed in some studies (Beasley and Smyth, 2004). The integration of ICT into teaching and learning, however, is known to make the teaching experience more intensive and productive. Teachers are able to develop learning content by combining concepts from different subject areas. This ability makes it possible for teachers to understand the pedagogical content and deliver more informed material during the teaching process (Linn and His, 2000). From
this perspective, ICT integration in teaching and learning improves teachers’ delivery of the curriculum.

Pedagogical approaches that make teaching effective tend to improve learning. Effective instructional strategies are those that tempt students to focus their attention on learning tasks, encourage them to get actively involved in learning, and provoke their minds to inquiry (Eric, 2005). ICTs in classrooms are tools that facilitate inquiry and critical thinking (John and La Velle, 2004). This makes the integration of ICT in teaching a pedagogical strategy for improving learning. The question is whether the integration of ICT to mediate students’ learning experience results in a more superior learning than one acquired through traditional pedagogies. The results in literature have been mixed. In Australia, Hayes (2005) established that the integration of ICT in teaching and learning simply supplements traditional approaches. She suggests that a shift in classroom activities must take place before the integration of ICT may impact on the learning process. In a different study, Sutherland, Armstrong, Barnes, Brawn, Breeze, Gall, Mathewman, et al. (2004) did not establish any distinct impact of ICT integration in teaching and learning on students’ performance. This project, which investigated the effect of embedding ICT in the teaching and learning of a variety of subjects, including English, modern foreign languages, music, science, mathematics, history and geography, took the form of action-based research. Over a period of two years, the integration of ICT in classroom teaching was effected in subject areas that were thought to challenge students. It was established that it is not always the case that the integration of ICT enhances learning. Klein, Noe and Wang (2006) established that blended learning motivates students more than traditional classroom learning, and students in the blended learning environment express more satisfaction, improve their metacognition, and obtain higher grades. Klein, Noe and Wang’s (2006) study was conducted in a quasi experiment in a natural environment with the two different pedagogies. SCHOLAR, a British e-school project, has also been found to positively impact on students’ achievements. An evaluation of SCHOLAR was conducted on post-16 classrooms, and the study concluded that the positive impact on achievement could have been amplified had the teachers modified their practices of integrating ICT in
Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya

classroom teaching and learning (Condie and Lavingston, 2007). This is once again supported by Wang (2008) in his assessment of the effect of social and technological context in a study on effective learning. Wang (2008) argued that major changes in pedagogy are necessary for education to take full advantage of the potentials of ICTs in teaching and learning.

Studies that failed to establish the connection between delivery modes attributed the lack of evidence to challenges in blended learning encounters. These include insufficient resources for teachers and students and the inadequate training of teachers on pedagogies specific to student-centered, inquiry-based learning. Some of these studies suggest that practicing inquiry-based learning is difficult in a culture where the performances of students in national examinations carry more weight than the learning itself (Hennessy, Ruthven and Brindley, 2005). Overall, most studies make claims that blended learning can improve students’ achievements and provide recommendations on what should be done to facilitate these achievements. It is therefore prudent to explore these possibilities by implementing some of the recommendations and documenting variations that occur as a result of implementing such recommendations.

3 Methodology

The study targeted NEPAD’s pilot e-schools in Kenya. All six e-schools were purposively selected. At the time of writing, the six schools had a population of 5,186 teachers and students. Lists of teachers were secured from the e-schools’ principals and class attendance registers were provided by the ICT coordinators in those schools. These two sets of lists constituted the sample frame. A sample of 1,508 teachers and students was then drawn using stratified sampling techniques. Stratification between schools was based on the ratio of the student population. Within each school, stratification was informed by: (i) The number of students in each class level, and (ii) The ratio of gender in the case of Menengai Mixed Secondary School, which enrolls both genders.
Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya

Data was collected using a variety of research instruments. Document analysis was performed to trace the changes in performance of the schools over a period of five years from 2006 to 2010. Because the NEPAD e-school pilot was launched in 2005, the performance index for that year was used as the baseline. An observation schedule was followed to document installed ICT infrastructure and the use of the infrastructure. Principals of the schools were interviewed using an interview schedule that sought to detail the perceptions of the principals on gains that had been made since the implementation of the e-schools. Lastly, a questionnaire was distributed to the sampled teachers and students to facilitate the collection of information on the respondents’ perceptions of benefits of the e-school, the challenges they encountered, and how the e-schools could be improved.

Data was analyzed by manually editing interview responses and observation records. Data from questionnaires and document analyses was analyzed using the Statistical Package for Social Sciences (SPSS). The data analysis focused on answering the following questions:

1. Do NEPAD’s e-schools have the desired ICT infrastructure to facilitate the integration of ICT in classroom teaching?
2. What are the perceptions of teachers and students on the benefits of e-schools?
3. Can records corroborate the perceptions of teachers and students on e-school benefits?
4. In the view of teachers and students, what are the challenges that impede the accrual of e-school benefits and how can these challenges be overcome?

The study’s findings, presented below, were grouped under these four questions.

4 FINDINGS

4.1 Suitability of ICT infrastructure for blended learning

In order to evaluate the suitability of infrastructure to the e-school, respondents were presented with questions items covering convenience of access and the reliability of
the system. The question items were rated on a Likert scale, with 1 representing strongly disagree and 4 representing strongly agree. The respondents were also presented with four open-ended questions to enable them to express their opinions on the quality of the e-school infrastructure. The specific question items evaluated the suitability of buildings housing computer laboratories, the quality of computer hardware and software, availability of power back-up systems, and the effectiveness of the presentation equipment. Most of the respondents (56.4 %) agreed that the ICT infrastructure was suitable. All the infrastructure elements scored a mean response above 2 on the Likert scale on their suitability for the e-school, as shown in Table 1.

The mean responses were subject to a chi-square test and they were all found to be statistically significant as shown in Table 2. Nevertheless the chi-square values for ease of use of the e-school’s printers (41.9), reliability of the power back-up (10.7) and computer hardware speeds (92.4), were relatively low. An analysis of the frequency of the responses revealed that a sizeable proportion of the respondents did not approve of the quality levels of the printers, power back-up, and computer hardware speeds, as shown in Table 3. Many respondents also raised complaints about these three infrastructure elements.

Table 1: Mean responses to suitability of ICT infrastructure for the e-school

<table>
<thead>
<tr>
<th>Infrastructure element</th>
<th>N</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings housing e-school equipment are suitable for computer laboratories</td>
<td>744</td>
<td>3.34</td>
</tr>
<tr>
<td>Speed of e-school computer hardware is good</td>
<td>757</td>
<td>2.73</td>
</tr>
<tr>
<td>E-school smart boards provide clear projections</td>
<td>745</td>
<td>3.15</td>
</tr>
<tr>
<td>E-school software is user friendly</td>
<td>739</td>
<td>3.13</td>
</tr>
<tr>
<td>E-school Windows Operating System makes it easy for me to navigate the system</td>
<td>747</td>
<td>2.97</td>
</tr>
</tbody>
</table>
Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya

<table>
<thead>
<tr>
<th>Infrastructure element</th>
<th>Chi-Square</th>
<th>Df</th>
<th>Asymp. Sig.</th>
<th>Power back up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings housing e-school equipment are suitable for computer laboratories</td>
<td>470.37</td>
<td>3</td>
<td>.000</td>
<td>3.36</td>
</tr>
<tr>
<td>Speed of e-school computer hardware is good</td>
<td>284.48</td>
<td>3</td>
<td>.000</td>
<td>284.48</td>
</tr>
<tr>
<td>E-school smart boards provide clear projections</td>
<td>267.15</td>
<td>3</td>
<td>.000</td>
<td>267.15</td>
</tr>
<tr>
<td>E-school software is user friendly</td>
<td>219.088</td>
<td>3</td>
<td>.000</td>
<td>219.088</td>
</tr>
<tr>
<td>Windows Operating System makes it easy for me</td>
<td>10.713</td>
<td>3</td>
<td>.013</td>
<td>10.713</td>
</tr>
<tr>
<td>E-school has reliable power back up</td>
<td>320.5</td>
<td>3</td>
<td>.000</td>
<td>320.5</td>
</tr>
<tr>
<td>E-school computer keyboard and screens</td>
<td>41.90</td>
<td>6</td>
<td>.000</td>
<td>41.90</td>
</tr>
</tbody>
</table>

Table 2: Chi-square test statistics of the means

<table>
<thead>
<tr>
<th>Infrastructure element</th>
<th>Cum Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings housing e-school equipment are suitable for computer laboratories</td>
<td>13.3</td>
</tr>
<tr>
<td>Speed of e-school computer hardware is good</td>
<td>37.8</td>
</tr>
<tr>
<td>E-school smart boards provide clear projections</td>
<td>19.6</td>
</tr>
<tr>
<td>E-school software is user friendly</td>
<td>20.3</td>
</tr>
</tbody>
</table>
Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya

<table>
<thead>
<tr>
<th>Infrastructure element</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-School window operating system makes it easy for me to navigate the system</td>
<td></td>
<td></td>
<td>25.2</td>
</tr>
<tr>
<td>E-school system has reliable power back up</td>
<td></td>
<td></td>
<td>48.1</td>
</tr>
<tr>
<td>E-school computer keyboard and screens are suitable for my use</td>
<td></td>
<td></td>
<td>3.20</td>
</tr>
<tr>
<td>E-school printers are easy to use</td>
<td></td>
<td></td>
<td>39.2</td>
</tr>
</tbody>
</table>

Respondents raised numerous complaints about the infrastructure of the e-school. The most commonly complained about aspects were internet connectivity, size of the computer laboratories, and number of installed computers. The study revealed that internet connection via the Very Small Aperture Terminal (VSAT) had been disconnected in all the e-schools due to non-subscription. Only teachers could access the internet through dial-up connections. Furthermore, the number of computers was inadequate as students had to share during any session. The complaints are listed in Table 4.

Table 4: Frequency of complaints about the e-school infrastructure

<table>
<thead>
<tr>
<th>Infrastructure element</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet connectivity</td>
<td>157</td>
<td>27.4</td>
<td>45.5</td>
</tr>
<tr>
<td>Computer lab size</td>
<td>105</td>
<td>18.4</td>
<td>92.1</td>
</tr>
<tr>
<td>Number of computers</td>
<td>103</td>
<td>18.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Computer hardware speed</td>
<td>95</td>
<td>16.6</td>
<td>73.8</td>
</tr>
<tr>
<td>Power back-up system</td>
<td>35</td>
<td>6.1</td>
<td>51.6</td>
</tr>
<tr>
<td>Printers</td>
<td>33</td>
<td>5.8</td>
<td>99.1</td>
</tr>
</tbody>
</table>
Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Frequency</th>
<th>Agreement</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networking</td>
<td>18</td>
<td>3.1</td>
<td>57.2</td>
</tr>
<tr>
<td>Smart board</td>
<td>14</td>
<td>2.4</td>
<td>54.0</td>
</tr>
<tr>
<td>Projector</td>
<td>7</td>
<td>1.2</td>
<td>93.4</td>
</tr>
<tr>
<td>Air conditioning / fans</td>
<td>2</td>
<td>0.3</td>
<td>99.5</td>
</tr>
<tr>
<td>Computer maintenance</td>
<td>1</td>
<td>0.2</td>
<td>99.7</td>
</tr>
</tbody>
</table>

Computers could be accessed mainly from the computer laboratories and a few teachers’ offices. The only exception was Chavakali High School, which had a few computers installed in three classrooms. In all the other e-schools, teaching using the ICTs could only be conducted in turns in the computer laboratories. This arrangement limited teachers’ integration of ICT in teaching and learning, as attested to by a large majority of the respondents.

4.2 The perceptions of teachers and students on the benefits of e-schools

The e-school’s main objective is to prepare students for their entry into the information and knowledge economy. Helping a learner ultimately meet job market requirements demands that the learner appreciates the learning process, understands the learning content, and inculcates practices that are expected in the work environment. Respondents were therefore asked to indicate the degree to which they identified with these expectations and to estimate the contribution of the e-school to these attainments. The majority (72.5 %) of the respondents admitted to experiencing the benefits of the e-school. The benefit that was experienced by the highest majority (85.7 %) was the ability of the e-school to make learning enjoyable. Respondents’ perceptions of benefits of the e-school are shown in Table 5. The least experienced benefit of the e-school was the facilitation of collaboration between teachers and students in different schools. This is consistent with the difficulties of communicating when internet access is unavailable.

Table 5: Level of agreement on experiencing the benefits of the e-school
Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya

<table>
<thead>
<tr>
<th>Benefits of the e-school</th>
<th>Disagree</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching and learning in the e-school is more enjoyable</td>
<td>14.3</td>
<td>85.7</td>
</tr>
<tr>
<td>Installation of e-schools helps in the efficient use of resources</td>
<td>23.5</td>
<td>76.5</td>
</tr>
<tr>
<td>Resources in e-schools help students perform better</td>
<td>26.4</td>
<td>73.6</td>
</tr>
<tr>
<td>My understanding of a lesson normally improves when I review the topic from e-school content</td>
<td>27.4</td>
<td>72.6</td>
</tr>
<tr>
<td>My parents prefer e-schools over non e-schools</td>
<td>29.3</td>
<td>70.7</td>
</tr>
<tr>
<td>E-school system encouraged me to learn independently</td>
<td>30.8</td>
<td>69.2</td>
</tr>
<tr>
<td>My team working skills have improved since I started using the e-school communication system</td>
<td>32.1</td>
<td>67.9</td>
</tr>
<tr>
<td>E-school system facilitates collaboration between teachers and students in different schools</td>
<td>36.6</td>
<td>63.4</td>
</tr>
</tbody>
</table>

The e-school’s ability to facilitate the efficient use of resources had considerable support (76.5 %). However, the proportion of students (76.2 %) who agreed that the use of the e-school resulted in efficient utilization was lower than that of teachers (81.4 %).

Independent learning did not receive very wide support (67.9 %). Inculcating independent learning requires unrestricted access to the infrastructure and mentoring by a coach or teacher. Teachers could not incorporate ICT in everyday classroom teaching, as attested to by 61.8 % of the respondents. Teachers were also not in the practice of coaching students. A large proportion of the students (57.9 %) confirmed that teachers did not provide exercises through the e-school. It was also reported by 46.7 % of the users that they did not access electronic content for independent learning through the e-school.
4.3 Corroborating evidence of the perceptions of teachers and students on e-school benefits

The performance of schools in Kenya is usually reported by the Kenya National Examination Council (KNEC) as an indicator/index of the mean grade obtained by students. The performance index may also be reported for specific subjects. Since the implementation of the e-schools, performances in languages in some of the e-schools had improved tremendously. Maranda High School recorded the greatest increase in Kiswahili as well as in overall school performance. In the Kenya Certificate of Secondary Education results of 2010, the performance index of Maranda High School increased from 8.88 to 10.55. In the same period, performance in Kiswahili in that school increased to 11.35 from 9.35 in the previous year. Five years after the implementation of the e-school, Maranda High School's ranking in performance at national level in the Kenya Certificate of Secondary Education had improved from position 53 to position 5. Other e-schools had recorded similar improvement in performance, but not as significantly as Maranda. These findings therefore support the preference of 70.1% parents for e-schools over schools that do not practice blended learning.

5 DISCUSSION

Many respondents (56.4%) agreed that the ICT infrastructure in their e-schools was suitable for the integration of ICT in teaching and learning. The basic infrastructure for ICT integration in teaching and learning is almost standard, and includes networked computers, access to electronic databases, multimedia for developing content, and internet access to communicate and download additional learning materials. The infrastructure of the e-schools falls within the prescription of Unwin (2004), who considers the availability of electricity, computers and the internet as being sufficient conditions for blended learning. The results also echo Jamlan’s (2004) findings on the evaluation of faculty opinion towards introducing e-learning in a higher education institution, where the majority of the faculty contended that necessary and robust infrastructure is necessary for e-learning implementation. However, the study revealed that there were a number of technical constraints. Power back-up was inadequate,
computer printers were not easy to use, and computer hardware speed was relatively slow. Lujara (2008) established that technological constraints were slowing the development of e-learning content and delivery for the self learning environment in Tanzanian secondary schools. The recommendations of the study included a strategy for developing a system that can cope with unreliable electricity, low bandwidth, the unavailability of computers, and different pedagogies.

One of the most commonly complained about aspects of the infrastructure was internet connectivity. The study established that internet connection through VSAT had been disabled because of the schools’ inability to renew their subscriptions. A study by Lating (2006) focusing on hybrid e-learning for rural secondary schools in Uganda revealed that even for elite schools, internet costs in Uganda were too high to afford connectivity for one hour in a day. Gunawardana (2005) likewise established that the cost of the internet for heavy users such as schools was too high and uneconomical for the vast majority in Sri Lanka. Gunawardana (2005) recommended that the ICT services industry should be completely opened up to competition in order to make internet access affordable in the region. The benefit that was experienced by the highest majority (85.7 %) was the ability of the e-school to make learning enjoyable. This is supported by the findings of a study by Makridou-Bousiou (2006) on the effectiveness of technology in teaching high school economics in Thessalonika. Makridou-Bousiou (2006) established that most of the students found teaching in the blended learning environment interesting and preferred blended learning to traditional learning. A study that investigated the perception of teachers on cooperative and collaborative learning between schools in Ireland also supports this finding. Austin, Smyth, Rickard, Quirk-Bolt and Metcalfe (2010) found that teachers perceive collaborative work between partners as building a friendship; as the ties grow, it becomes possible to develop new knowledge in a complex collaboration. The frequency of communication between collaborators increases with time and as the purpose of the collaboration is made more explicit. Sustenance of complex collaboration is fostered by early development of group identity, such as assigning names to groups in a school.
These findings suggest that people or groups of people collaborate better and enjoy working with other people or groups whose identity and purpose is clear. It would therefore matter if groups were exposed to face-to-face encounters either physically or through video conferencing. Such encounters make the collaborations more interesting and may improve the outcomes of the collaborations.

Since the implementation of the e-schools, performances in languages in some of the e-schools had improved tremendously. The greatest increase was reported by Maranda High School in Kiswahili and overall school performance. The performance index of Maranda High School increased from 8.88 to 10.55 in 2010 (according to the Kenya Certificate of Secondary Education). The results of a meta-analysis of 1000 studies of online learning support this finding. Means, Toyama, Murphy, Bakia and Karla (2009) concluded that on average, students in online learning conditions performed better than those receiving traditional instruction. An experiment involving pre-service teachers in Egypt also supports this trend. Twenty six teachers were subject to a blended learning environment and assessed against a control group. Pre-activity and post-activity tests were administered to both the experimental and control groups. Pre-activity tests revealed that the two groups were not statistically different, while post-activity tests revealed that the experimental group had statistically higher achievements (El-Deghaidy and Nouby, 2007).

Clearly, benefits that relate to students’ performance are beginning to show in blended learning. Findings in earlier studies that contradicted this view could be explained away by less innovation in curricula and the insufficient training of teachers in inquiry-based learning pedagogies that give students greater control in the learning process.

6 CONCLUSION
The study established that e-schools are making learning and teaching more enjoyable, and this enjoyment of learning is translating into improved students’ performance. This finding corroborates findings of other recent studies on e-schools. However, the findings contradict studies that were done before blended learning had time to
mature. It is believed that as curricula innovation improves over time, more benefits will begin to show.

Further investigation is required involving longitudinal experiments with schools to establish concurrence on the view that blended learning improves students’ performance. Such studies should strive to control for the possibility that schools’ performance could be improving as a result of attracting better students.

REFERENCES


Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya


Jamlan, M. (2004). Faculty opinion towards introducing e-learning at the University of Bahrain. *International Review of Research in Open and Distance Learning, 5*(2).


Realization of the net benefits of the electronic school: Evidence from the NEPAD e-school pilot programme in Kenya


Becoming an information and knowledge society: Rwanda and the Village Phone project

Becoming an information and knowledge society: Rwanda and the Village Phone project

Olive Mukamusoni

University of Pretoria, South Africa

olivem2001@yahoo.fr

Marlene Holmner

University of Pretoria, South Africa

marlene.holmner@up.ac.za

September, 2011

Abstract

Attaining the status of an information and knowledge society is a vision and dream of many countries around the world. Countries wish to achieve this status to prevent their marginalization by the rest of the world and to benefit from the many advantages it offers, such as improved communication, better education, and poverty alleviation, to name a few. However, numerous barriers have prevented many countries and communities around the world from transforming into such societies, encapsulated in the digital divide (Holmner, 2008). Authors such as Martin (1995), Webster (2002), Britz et al. (2006), and Holmner (2008), have identified criteria that a society needs to comply with in order to be viewed as an information and knowledge society. These criteria include economic and social indicators, ICT infrastructure, physical infrastructure, and human intellectual capacity. Based on these criteria, it is clear that Rwanda is not yet an information and knowledge society.

7 Olive Mukamusoni is a Doctoral Student in the Department of Information Science, University of Pretoria, South Africa
Becoming an information and knowledge society: Rwanda and the Village Phone project

This paper presents facts on how mobile phone technology, such as the Village Phone (VP), can help Rwanda become an information and knowledge society. Qualitative research methods were applied in the form of a literature review and semi-structured interviews with Village Phone users in five Rwandan districts. Convenient sampling was used as a non-probability sampling method and content analysis was performed to analyse data. The results of the study showed that the VP is currently helping Rwanda comply with some of the indicators of the economic and ICT infrastructure criteria, and slightly less so with the social indicators. However, VP is not helping Rwanda address the criteria of physical infrastructure and human intellectual capacity at all. The results suggest that if VPs were used in a different manner, they would fulfil more of the required criteria and help Rwanda on its way to achieving information and knowledge society status.

Keywords: Information and knowledge society, Village Phone, mobile phone, information and communication technology (ICT), ICT for development

Introduction

Benefiting from the many advantages gained by attaining the status of an information and knowledge society is a vision and dream of many communities and countries around the world (Holmner, 2008). Van Dijk (2005) and Dordick and Wang (1993) feel that information has become one of the most important commodities in contemporary society, and has been seen as an independent source of productivity and power. Lor and Britz (2007) elaborate further that the information society is currently being transformed not only by information and knowledge, but also by the evolution and use of information and communication technologies (ICTs). Authors such as Martin (1995), Webster (1995), Lor and Britz (2007), and Britz et al. (2006), have identified various criteria or pillars that a society needs to comply with in order to be labelled an information and knowledge society. These criteria include economic, social and ICT criteria, physical delivery infrastructure, human intellectual capacity, and useable content, to name a few. Some countries around the world, such as Norway and the
Becoming an information and knowledge society: Rwanda and the Village Phone project

USA, comply with all these criteria and are now fully fledged information and knowledge societies. These countries consider information and knowledge to be essential tools for their development.

Unfortunately, many countries in the developing world, such as Rwanda, are far from achieving the status of an information and knowledge society (Holmner, 2008). These countries are still in the process of development and are now struggling to become part of this relatively new society. Authors such as Van Dijk (2005), and Holmner (2008) have noted that the digital divide is the main barrier to developing countries and communities’ participation in the global information and knowledge society. By narrowing the digital divide, many countries would benefit from the use of ICT in the daily lives of their citizenry. Although Rwanda is determined to take full advantage of ICT, the country still has a long way to go in order to improve its ICT diffusion and infrastructure. Statistics for 2011 showed the mobile phone penetration rate in Rwanda to be only 36 % (RURA, 2011a), which is higher than the fixed telephone line penetration rate of 0.38 % (RURA, 2011b). Statistics for 2010 placed the internet penetration rate at only 2 % (RURA, 2010). Richardson et al. (2000) and Hamilton (2003) feel that mobile phones in the developing world are being used as substitutes for fixed telephone lines. This means that mobile phones are an ICT that can be used in the developing world to improve the communication aspect of the digital divide.

MTN Rwanda has introduced the ‘Tel’imbere’ Village Phone programme, a programme that specifically targets the more rural areas where there is no MTN network and where electricity is not available (MTN Rwanda, 2006). The aim of this mobile phone programme is to narrow the digital divide across Rwanda and simultaneously ameliorate the standard of living of its population. This paper will focus on the role of ICT in development and how mobile phone technology can help Rwanda on its path to achieving information and knowledge society status.

Methodology
This study followed a qualitative approach. Authors such as Babbie and Mouton (2001), Flick et al. (2004), De Vos et al. (2005), Denzin and Lincoln (2008), Creswell (2009) and Flick (2009), explain that qualitative research aims to describe life from the point of view of its participants. It seeks to understand social realities by studying the participants' knowledge and practice. This study used two different methods of data collection, namely the literature review and semi-structured interviews. According to authors such as Mouton (2001) and Jesson et al. (2011), the aim of the literature review is to find out what other researchers have done in the field of research or on a topic of interest. A review of literature was necessary in this instance to ascertain the definition of ‘information and knowledge society’, its criteria, and how those criteria could be applied to Rwanda to assess Rwanda’s information and knowledge society status. The literature review was also necessary to learn how ICT could be used for development purposes and how mobile phone technology can help to narrow the digital divide and contribute to the fulfilment of the criteria of an information and knowledge society. The analysis of documents such as books, journal articles, government and institutional reports, and online content, helped define the key concepts and interpret the data collected from the semi-structured interviews.

The semi-structured interview was the method used to collect information from Village Phone (VP) clients. De Vos et al. (2005) define semi-structured interviews as interviews in which a researcher gains a detailed snapshot of a respondents’ beliefs about a particular topic or perceptions about that particular topic. The semi-structured interviews were conducted in Kinyarwanda (Rwanda’s mother tongue) with VP users in five Rwandan districts, namely Bugesera (Eastern Province), Nyabihu (Western Province), Gakenke (Northern Province), Ruhango (Southern Province) and Gasabo (City of Kigali). Convenient sampling was used as a non-probability sampling method. According to Struwig and Stead (2001), the convenient sampling method refers to the selection of cases that can be easily obtained. This study’s sample was chosen from VP users in all five of the above mentioned districts. The final sample consisted of 58 VP users.
Qualitative content analysis was used to analyse the semi-structured interviews. Zhang and Wildemuth (2009) explain that qualitative content analysis is a process designed to condense raw data into categories or themes based on valid inference and interpretation. The semi-structured interviews were transcribed and translated into English in order to analyse the responses and make them broadly understandable, and the raw data was then condensed into categories and themes and analysed and interpreted. These themes helped the researcher group data under similar headings. The themes were chosen based on the criteria of an information and knowledge society. The researcher was subsequently able to describe the different issues stemming from the data under each theme.

**Information and knowledge society**

According to Ricci (2000), the concept of an information society has no universally accepted definition. In older literature, authors such as Bell (1974), Martin (1988), Minc cited in Dordick and Wang (1993), Feather (1994), Webster (1995) and Martin (1995) defined an information society as a society that is led by information. Bell (1974) defined an information society as a society that is service-oriented and that would be led by information. Martin (1988) added that in an information society, the quality of life as well as the prospects for social change and economic development would depend increasingly on information and its exploitation. A very operational definition of the information society was given by the Finland’s Council of State in 1995, which defined it as a society that makes extensive use of information networks and IT, produces large quantities of information and communication products and services, and has a diversified content industry (McColgan cited by Nassimbeni, 1998).

In contemporary literature, the concept of the information society is defined by many authors, including Webster (2001), WSIS (2003), Van Dijk (2005) and Lor and Britz (2007). Van Dijk (2005) defines the information society as the interpretation of data and other signals by humans and animals with some kind of consciousness. Other authors such as Lor and Britz (2007) and Webster (2001) introduce the new element of
Becoming an information and knowledge society: Rwanda and the Village Phone project

‘knowledge’ in this definition. They argue that knowledge is not simply the result of collecting and processing information - it also requires judgment. Thus, the newer concept of ‘knowledge society’ has become a fashionable concept that is increasingly replacing the so-called ‘information society’ (WSIS, 2003). However, while Lor and Britz (2007) argue that the concepts of ‘information society’ and ‘knowledge society’ are used interchangeably, they consider the latter concept to be qualitatively richer.

Accordingly, Lor and Britz (2007) and Britz et al. (2006) the knowledge society is:

A society that operates within the paradigm of the economics of information. It values human capital as the prime input to production and innovation. A knowledge society is well connected via modern ICTs to the dematerialized economy, and has access to relevant and usable information. A highly sophisticated physical infrastructure underpins this economic model and allows the delivery of the material objects that are accessed and manipulated in the dematerialized world of modern ICTs.

We agree with Holmner (2008) who argues that this definition is more operational because it includes a new element, namely physical infrastructure, which is lacking in other definitions. As already mentioned, Britz et al. (2006) and Lor and Britz (2007) refer to four pillars, namely ICT infrastructure, usable content, physical infrastructure and human intellectual capacity, as the main criteria of an information and knowledge society. On the other hand, Webster (2002) and Martin (1995) refer to economic, social, technological, occupational, spatial, cultural and political factors as the criteria of an information and knowledge society. In this study, the author will concentrate on the following criteria: economic criterion, ICT infrastructure, physical infrastructure, social criterion, and human intellectual capacity, as deduced from Lor and Britz’s (2007) four pillars, and the criteria of an information and knowledge society as cited above.

Criteria of an information and knowledge society and Rwanda’s inclusion in this society
Becoming an information and knowledge society: Rwanda and the Village Phone project

In order to determine whether a country or a community is an information and knowledge society, its compliance with the criteria of an information and knowledge society must be measured by using measurable indicators of each criterion.

Economic criterion

For authors such as Webster (1995), Britz et al, (2006), and Holmner (2008), economic stability is of the utmost importance in an information society. Holmner (2008) lists the first economic indicator as work opportunities, which can be measured by the unemployment rate. The second indicator of the economic criterion is the standard of living experienced in the country. This can be measured by looking at income inequality (measured by looking at the Gini Index), the poverty rate, and the real income per economic model and allows the delivery of the material objects that are accessed and manipulated in the dematerialized world of modern ICTs.

The researcher agrees with Holmner (2008) who argues that this definition is more operational because it includes a new element, namely physical infrastructure, which is lacking in other definitions. As already mentioned, Britz et al. (2006) and Lor and Britz (2007) refer to four pillars, namely ICT infrastructure, usable content, physical infrastructure and human intellectual capacity, as the main criteria of an information and knowledge society. On the other hand, Webster (2002) and Martin (1995) refer to economic, social, technological, occupational, spatial, cultural and political factors as the criteria of an information and knowledge society. In this study, the author will concentrate on the following criteria: economic criterion, ICT infrastructure, physical infrastructure, social criterion, and human intellectual capacity, as deduced from Lor and Britz's (2007) four pillars, and the criteria of an information and knowledge society as cited above.
Criteria of an information and knowledge society and Rwanda’s inclusion in this society

In order to determine whether a country or a community is an information and knowledge society, its compliance with the criteria of an information and knowledge society must be measured by using measurable indicators of each criterion.

Economic criterion

For authors such as Webster (1995), Britz et al, (2006), and Holmner (2008), economic stability is of the utmost importance in an information society. Holmner (2008) lists the first economic indicator as work opportunities, which can be measured by the unemployment rate. The second indicator of the economic criterion is the standard of living experienced in the country. This can be measured by looking at income inequality (measured by looking at the Gini Index), the poverty rate, and the real income per person. The third indicator of a strong economy is revealed in the Gross Domestic Product (GDP) and the inflation rate of that particular country (Holmner, 2008).

According to the National Institute of Statistics of Rwanda for 2008 (NISR, 2008), Rwanda’s national unemployment rate was very low at 1.5 % However, this unemployment rate is not the same in urban and rural areas. In urban areas such as Kigali, the unemployment rate was much higher at 8.9 %, while in other urban areas of Rwanda, the unemployment rate decreased to 3.9 %. In rural areas, the unemployment rate was much lower - only 0.6 % of the population was unemployed (NISR, 2008). The explanation may lie in the fact that most people in rural areas (about 86.5 %) are self-employed in agriculture, forestry and fishing, and only 10 % are employed in the industrial and service sectors. With respect to the standard of living, Rwanda is one of many developing countries in the world with high income inequality. According to the Gini Index of Rwanda for 2010, the country’s income inequality came to 50.8 . This is high when compared to Norway’s Gini Index of 25 (CIA World Factbook, 2010). This means that Rwanda experiences severe inequality in the distribution of income.
As for the poverty rate, the Human Development Indicator (UNDP, 2006) for 2006 revealed that 51.7% of the population in Rwanda lived on less than US$ 1 a day, while 83.7% people lived below US$ 2 per day. The National Institute of Statistics of Rwanda (NISR, 2008) reported that in 2006, 57% of the population in Rwanda was living below the poverty line (US$ 1.15 per day). This is in stark contrast to Norway, where only 6.4% (State of Working America, 2005) live below the poverty line. According to the US Department of State report (US Department of State, 2009) for 2009, the minimum wage for a worker in the construction industry was in the range of RWF 1000 to RWF 1500 per day (approximately US$ 1.80 to US$ 2.70 per day and US$ 54 to US$ 81 per month). These wages are very low if one considers that a Norwegian working in the private sector can earn US$ 203 per day, which is 2 to 3 times more than what a Rwandan working in the same sector earns per month (Statistics Norway, 2009). The GDP per capita based on the purchasing power parity (PPP) of Rwanda was estimated at US$ 1000 in 2010 (Index Mundi, 2010). This GDP is very low compared to the GDP per-capita of developed countries and information and knowledge societies such as Norway, which has a GDP per-capita of US$ 59,500 (almost 60 times the GDP per capita of Rwanda). The inflation rate of Rwanda in (Notes: which year?) was also very high at 9.5% (CIA World Factbook, 2009a).

Rwanda’s economy is therefore characterized by a low unemployment rate, high income inequality and poverty rate, as well as low income per person, low GDP and high inflation rate. Consequently, Rwanda does not comply with the economic criterion of an information and knowledge society.

**ICT infrastructure**

ICT infrastructure indicators can be measured by looking at the personal computer utilization per 100 inhabitants; internet subscribers and users per 100 inhabitants; and
telecommunication penetration per 100 inhabitants (ITU, 2009). According to the Link Centre (2005), the levels of access and penetration to ICT services in Rwanda are one of the lowest in the world. The NISR (2008) reports that in 2008, Rwanda’s public service and private service enjoyed relatively high access and use of PCs at 59 % and 50 % respectively, compared to household access at only 0.3 % (Gillwald and Stork, 2008). The disparity can also be seen across the urban and rural divide where 0.8 % of the population in urban areas could access a PC versus 0.01 % in rural areas (NISR, 2008). The internet penetration rate was low at 2 % in (RURA, 2010). Fixed telephone line penetration was also low at 0.38 % (RURA, 2011a). However, mobile phone penetration was the highest at 36 % at the end of May in 2011 (RURA, 2011b), but still low when compared to Norway where 110.16 % of the population had access to a mobile phone in 2008 (ITU, 2008).

Rwanda is therefore characterized by a low number of people who have access to PCs, a low level of access to telecommunication services, and a low number of internet subscribers and users, and therefore does not comply with the ICT infrastructure criterion of an information and knowledge society.

**Physical infrastructure**

This criterion can be measured by looking at the following indicators: accessible roads, number of airports, railway service, and number of warehouses. According to NationMaster (2009a), in 2009, Rwanda only had 2 motor vehicles per 100 people, which is an insignificant number compared to Norway with 494 motor vehicles per 100 people (Nation Master, 2009a). The total length of roadways in Rwanda is 14,008 km; only 2,662 km of these roads are paved (CIA World Factbook, 2011). According to the CIA World Factbook (2011), Rwanda only had 9 airports in 2010, and only 4 of these had paved runways. In contrast Norway has 98 airports (CIA World Factbook, 2010). Rwanda is also among seventeen African countries which do not have a railway system at all (UNECA, 2007). Concerning storage facilities, Rwanda only has two warehouses,
Becoming an information and knowledge society: Rwanda and the Village Phone project

namely MAGERWA (UN, 2006) and DSV Transami (Ngarambe, 2008). These warehouses are not well suited to the requirements of perishable horticultural exports such as fruits, vegetables and flowers (Friend and Frohmader, 2000; Ngarambe, 2008) and too small in terms of space. Rwanda’s physical infrastructure is therefore characterized by a low number of motor vehicles, low amount of accessible roads, low number of airports, low number of warehouses, and no railway service. Therefore, Rwanda does not comply with the physical infrastructure criterion of an information and knowledge society.

Social criterion

The social criterion of the information and knowledge society is measured by several good health indicators, including mortality rate and life expectancy, number of practicing physicians, and health expenditure as a share of GDP. It is also measured according to modern public services such as e-government initiatives and e-health. According to the CIA World Factbook (2011), statistics for 2011 placed the general death rate in Rwanda at an estimated 9.88 deaths per 1000 of the population. However, the infant mortality rate is higher if it is compared to the general death rate cited above. Statistics for 2011 estimated 64.04 deaths per 1000 registered (live) births. Among them, 67.64 deaths were male and 60.32 deaths per 1000 were female. Rwanda is among the top 25 countries in the world with a high infant mortality rate (CIA World Factbook, 2011). Rwanda also has a very low life expectancy rate - it is ranked 193rd out of 222 countries (CIA World Factbook, 2011). A newborn baby can expect to live until the age of approximately 58.02. The high mortality rate and low life expectancy in Rwanda can be explained by the low number of practicing physicians in the country. In 2009, Rwanda only had one practicing physician (WHO, 2009).

The World Health Organisation reports that the total expenditure on health in Rwanda in 2008 was estimated at 9.4 % of the GDP (WHO, 2011). This figure has more than doubled since 2000 when the health expenditure in Rwanda was 4.2 % of the GDP.
Rwanda is spending more on health than Norway (8.5% of its GDP), which has a very well-developed health service. It would therefore appear that Rwanda is trying its best to improve its health services. With respect to e-government, Rwanda scored 26.3 on the e-government index in 2008. E-government is a modern public service indicator and falls under the social criterion. This score was the result of points that Rwanda obtained in different e-government profiles for selected features such as online services, publications, databases, and privacy policy, to name a few (West, 2008). Compared to the score of Norway, which registered 34.4 on the e-government index, there is not that much of a difference, which suggests that Rwanda is trying to improve its e-government services.

Frasier et al. (2008) indicate that the government of Rwanda has made an effort to promote e-health. Evidence of this is in the many e-health initiatives available in Rwanda, namely TRACnet, Telemedecine, and the Health Management System, to name a few. Frasier et al. (2008) observed that e-health initiatives in Rwanda were inhibited by low internet connectivity (only 2%). From this discussion, the researcher can infer that Rwanda is characterised by a high mortality and low life expectancy rate, low number of practicing physicians, high health expenditure as a share of the GDP, low scores on e-government initiatives and an insufficient number of e-health initiatives, although the government does appear to be working to improve the situation. The researcher is therefore of the opinion that although Rwanda has a long way to go, her government is on the right track to fulfil compliance with the social criterion. Rwanda therefore complies with the social criterion of the information and knowledge society in some aspects but not in others.

**Human intellectual capacity**

Three indicators have been used to measure this criterion, namely years of compulsory education, the literacy rate, and e-learning initiatives. According to the Ministry of Education in Rwanda (MINEDUC, 2009) and Goodsir et al. (2009), since 2008, Rwanda has shifted from 6 to 9 years of compulsory education. This places Rwanda above the
world average of 8.8 years of compulsory education (NationMaster, 2009b). In 2007, the literacy rate of the male youth (15 - 24 years old) in Rwanda was estimated at 79 %, and female youth at 77 % (UNICEF, 2009). However, the percentage of people of 15 years old and over who could read and write was less than that of the youth at 70.4 % (CIA World Factbook, 2009b). Rwanda’s adult literacy rate is therefore below the world average, which was 82 % in 2009 (Notes: in – state year of statistic) (CIA World Factbook, 2009c). As for e-learning initiatives, Rwanda has an e-learning centre at the Kigali Institute of Education. This centre will be connected to well known universities and institutions in India (KIE, 2009).

The Centre for Instructional Technology (CIT) is another e-learning centre that operates under the e-Learning Unit of the National University of Rwanda (NUR, 2011). The main aim of the NUR e-Learning Unit is to bridge the existing gap between the advanced, technology enhanced teaching and learning methods in Europe and the traditional teaching methods in Rwanda (NUR, 2011). According to Wittrock (2009), the government of Rwanda believes that e-learning can succeed through a partnership between key stakeholders, specifically content providers, academia, and telecommunications operators or internet service providers. Based on the discussion above, the author can deduce that the human intellectual capacity criterion in Rwanda is receiving attention. Rwanda has an acceptable literacy rate and has tried to introduce a few e-learning initiatives. Moreover, Rwanda is on the right track because it has increased the years of compulsory education. Thus Rwanda does appear to partly comply with the human intellectual capacity criterion.
Becoming an information and knowledge society: Rwanda and the Village Phone project

ICT for development: Mobile phone technology

From the mid 90s, the information and knowledge society has been transformed by the evolution and use of information and communication technology (McColgan cited in Nassimbeni, 1998). According to Batchelor et al. (2003), ICTs are seen as a tool for development and poverty reduction. Heeks (2002) explains that ‘Information and Communication Technologies for Development’ (ICT4D) is a term used to refer to the application of information and communication technologies (ICTs) within the field of socio-economic development. In the economic sector, Viitanen (2003) notes that ICTs are playing a considerable role in poverty reduction, particularly in developing countries, by increasing access to market information or lowering the transaction costs of poor farmers and traders. Kenny (2000) likewise believes that one of the causes of low income in poor countries is ‘information poverty’. According to Jagun (2007), the mobile phone is a good example of an ICT that is being used for development. Bhavnani et al. (2008) go further to state that mobile phone telecommunication is a substantial driver of economic growth. According to Heeks and Jagun (2007), the mobile phone can help businessmen and women increase their productivity by:

- Increasing awareness of opportunities for trade
- Shortening the time taken to fulfill orders
- Reducing communication costs with respect to the time spent traveling, transportation costs, etc.
- Reducing travel-related risks

Hulme and Traxler (2005) also point out that the mobile phone can be used in education. This is an example of mobile learning. They define mobile learning as the ability of learners to engage in educational activities without the constraints of doing it in a delimited physical location. Hulme and Traxler (2005) have also listed different attributes of mobile learning which have much in common with e-learning where desktop computers are used. These authors describe mobile learning as spontaneous, portable, ubiquitous, personal, informal, contextual and pervasive, and are of the
Becoming an information and knowledge society: Rwanda and the Village Phone project

opinion that mobile learning is rapidly becoming credible and cost-effective enough for people to use it in their learning and teaching activities.

Saran (2009) is of the opinion that mobile technology also has the ability to transform healthcare in developing countries, particularly in the area of health awareness and in the training of healthcare professionals. The same author provides the example of how SMS text alerts are used to notify patients about their prescriptions, provide education tips to improve health awareness, and facilitate data collection and the training of healthcare workers.

Grameen Village Phone

Grameen Village Phone program in Bangladesh is one of several mobile success stories (ITU, 2006; Melkote and Steeves, 2001). This program was established by Professor Yunus, the 2006 Nobel Peace Prize winner in the category and the founder and director of Grameen Bank. Grameen Village Phone is a good example of how microfinance and technology can be used together to combat poverty. The Village Phone is an undertaking that provides modern digital wireless telecommunication services to some of the poorest people in the world (Bayes, 2001). This project started in 1999 in Bangladesh with the initiative of Grameen Bank in association with Grameen Phone. Grameen Village Phone works as an owner-operated GSM payphone - a villager takes a loan of an equivalent of US$ 200- US$ 250 from Grameen Bank to subscribe to Grameen Phone (GP), the main mobile operator in Bangladesh. Keogh and Wood (2005) explain that the money borrowed from Grameen Bank is used to buy a starter kit that includes a mobile phone, prepaid airtime card, external Yagi antenna, charging solution, signage, marketing collateral, and other components that are necessary to get started.

Grameen Village Phone has had a huge impact on different aspects of life in Bangladesh. According to Sullivan (2007, p. 150), in 2007, the number of Village Phone
Operators (VPOs) was estimated at 250,000, spread across 68,000 villages in Bangladesh and providing phone access to more than 100 million people. Keogh and Wood (2005) opine that the Village Phone program has had a tremendous economic impact on the rural people in Bangladesh as well:

- The VPOs have an average income of nearly three times the national average (US$ 415). According to Sullivan (2007), a VPO can earn between US$ 750 and US$ 1,200 per year. On average, this income is also 24% of the household income and sometimes can reach up to 40% of the household income (Keogh and Wood, 2005).

- The farmers and fishermen who use the Village Phone are able to call the city markets to find out the actual prices of their products and are paid higher prices for their goods because they no longer rely solely on middlemen. The amount earned by farmers and the fishermen increased in 2007 by 10 to 20 percent (Sullivan, 2007).

- For the cost of a phone call, a family is able to save the expense of sending a productive member to deliver or retrieve information by travelling great distances in person. For example, the cost of a trip to the capital, Dhaka, ranges from two to eight times the cost of a single phone call.

- Grameen Phone is one of the largest private sector investors and also one of the largest taxpayers in Bangladesh. In 2004, its contribution to the GDP was an estimated 0.4 percent (ITU, 2006).

- In 2006, Grameen Phone had also created more than 100,000 new jobs, including those of dealers, contractors, agents, suppliers and VPOs (ITU, 2006).

- In the 7 years after the Grameen Village Phone launch, over 98% of the VPOs in Bangladesh repaid their loans in full (Grameen Foundation USA, 2005).

- According to the International Telecommunication Union reports, Grameen Village Phone had increased the mobile penetration rate from 0.3 percent in 1997 (ITU, 2006) to 27.67 percent in 2008 (ITU, 2008).
Becoming an information and knowledge society: Rwanda and the Village Phone project

The Grameen Village Phone has also yielded other social benefits in rural communities. The phones have been used in emergency situations to access medical assistance during natural disasters (Keogh and Wood, 2005). According to Mohammed Yunus (cited in Sullivan, 2007), the Grameen Village Phone has also led to a dramatic change in women’s status and empowerment. VOPs are among the top earners in their villages (Sullivan, 2007), meaning that their status in their communities is enhanced, and because 99% are women, they have become new positive societal role models for other women and young girls. This was not the case before due to cultural influences in the region, when economic matters were principally the domain of men.

Village Phone Rwanda (“Tel’imbere”)

According to the Grameen Foundation (2009), the Village Phone program was initiated in April 2005 in Rwanda with 50 micro-entrepreneurs in 14 of the 30 districts of Rwanda. The program was officially launched in June 2006 in Bugesera, a district in the Eastern Province. At present, the Village Phone program is operating throughout the country. This project is known as “Tel’imbere” in Kinyarwanda, the main language spoken in Rwanda, which means “telephone forwards”, and was a joint venture between the Grameen Foundation and MTN Rwanda in partnership with three indigenous microfinance institutions - Vision Finance, Urwego and Care (Stanley, 2005). Later, other local microfinance institutions such as Inkingi, Duterimbere and UCT partnered with the Village Phone initiators (Grameen Foundation, 2009). These microfinance institutions have continuously partnered with VP Rwanda to provide financing to their clients (Village Phone Operators) for the purchase of a Village Phone starter kit.

According to Rutagengwa (2010), the Operations Manager for Village Phone Tel’imbere, the number of VPOs in Rwanda by the end of February 2010 was estimated at 6,253 people. This increased number of VPOs in Rwanda has contributed to the rise of local telephony access rates from approximately 50% to over 90%, as confirmed by
Becoming an information and knowledge society: Rwanda and the Village Phone project

Futch and McIntosh (2009). According to Futch and McIntosh (2009), the VPOs in Rwanda receive a loan of US$ 261 payable over a period of only 6 months. This means that they have to pay US$ 43.50 per month. Because the average profit of VPOs in Rwanda per month is only US$ 30.50, VPOs are not able to repay the loan through VP revenue only (Futch and McIntosh, 2009). Thus they have to make the rest of their monthly repayment through other sources of income. At community level, the Village Phone is facilitating the transmission of news between villages, the arrangement of transportation (e.g. for moving harvests to markets), and communication between the population and the police for any security reason (Futch and McIntosh, 2009).

Results and discussion

The empirical study was done in answer to how the Village Phone is contributing to the fulfilment of the criteria of an information and knowledge society in Rwanda. Overall, the VP was used by the respondents in two different ways: 9 respondents (16 %) used it for mobile phone airtime top-ups, and 49 respondents (84 %) used it for communication purposes. Some of the 49 respondents used VPs for social communication (90 %), business communication (53 %), and educational communication (4 %). Questions relating to how the VP contributed to the economic criterion only addressed the 25 respondents (53 %) who used VPs for business communication purposes. The researcher found that 16 of the 25 respondents (64 %) used the VP to communicate with their suppliers when they needed them to deliver goods and/or called them in order to obtain prices and new product information. This enabled them to make informed decisions before buying and selling or reselling their products. 40 % used VPs to communicate with clients and 36 % used them to communicate with their business partners. In this category, many respondents chose more than one option. All 25 of the respondents (100 %) who used the VP for business affirmed that it was good to use the VP in business. The reason they provided was that the VP is a cheap and affordable communication method that helped them gain more profits and therefore helped their businesses grow. Thus the profits the respondents made from their improved businesses had made a contribution to the alleviation of poverty in Rwanda in general and in the respondents’ households in particular.
The data also showed that VPs helped the respondents save in two different ways, namely by saving time (40 %) and saving money (86 %). However, some respondents (10 %) said that the VP did not help them save at all. The data analysis revealed that the former group (those who saved time and money) saved on travel costs (60 %) and on communication expenses (57 %). 60 % of the respondents told the researcher that instead of travelling long distances to see people they were looking for, they went to commercial centers to use VPs and sort out all their problems telephonically. Other respondents (57 %) stated that VPs helped them save on communication expenses because making a call using the VP was much cheaper than using a private mobile phone. The current unit of the VP is RWF 10 per minute (US$ 0.01); with a private mobile phone, they would pay approximately RWF 1.50 per second (RWF 90 per minutes - US$ 0.15) [MTN Rwanda, 2011].

The data suggests that VPs improved the businesses of most respondents in the identified districts. By using the VP, respondents were able to communicate easily with their clients, suppliers and business partners. The VP also helped 57 % of the respondents save on communication expenses and 60 % of the respondents to save on travel expenses. The Village Phone therefore appears to be partly contributing to the fulfilment of the economic criterion of an information and knowledge society in Rwanda. However, the analyzed data showed that a large number of the respondents (54 out of 58 or 93 %) did not use computers or the internet at all when they visited VPs at the commercial centers. This was for different reasons: lack of skills (78 %); unaffordable prices (22 %); computers/ the internet not available at the centers (18 %); and they used computers/ internet in cybercafés (13 %). Only (7 %) used computers and the internet at the commercial centers when they went to use VPs. The VP can be connected to the computer as a modem. They said that using the VP as a modem was much cheaper than other modems.
Becoming an information and knowledge society: Rwanda and the Village Phone project

Fifty Seven of the 58 respondents (98%) confirmed that the VP had increased the number of people with access to the telephone. They said that the VP helps people who do not have any other access to a telephone. They added that because the VP is an affordable telephone, it encourages many people to use it, especially people who do not have a lot of money. These respondents indicated that VPs had also inspired many people to buy their own private mobile phones because they could get affordable airtime via the VP. They indicated that with the VP, people could get airtime from RWF 100 (US$ 0.16), whereas the cheapest normal airtime card cost RWF 500 (US$ 0.83).

Thus although the VP did not increase the number of the respondents with access to computer and/or internet facilities, the statistics did indicate that the VP increased the number of respondents with access to telecommunication facilities. Therefore, the VP is partly contributing to the improvement of the infrastructure component of an information and knowledge society. The VP does not have a direct influence on the physical infrastructure criterion. Thus only the current state and condition of the roads around the VP centers will be discussed here as this could influence the use of VPs at the centers. The data indicates that the majority of the respondents (84%) walked to get to the commercial centers to use VPs, and they walked 19 minutes on average. 14% used bicycles and only 2% used mini-buses. A large number of the respondents (93%) confirmed that there were no taxis or buses available around the commercial centers that they could use to get to the nearest VP because most of the roads surrounding the VP centers were not paved and therefore not suitable for taxis/buses. This confirmed other findings in literature on the country’s road infrastructure - Rwanda has a very low number of motor vehicles (2 motor vehicles per 100 people) and a very limited road system. The VP is therefore evidently not contributing to the physical infrastructure criterion of the information and knowledge society in Rwanda.

With respect to whether the VP contributed to the social criterion in Rwanda, the researcher only targeted the 49 respondents who used the VP for communication
purposes. The data indicates that there was limited use of the VP for health purposes. Only 14% of the 49 respondents used VPs to contact a nurse or a health councillor, and only 4% of the 49 respondents used it to call a doctor. The respondents said that they did not use VPs to contact doctors because there were often no doctors at their health centers. The lack of doctors in different health centers situated in the identified districts correlates with previous discussions concerning the low number of practicing physicians in Rwanda. The analyzed data also shows that the majority of the respondents (36 out of 49 or 73%) did not contact local leaders in order to gain access to governmental public services. Only 13 respondents (27%) managed to contact their village leaders at least once. The reasons they called were; to check for his/her availability at the office or home; report an incident that had happened in the village; solve repayment problems between villagers; ask for building permits; ask for information regarding new ID documents; requesting administration documents; and requesting information about the voting list of the presidential election that took place in August 2010. This data suggests that the VP is only helping respondents access government public information in a very basic way. At present, the VP is therefore not really contributing to the social criterion of an information and knowledge society. How did the VP help Rwanda comply with the human intellectual capacity criterion? Different questions were asked in attempting to find out if there were any educational programs on offer at the commercial centers that facilitated VPs. Unfortunately there were no such programs. Therefore, the Village Phone is currently not addressing the human intellectual capacity issue in Rwanda. The only educational role the VP played was administrative - parents used the VP to contact schools, but even then it was not used a lot. The administrative use of VPs would not result in increasing people’s human intellectual capacity. The researcher is of the view that the VP is unfortunately not making any impact on the human intellectual capacity criterion in Rwanda.

Conclusion
Becoming an information and knowledge society: Rwanda and the Village Phone project

Rwanda still has a long way to go before it complies with the criteria of an information and knowledge society. The VP is currently helping Rwanda comply with some of the indicators of the economic and ICT infrastructure criteria, and slightly less so with the social criterion. However, the Village Phone is not helping Rwanda meet the criteria of physical infrastructure and human intellectual capacity at all. The researcher believes that if VPs were used differently, they could conceivably help Rwanda on its way to achieving information and knowledge society status. For example, to help Rwanda comply with the economic criterion, the VP can be used in the mobile money service of MTN, where VPOs would act as authorized MTN mobile money agents. This service would reduce costly journeys and help simple villagers who do not have a bank account send and receive money in the fastest, safest and easiest way. MTN should also cut down the purchasing price of the VP starter kit to allow more people to sell VP services at a lower price or ensure that they extend their repayment times. The microfinance institutions that provide loans to VPOs could ease the conditions by increasing the number of VPs in the villages; this would facilitate easy access to the VP for villagers.

In the case of the ICT infrastructure criterion, the Village Phones could be used as modems to connect computers to the internet. This would help more villagers in Rwanda access the internet at a lower price. MTN should distribute more VPs to villages to allow villagers to shorten the distances they normally use to get to the nearest VP. ICT centers that provide access to computers and the internet can be built at the same commercial centers in which VPs are housed. Thus more people would be able to access the computer, internet and VP at the same place. This would also address the physical criterion. If the ICT centers were built in the same commercial centers that house VPs, the centers could attract more people. The government could then assist by improving the conditions of the roads to the centers. The government could also make public transport, such as buses, available at lower prices to help those who would otherwise walk long distances to get to the nearest VP.
To help Rwanda comply with the social criterion of an information society, the government could distribute VPs to community health workers in rural areas. This would also help people who need to contact their health professionals (such as nurses or doctors) or call the ambulance if necessary, saving lives. In terms of human intellectual capacity, various training programs should be launched at the commercial centers that people visit to use VPs. This would motivate people to participate in ICT training programs. VP can also be distributed to the people in charge of education in every village of Rwanda to help parents or guardians who do not have access to other telephone facilities to communicate with their children’s schools when they have academic issues. (Notes: this is an administrative function – statement made earlier that this would not improve human intellectual capacity – pg. 19)

References


Becoming an information and knowledge society: Rwanda and the Village Phone project


Becoming an information and knowledge society: Rwanda and the Village Phone project


Olive Mukamusoni


Sullivan, N. P. (2007). *You can hear me now. How microloans and cell phones are connecting the world’s poor to the global economy.* San Francisco: Jossey-Bass.


Challenges and opportunities of the library in providing information services at the Catholic University of Eastern Africa

Maurice Kisenyi

Catholic University of Eastern Africa, Kenya

mauricekisenyi@yahoo.com

Introduction

This paper highlights the challenges and opportunities of the Catholic University of Eastern Africa (CUEA) library in providing information services to the university community, and is presented in four sections: i) The conceptual setting, which highlights the concepts and models the library attempts to follow in order to ensure that its services address the needs of its customers (in this case the university community); ii) Contextual setting, intended to visualize the internal and external environment and the academic life of the university; iii) Library and information services, which spells out the existing information services and the challenges and the opportunities of the library while it provides information resources to the university community, and iv) Practical consequences, which outlines a few measures the library should put in place in order to achieve its goals.

Conceptual setting

The CUEA library seriously considers the dynamics of the customer-service concept in the design and organization of its information services to meet the demands of the university community. As explained by Miao and Bassham (2006), customer service is “an organization’s ability to consistently meet the needs and expectations of its customers” (p. 53). According to this concept, when an organization or any other institution is rendering services to its audience, the audience in question always has to be the focal point when the services are being designed. Rao construed Ranganathan’s Five Laws of Library Science of ‘books are for use’, ‘every reader his book’, ‘every book its reader’, ‘save the time of the reader’, and ‘a library is a growing organism’, as a

---

8 Maurice Kisenyi is the University Librarian, Catholic University of Eastern Africa, and Kenya. He is enrolled for PhD at the Department of Information Studies, University of Zululand, South Africa.
concept that advocates a user-oriented library. The CUEA library tries to provide its information services with its customers in mind.

The CUEA library also models itself around the marketing concept. While discussing the issues of product, price, promotion and place as marketing techniques that business-oriented organizations and companies use to market their products to their customers, Jennifer and Lascelles (1997) allude to the issue of product as being extrapolated to mean services that non business-oriented institutions offer to their customers. The Institute of Marketing (1997) defines a marketing concept as, “The management process responsible for identifying, anticipating, and satisfying customer requirements profitably” (p. 6) In light of these marketing techniques, it is imperative for the library to keep on evaluating, reviewing and assessing the relevance of its information services in order to ascertain whether they really address the information concerns of the university community.

The concept of strategic planning features strongly in the dynamics of the CUEA library. In order for any institution to systematically run its programs and achieve its desired aims and objectives, it (the institution) has to engage in some planning. As Spalding and Wang (2006) explain, strategic planning enables an institution or any business to carry out a self-evaluation or assessment of its previous successes/ strengths and failures/ weaknesses compared to the situation it finds itself in. It transforms the weaknesses (if any) into opportunities to improve the services of the institution or business. The CUEA library tries to get involved in strategic planning in order to plan how it will provide its information services in subsequent years.

The CUEA library also tries to underscore the position by Das and Karn (2008) that the library should model its services around the user.

Contextual setting

Brief history

The Catholic University of Eastern Africa is one of a number of private universities in Kenya. It is a regional university owned by the Association of Member Episcopal Conferences in Eastern Africa [AMECEA] (CUEA, at the threshold of the silver jubilee,
2008, p. 74). The institution started as a Catholic Higher Institute of Eastern Africa that was officially inaugurated by Pope John Paul II in 1985. It was accredited and chartered as a private university in 1992 by the Government of the Republic of Kenya (Oketch & Kisenyi, 2010).

**Academic programs**

Initially, the university was offering its programs according to a semester system of education. The university offers courses in the following: “Faculty of Theology; Faculty of Arts and Social Sciences; Faculty of Commerce; Faculty of Science; Faculty of Education; Faculty of Law; School of Continuing Professional Development; and the Centre for Social Justice and Ethics” (Daily Nation, 22nd July, 2011, p. 38; see also www.cuea.edu). Some faculties offer postgraduate Master’s and PhD programs.

**Student population**

New trends in education systems around the world and changing societal needs year upon year have pushed people to upgrade their academic qualifications and in turn greatly affected the composition of student populations at universities. Thus in addition to regular students who work on campus, some universities now also register students who are rarely on campus because they are employed or self-employed (Adeogun, n.d).

The heterogeneity of the student population in some universities is compounded by the comings and goings of full time and part time academic staff. The Catholic University of Eastern Africa has three different categories of students: regular students (registered for during-the-day programs); evening students (registered for evening programs); and school focus students.

**University campuses**

There are three campuses to-date, namely Langata in Nairobi - the campus whose library is referred to as the CUEA library and dubbed the McCauley Memorial Library; Gaba in Eldoret; and Kisumu campus.

**Library and information services**
Library (library building)

The Bishop McCauley Memorial Library is as old as its parent institution, the Catholic University of Eastern Africa. The university has refurbished this library building several times to enable it to handle the unfolding realities of 21st century education. Eventually, the current CUEA library building will give way to the ultra-modern building officially named the Pope Paul VI Memorial Learning Resource Centre, whose construction is nearing completion. The Learning Resource Centre will be information and communication technology (ICT) enabled, consisting of the following (see www.cuea.edu): an Information and communication technology center, ultra-modern library, multimedia/ language laboratory center, e-publishing center, e-conference center, e-museum/ archive center, bookshop, and cafeteria.

Information services offered by the CUEA Library

The CUEA library is challenged to provide information services that articulate the academic needs of different groups of students: the regular students who have opportunities to access information resources for many hours before the library’s closing time, the evening students who can only access resources afterhours, and school focus students who do not have enough time to use the resources because of their employment schedules. (Notes: the different categories of students should be explained in further detail) The CUEA library also has to provide information services to the academic staff who work on a full time and part time basis. Below are some of the information services the CUEA library is currently providing to its user community:

- 79 library hours per week (Notes: check not per day… very little for one week)
- Information resources consisting of:
  i. Books (print): the book collection of multiple copies is inadequate when measured against the growing number of students and staff
  ii. Journals/ periodicals (print)
  iii. Electronic information resources: Through the Kenya University Libraries and Information Services Consortium, the CUEA library subscribes to
access various electronic journal databases. Some of these databases contain full text articles that are accessible to the users.

- User education program for new students
- Reference services
- Computerized library catalogue consisting of:
  i. The CUEA Online Public Access Catalogue (OPAC). This catalogue is not yet on the web. At the moment, users can access it by author, title, subject, and by keyword.
  ii. Union catalogue (CUEA; Consolata; Hekima; Marist International; Tangaza; Chemi-chemi; and Allamano House Libraries)
  iii. CUEA theses, dissertations, and projects
  iv. CUEA periodicals
- Internet services consisting of:
  i. General internet searches
  ii. Electronic journal databases
- Current awareness on book arrivals

Assessing the relevance of information services

The CUEA library has not yet collected statistics on the overall use of its information resources. Recent statistical data available on the use of electronic journals databases by the libraries in the Kenya Consortium of Libraries, ranked the Catholic University of Eastern Africa in different positions over the years: 8th in 2005; 8th in 2006; 8th in 2007; 10th in 2008; 9th in 2009; and 5th in 2010 (Harrison, 10th June, 2011). The fluctuating use of these resources is an indication that they are not optimally accessed by the university community. This situation calls for a constant review of the information services the CUEA library offers to students and staff.

Challenges

Repackaging information services

It has been a significant challenge for the CUEA library to organize a user education program for new students. The earlier method the CUEA library was using to induct
new students on a departmental basis was later phased out because it proved to be impractical for the students and the facilitators as well. Under the new method, the program is available to the new regular students for two days during weekdays before the commencement of their lectures. For the new evening students, the program is usually available on a Saturday because they are on an employment schedule during the day from Monday through Friday.

**Over-stretching the information resources**

The CUEA library is faced with the challenge of providing adequate information resources to users who may be looking for them in large numbers after these resources have been marketed through information services.

**CUEA library hours**

The CUEA library is challenged to provide enough time for its clients (regular, evening, and school focus students; full time, and part time staff) to access information resources.

**Wide area network (WAN)**

The three campuses are far from each other. The students and staff in one campus cannot easily use or access the information resources available in the other campuses as they lack inter-campus internet connectivity. In order to address this challenge, the university is planning to establish a wide area network (WAN) to enable the campus libraries to communicate with each other. This would in turn enable the students and staff to access and use the information resources available in the campuses from any access point on the campuses.

**Opportunities**
- The Pope Paul VI Learning Resource Centre will provide the library with opportunities to sustain and provide relevant information services to the target audience because it will be ICT enabled.

- The ultra-modern library will capitalize on an improved and dependable ICT infrastructure to improve and provide more ICT-based information services to its target audience.

  - There will be a considerable number of computers available in the library. This will create an opportunity for the library to provide its e-information resources on as many computers as possible to decongest the number of users flocking around few existing the information resources’ databases.

  - The library will accelerate the acquisition and provision of electronic information resources, particularly e-books and e-journals, to ensure that the users have enough access to information resources. Because there will be many computers available to the users in the library, the e-information resources will be in as many copies as the number of computers available on the network to the users.

- The library will be able to provide a 24 hour service to the users in areas that will be designated from time to time. This provision will enable all the categories of users to at least occasionally have enough time to access the library information resources.

Practical consequences for the CUEA library

Think-tank library staff committee

The CUEA library has to keep on undergoing a metamorphosis process that is analogically expressed in Ranganathan’s Fifth Law of Library Science (Das and Karn, 1997) in line with the new trends in ICTs and the changing information-needs of the university community. It is therefore the author’s position that in order to sustain the library’s dynamism, a think-tank library staff committee has to be established with defined terms of reference, mandated to constantly monitor the way the library information services articulate the information needs of the users. The committee’s
advice to the library may include phasing out some information services because of their irrelevance, introducing new information services, and modifying the existing information services.

**Strategic planning**

The university planning and development committee requires each faculty/department to work out its own strategic plan, but in line with the overall university's ten year strategic plan stretching from 2012 to 2022. The CUEA library has already commenced to work on its strategic plan in light of the university's strategic plan. The library will use the plan as a point of reference to organize the kind of information services it has to provide to its users on an annual basis. The library will also use the strategic plan to support its annual budget proposals for the acquisition of information resources and sustaining its information services on an annual basis.

**Conclusion**

This paper has highlighted the concepts influencing the way in which the Catholic University of Eastern Africa (CUEA) library is providing information services to its academic and student community. The contextual setting of the CUEA library highlighting a brief history of the university, academic programs on offer, composition of the student and staff population, existing campuses, library and information services, challenges and opportunities of the CUEA library, and the practical consequences for the CUEA library, has been discussed in an effort to show the path the CUEA library is taking in providing information services to its target audience.

**References**

Maurice Kisenyi


1. Introduction

Agriculture can be broadly defined as the industry engaged in the production of plants and animals for sustenance, the provision of agricultural supplies and services, and the processing, marketing, and distribution of agricultural products (Herren and Donahue, 1991: 10; Burton, 2010: 6). Specific disciplines within the study of agriculture include crop science, soil science, agricultural economics, agricultural extension, agricultural education, agro-forestry and agricultural engineering, to name a few. Agriculture plays an important role in the economies of many developing countries, contributing significantly to their Gross Domestic Product (GDP), labour force, and exports (Stamoulis, 2001). In 2007, agriculture accounted for more than 30 % of the GDP and 60 % of the total employment in sub-Saharan Africa, excluding South Africa (World Bank, 2007).

Advancements in agricultural technologies through research have had a significant impact on agricultural systems and food production. Scientific advances and technological innovations, including the development of new plant varieties through gene modifications, have seen new crop varieties which can be grown all year round, (Gliessman, 2007: 3). Livestock research has also witnessed similar developments. These developments have also had an impact on agro-processing and agribusiness practice through trade liberalization.

According to Ojiambo in Kiplang’at (2004:2), agricultural technology transfer depends on a holistic agricultural information system that consists of a research subsystem, an extension subsystem, farmers’ subsystem, and information

---

9 Tinashe Mugwisi is a PhD student at the Department of Information Studies, University of Zululand tmugwisi@gmail.com
10 Dr. J. Mostert is a Senior Lecturer at the Department of Information Studies, University of Zululand jmostert@pan.uzulu.ac.za
subsystem. Agricultural research can be broadly defined as an activity aimed at improving the production and quality of crops and animals through their genetic improvement, better plant protection, irrigation, efficient marketing, and the improved management of resources (Loebenstein and Thottappilly, 2007: 3). Public and private research institutes play a complementary role in this respect, although poor funding tends to affect their performance, especially in developing economies. Agriculture was the dominant sector in Zimbabwe’s economy, contributing 15 -20 % of the Gross Domestic Product (GDP) and providing an income to over 75 % of the population (Muir-Leresche, 2006: 99). However the GDP contribution dropped from 23.7 % in 1999 to 14.6 % in 2003, a decline attributed to the reduction of the total area planted, and in relation to the type of crop (Moyo, 2004). Through various local and external initiatives, the government of Zimbabwe is currently implementing an agrarian reform programme which has had a significant impact on both food production and poverty alleviation. According to Mudhara (2004:, 61), the ability of Zimbabwe to improve the contribution of agriculture to the country’s Gross Domestic Product (GDP) lies in the ability of A1 and A2 farmers to get the productivity of land to levels achieved before the land reform or even improve upon the levels previously attained by Large Scale Commercial farmers (LSCF).

The land question in Zimbabwe can be observed from a historical vantage point, beginning with the colonial period (pre-1980) when it was used as a strategy to empower white settlers at the expense of indigenous black communities. During this period, commercial agriculture dominated the country’s economy, generating 75 % of the total agricultural output, 96 % of total agricultural sales, and a quarter of a million agricultural jobs (Masiwa and Chipungu, 2004; Marongwe, 2004). The post-independence era, i.e. from 1980 onwards, is the next period, and is divided into two phases. The first phase of the land reform and resettlement programme began during independence in 1980 which saw people being moved to former

---

11 Prof. D.N. Ocholla is Vice Dean, Faculty of Arts and HOD, Department of Information Studies, University of Zululand docolla@pan.uzulu.ac.z
12 A1 represents newly resettled farmers in villages and self contained plots of about 5 hectares (2000-)
13 A2 represents commercial farming meant to empower black indigenous farmers (2000-)
white-owned commercial farms. The second phase of the land reform and resettlement programme was launched in 1999 but was subsequently overtaken by the farm invasions which followed the rejection of the constitutional referendum. This period saw the displacement of more than 4000 commercial farmers. According to Masiiwa and Chipungu (2004: 21), a total of 134452 new farmers had been resettled by 2004. These numbers have a lot of implications on agricultural research and consequently agricultural extension in the country.

Agricultural research is undertaken in both public and private institutions and across the five natural regions of Zimbabwe. Libraries and information centres can be found in universities, colleges, the Ministry of Agriculture, Mechanization and Irrigation Development, and its related research institutes and colleges. This study looked at the researchers and extension workers falling under the Department of Veterinary and Livestock Services and colleges of the Ministry of Agriculture, which did not form part of the main study. The paper is based on the results of a pilot study completed in June 2011 on the information needs and challenges of agricultural researchers and extension workers in Zimbabwe. The pilot study examined the importance of agricultural information and the role played by extension workers as intermediaries between researchers and farmers. This also involved examining their information needs and information seeking behaviour, the nature and types of information sought, the linkage or interaction with farmers, and collaboration with other stakeholders, both nationally and internationally.

2. Methodology

The study used a questionnaire-based survey to collect data. Purposive sampling was used to identify and select respondents around Harare in order to minimize costs without compromising the sample. Mashonaland Central and Mashonaland East were initially selected, but the study was able to capture respondents from across other provinces and districts because of students who were studying at Mazowe Veterinary College. The questionnaires were distributed to veterinary extension workers through provincial and district offices and training colleges where some extension officers were attending extended courses. A total of thirty (30) questionnaires were distributed and twenty three (23) were returned -
AGRICULTURAL RESEARCHERS AND EXTENSION WORKERS’ INFORMATION NEEDS AND CHALLENGES IN ZIMBABWE: PRELIMINARY RESULTS OF THE PILOT STUDY

response rate of 76.6%. Data was analysed using the Statistical Package of Social Sciences (SPSS) and content analysis was used for the open-ended questions. Permission was sought from the Director of the Veterinary Services Division before the distribution of the questionnaires.

3. Results
3.1. Background information

The respondents were drawn from the Veterinary Services Division, including those studying at the Mazowe Veterinary College and Kushinga-Phikelela Agricultural College. They represented 5 provinces, namely Mashonaland Central (8; 35 %), Mashonaland East (9; 39 %), Mashonaland West (4; 18 %), Masvingo (1; 4 %), and Matebeleland North (1; 4 %). A total of nine districts were represented in the study, covering agro-ecological regions II to V. The total number of respondents came to twenty-three (23). When asked to indicate their work experience, 18 (61 %) of the respondents indicated 1 - 5 years’ work experience, followed by 7 (30 %) with 6 - 10 years’ work experience. In terms of the number of years in their current positions, the majority (18; 78 %) had between 1 - 5 years’ experience. In terms of qualifications, 10 (44 %) were certificate holders, 7 (30 %) had college diplomas, and 5 (22 %) had a university degree. 18 (78 %) of the respondents were between 20 - 39 years, and only 5 respondents (22 %) were female.

3.2. Information needs and information seeking

This section sought to assess the respondents’ information needs and seeking patterns by addressing the following: 1) Information requirements and type; 2) Interaction between researchers and extension workers; 3) Impact of the land reform programme on agricultural research and extension; 4) Communicating agricultural information to farmers; and 5) Library collections and services. 3.2.1 Information requirements and type
Respondents indicated that the least sought information for agricultural research and extension services was information on animal health (2; 9 %), animal breeding (7; 32 %), and dairy farming (7; 32 %). These results were ironic given that the sample population was mostly from the Veterinary Services Division. The most sought after information fell in the categories of crop protection (19; 86 %), horticulture (19; 86 %) and tobacco (18; 82 %). The other categories were cited by 11 (50 %) to 17 (77 %) respondents, an indication that information in those areas was considered important for work and other related purposes. When asked to indicate the reasons for seeking information, 100 % of the extension workers indicated that they sought information when assisting farmers, while 100 % of the researchers (at the agricultural college) indicated doing so when conducting research.

When the respondents were asked to indicate which sources they consulted first when in need of information, in the extension category, 4 (22 %) indicated that they consulted the departmental collection first, followed by the internet (3; 17 %) and then the library, colleagues, and personal collection (2 or 11 % each). Among researchers, personal collection (2; 40 %) and departmental collection (2; 40 %) were consulted first. In terms of preference of sources, 12 (67 %) of the respondents opted for print sources, while 6 (33 %) indicated electronic sources. 28 % of the latter were extension workers. When asked to indicate the frequency of use of different information sources, the respondents indicated that they sometimes consulted the following: newsletters (9; 50 %), journal articles (2; 11 %), research reports (8; 44 %), and library catalogues, pamphlets and leaflets (7; 39 %). Other sources like books, workshops and meetings, technical reports and discussions with colleagues were cited by 28 % each. Citations at the end of journal articles, browsing through older volumes, and assistance from library staff were considered as sources of awareness of less recent books by 10 (71 %) of the respondents. However the respondents could only provide three titles of journals they frequently used, including *The New Farmer*, which is a local publication, and *The Veterinary Record*. 
The issue of gender and agriculture was also raised in the study, with 12 (52 %) of the respondents indicating that the information needs of women were being adequately addressed in the current research-extension setup. In order to reduce the disparities, 11 (48 %) of the respondents suggested that women should be treated as equal partners to men in agriculture by offering them land and ownership. They also suggested that women should be represented through associations and that there was a need to recruit more female extension workers. As indicated in 3.1 above, only 5 (22 %) of the respondents were female.
3.2.2 Interaction between researchers and extension workers

Communication between researchers and extension workers was one of the key factors of this research as it provided an insight into the research-extension interaction system. Among the researchers, 2 (40 %) indicated interacting with extension workers weekly and monthly each, while 2 (20 %) indicated interaction on a quarterly basis. The nature of communication was on issues of animal health, disease and production, stock census, farm production, and social and agricultural issues. Of the extension workers, 11 (61 %) responded to this question. Of those who indicated communicating with agricultural researchers, 5 (46 %) did so monthly, 2 (18 %) quarterly, while 4 (36 %) never communicated with researchers. This can be attributed to the level of education of the extension workers included in the study - as shown in 3.1 above, 44 % were certificate holders. The nature of problems communicated were animal disease control and treatment, and progress in research and training. In terms of satisfaction with the level of communication between researchers and extension workers, 7 (30 %) were satisfied while 7 (30 %) felt that the situation could be improved. Among the reasons for poor interaction were: limited resources, lack of expertise in breeding processes, little research into animal breeding, and language barriers. One bold reason cited was that the two departments (research and extension) “are not in good books”. In order to improve this situation, the following proposals were made: the need for more interaction between researchers and extension workers, provision of transport for extension workers, need for more literature and expertise, and the need to pick up research topics from problems encountered in the field.

3.2.3 Impact of the land reform programme on agricultural research and extension

This question attracted a total of 17 responses. 10 (59 %) of the respondents felt that the land reform programme had changed the way they conducted their work, and of this group, 9 (53 %) were extension workers. Reasons given were the destruction of game parks, uncontrollable movement of animals by farmers, and ignorance of farm practices on the part of newly resettled farmers. Responses also
showed that 7 (41 %) had not had their work affected, and of this group, 4 (24 %)
were researchers. The challenges faced by respondents were lack of information on
natural resources for the farmers, wild animals mixing with tame animals and
increasing the spread of diseases, and language barriers as some publications had
no vernacular translations. When the respondents were asked to indicate what
information they felt farmers required to adequately address their challenges, a
variety of observations were made. This question attracted a total of 16 responses,
as shown in Table 1 below.

Table 1: Information needs of farmers

<table>
<thead>
<tr>
<th>Information farmers need to adequately address challenges on:</th>
<th>Agricultural extension worker N=12</th>
<th>Agricultural researcher N=4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil fertility</td>
<td>9 (56.2%)</td>
<td>3 (18.8%)</td>
<td>12</td>
</tr>
<tr>
<td>Horticulture</td>
<td>11 (68.8%)</td>
<td>3 (18.8%)</td>
<td>14</td>
</tr>
<tr>
<td>Soil classification</td>
<td>8 (50.0%)</td>
<td>3 (18.8%)</td>
<td>11</td>
</tr>
<tr>
<td>Agriculture Economic</td>
<td>9 (56.2%)</td>
<td>2 (12.5%)</td>
<td>11</td>
</tr>
<tr>
<td>Area</td>
<td>Yes</td>
<td>No</td>
<td>Both</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td>Irrigation and drainage</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>56.2%</td>
<td>18.8%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Aquaculture</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>50.0%</td>
<td>12.5%</td>
<td>62.5%</td>
</tr>
<tr>
<td>Plant breeding</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>37.5%</td>
<td>12.5%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Poultry</td>
<td>11</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>68.8%</td>
<td>25.0%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Plant pathology</td>
<td>10</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>62.5%</td>
<td>18.8%</td>
<td>81.2%</td>
</tr>
<tr>
<td>Dairy farming</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>31.2%</td>
<td>6.2%</td>
<td>37.5%</td>
</tr>
<tr>
<td>Plant diseases &amp; pests</td>
<td>7</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>43.8%</td>
<td>18.8%</td>
<td>62.5%</td>
</tr>
<tr>
<td>Post harvest technology</td>
<td>10</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>62.5%</td>
<td>18.8%</td>
<td>81.2%</td>
</tr>
<tr>
<td>Animal health</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>6.2%</td>
<td>6.2%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Tobacco culture</td>
<td>11</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>68.8%</td>
<td>18.8%</td>
<td>87.5%</td>
</tr>
<tr>
<td>Animal breeding</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>
### Agricultural Researchers and Extension Workers' Information Needs and Challenges in Zimbabwe: Preliminary Results of the Pilot Study

<table>
<thead>
<tr>
<th>Topic</th>
<th>31.2%</th>
<th>6.2%</th>
<th>37.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agroforestry</td>
<td>8</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>50.0%</td>
<td>18.8%</td>
<td>68.8%</td>
</tr>
<tr>
<td>Agronomy</td>
<td>6</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>37.5%</td>
<td>12.5%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Range management</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>56.2%</td>
<td>18.8%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Crop protection</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>56.2%</td>
<td>18.8%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Agricultural engineering</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>56.2%</td>
<td>18.8%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Farm mechanism</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>56.2%</td>
<td>18.8%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Herbicides application</td>
<td>12</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>75.0%</td>
<td>18.8%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Climate and weather conditions</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>31.2%</td>
<td>6.2%</td>
<td>37.5%</td>
</tr>
<tr>
<td>Early warning reports</td>
<td>10</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>62.5%</td>
<td>18.8%</td>
<td>81.2%</td>
</tr>
<tr>
<td>Market information</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>37.5%</td>
<td>25.0%</td>
<td>62.5%</td>
</tr>
</tbody>
</table>
The table reveals that information on poultry and herbicides was the information that farmers searched for most frequently. Respondents were asked to indicate when they felt that information was most sought after by farmers. This question attracted 16 responses. The majority of the respondents in both categories (11 or 92% of the extension workers and 3 or 75% of the researchers) indicated that the information needs of farmers followed the pattern of the farming seasons. 2 (50%) of the researchers felt that farmers needed information during the land preparation period, while 4 (33%) and 7 (58%) of the extension workers felt that farmers needed information during the planting and post-harvest periods respectively.

3.2.4 Communicating agricultural information to farmers

This question sought to establish the communication channels used by researchers and extension workers in reaching out to the farmers. The question addressed three categories, namely media, organisational based channels, and public gatherings. There were 13 responses for media; video units were indicated by 5 (39%), radio by 4 (31%), and television and newspapers by 1 (8%) each. For organisational-based sources, there were 17 responses. 12 (71%) indicated publications, while 2 (12%) cited the internet. The public gatherings category attracted 22 responses. 10 (46%) indicated agricultural shows, 6 (27%) field days, 4
(18 %) community meetings, and 2 (9 %) cited farmer organisations’ meetings. Vernacular television and radio programmes like ‘Murimi wanhasi’ (Today’s farmer), ‘Izifuyo zethu’ and ‘Pamhepo naDr Chavhunduka’ (live radio broadcast with Dr Chavhunduka) were listed as sources of information by 75 % the
respondents. The bias towards veterinary information was possibly because the sample was drawn from mostly veterinary extension workers.

Respondents were also requested to indicate whether they undertook any visits to farmers. This question attracted 15 responses. 8 (67 %) extension workers indicated very often, 3 (25 %) often, and 1 (8 %) that they sometimes visited farmers. Responses from researchers showed that 2 (67 %) often/very often visited farmers while 33 % indicated that they never visited farmers. Respondents indicated that among the factors affecting their visits to farmers were: transport (84 %), poor road networks (11 %) and the nature of duties (5 %). The challenge of the language of publication was evident from the responses, with 68 % and 32 % indicating English and vernacular respectively. As a way of alleviating the challenges of vernacular materials, respondents indicated that they translated information into other minority languages.

3.2.5 Library collections and services

This section sought to address the state of library collections and services as perceived by the respondents. In total, 35 % of the respondents had access to a library or resource centre, and 72 % of those who did not have access to a library were extension workers. Of those respondents who had access, 33 % visited the library daily and another 33 % monthly. Circulars from the head office (3; 27 %) and departmental/ personal collections (3; 27 %) were cited as sources of information by those who did not have access to institutional libraries. Other libraries in town (2; 18 %) and radio or newspapers (1; 9 %) were also cited as sources of information by the respondents. When respondents were asked to indicate which material they sought from libraries, there were 6 responses. 4 (66 %) indicated books, 1 (17 %) government publications, and 1 (17 %) journals. 3 (60 %) of the extension workers indicated that they always found information they were looking for in the library, including material sought from other libraries (ILL). The libraries that the respondents used were university libraries, the Ministry of Agriculture’s central library, and the City Library. Despite the challenges faced in accessing library services as shown above, only 2 of the respondents (33 %) felt that the services offered were poor.
3.3. Access and utilisation of ICTs

This section focused on access to ICTs by respondents and the use of ICTs in information management. The question attracted 17 responses - 13 (76.5 %) from extension workers and 4 (23.5 %) from researchers. Results reveal that 8 (62 %) of the extension workers had access to ICTs, as did 2 (50 %) of the researchers. In total, 10 (59 %) of the respondents had access to ICTs in the office. The ICTs were mostly used for spreadsheet purposes (5; 56 %), word processing (4; 44 %), document storage (4; 44 %), and the internet (2; 22%). In terms of ICTs, none of the respondents indicated that they had poor ICT skills, as shown by 6 (60 %) who considered their skills ‘fair’ and 4 (40 %) ‘good/ very good’. The study also sought to establish other ICTs available in the organisations or departments. These were identified as television sets (15; 82 %), radio (13; 76.5 %), mobile/ cell phones (7; 41 %), computers, printers and telephones (9; 53 % each), video recorders (13; 76.5 %), and the internet (10; 59 %). The above shows that research and extension offices experienced low levels of ICT access and utilisation, which negatively affects access to current electronic journals. Responses to what they used ICT resources and services for are shown in Table 2 below.

<table>
<thead>
<tr>
<th>Table 2: Purpose of using ICT resources and services</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>To communicate with agricultural researchers</td>
<td>11</td>
<td>65</td>
</tr>
<tr>
<td>To communicate with farmers</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Professional communication with colleagues</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Personal communication with friends, etc.</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>To disseminate agricultural information</td>
<td>10</td>
<td>59</td>
</tr>
<tr>
<td>For purposes of research</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>For educational purposes</td>
<td>6</td>
<td>35</td>
</tr>
</tbody>
</table>
The table shows that despite the lack of resources, there was communication of agricultural information between researchers and extension workers, although communication was poor between the two groups and farmers. Respondents were asked to indicate which ICT resources and services they considered efficient in communicating agricultural information. This question attracted 9 responses. Electronic resources like databases (48 %), email and the internet (44 %) were considered less effective in communicating agricultural information. Mobile phones (87 %), the telephone (74 %) and radio (57 %) were considered effective methods. When respondents were asked to indicate how often they used the mobile phone to communicate agricultural information, 11 (65 %) of the respondents indicated they used them very often for communication, and 5 (29 %) said often. Mobile phones were used to mostly communicate with agribusiness companies (13; 87 %), researchers (8; 53 %) and extension workers (4; 27 %). However in terms of the quality of ICT infrastructure, 9 (53 %) felt that it was poor, with improvements required to printers (11; 73 %), laptops (8; 53 %), e-mail (9; 60 %), the internet (7; 47 %), and access to databases (8; 53 %).

The study also sought to investigate the use of ICTs in information management by the different divisions or departments. This question attracted 17 responses (13 or 76.5 % from extension workers and 4 or 23.5 % from researchers). Asked how departments managed information generated from research and extension services, 13 (77 %) felt that copies were retained by individuals (researchers or extension workers), 10 (59 %) indicated that copies were kept in the library, 11 (65 %) indicated that records were kept in a central database (although they did not elaborate), while 8 (47 %) believed that copies were kept in departmental
collections. Responses also indicate that 12 (74 %) of the respondents felt that information generated by DR&SS and AGRITEX was captured in records, although 9 (53 %) acknowledged that this information was not readily accessible to users. Suggestions on improving information management included the development of websites, providing stakeholders with access to information, and improving computer networks.

3.4. Indigenous knowledge systems in agricultural research and extension

Indigenous knowledge practice in agriculture is not a new phenomenon and has been incorporated in modern agricultural research to improve agricultural production. This section sought to establish the extent of indigenous knowledge system (IKS) utilisation by researchers and extension workers and attracted 17 responses. Of these, 13 (100 %) of the extension workers and 4 (100 %) of the researchers acknowledged utilising IKS. In terms of frequency, 4 (23.5%) indicated often while 13 (76.5 %) said sometimes. Respondents were requested to indicate their sources of indigenous knowledge. Demonstration and observation (14; 82.4 %) were indicated as the main sources of IKS, followed by colleagues (12; 70.6 %), personal experience and farmer groups (11 or 64.7 % each), social gatherings (10; 58.8 %), and books (5; 29.4 %). In terms of the type of IKS obtained, this question received 16 responses - animal health (2; 13 %) was the least type of IKS obtained while knowledge on tobacco culture (16; 100 %) was rated highest. Soil classification, crop harvesting and storage, horticulture, crop protection and crop varieties were considerably popular (15 or 94 % each). The responses also indicated that information on weather patterns (10; 63 %) was also gained and utilised.

3.5. Research and extension collaboration

This section sought to establish the extent and nature of research and extension collaboration. This question received 17 responses; 10 (59 %) indicated that they did not collaborate with private research and extension organisations, representing 8 (61.5 %) extension workers and 2 (50 %) researchers. The possible reason for this could be the positions of the respondents involved in this study as collaboration
T. Mugwisi

may be an issue for senior management. For those who indicated that they did collaborate, it was in the areas of: training (86 %), zonal distribution of projects, research, and extension publications (71 % each), and research facilities (43 %). In terms of international collaboration, 12 (71 %) of the respondents answered in the negative. For those who did, (5; 29 %), it was in the areas of technical advice, staff
exchange, joint research projects, extension projects and publications, funding, and training. Collaboration with farmer organisations was high among the respondents, with 13 (76.5 %) answering in the affirmative. When asked about the perceived role of farmer organisations in research and extension, this question received 12 responses; 6 (50 %) indicated for providing farmers with information on input, 3 (25 %) to provide farmers with information on markets, 2 (17 %) for participatory research and on-farm trials, and 1 (8 %) for providing legal aid to farmers.

3.6. Knowledge gaps, constraints and recommendations

This section was more open-ended, providing the respondents with the opportunity to make comments which may not have been captured in the preceding questions. Firstly, respondents were asked to articulate factors that inhibit access to information and literature in their respective areas. This question received 12 responses. The following were identified:

- Problems of accessibility and mobility (8; 67 %)
- Poor information channels and poor transport linkages (1; 8 %)
- No sharing of information by individual departments within the Ministry of Agriculture (1; 8 %)
- People were not ready to embrace change (2; 17 %)

As to what respondents felt were the major constraints facing agricultural research and extension in Zimbabwe, 13 responses were received. The following issues were highlighted:

- Lack of resources (7; 54 %)
- Poor remuneration for extension personnel (3; 23 %)
- No linkage between research topics or researched material and extension practices on the ground (3; 23 %)

Charging farmers for extension and research services is one of the trends or practices that arise from the privatisation of both extension and research. The respondents felt that:
• Charging farmers would help to keep extension structures functional (6; 46 %)
• Charging farmers was not a good idea as most farmers were poor and struggling to make ends meet (7; 54 %)

Respondents were asked to propose recommendations that would help improve the communication of agricultural research and extension information in Zimbabwe. The following issues were raised:

• Providing extension workers with transport so that they can respond to challenges in a timely manner (6; 46 %)
• Information should be disseminated to all farmers regardless of gender (3; 23 %)
• Researchers should provide feedback to extension workers to enable planning (2; 15.4 %)
• Providing computers and libraries and improving community structures (2; 15.4 %).

4. Conclusion

The results indicate that the different provinces and districts were fairly represented in this study. There were varying information needs among the respondents, with the need for information on animal health and production being the lowest despite the majority of respondents being veterinary extension workers. The results also revealed that although there is a link between the two groups, respondents felt that more could be done by addressing the following: resources, especially transport; increased research and information sources and services; and demand driven research - extension workers indicated that at times research topics/ projects (by researchers) did not always reflect the needs on the ground.

The impact of the land reform programme was felt in terms of the increased number of farmers, hence the need for more extension workers to reach out to the farmers. The major obstacles to this were cited as lack of transport and information to enable farmers to learn best practices.
Reflecting on the information needs of farmers as portrayed by researchers and extension workers, and although the needs varied, farmers’ information needs were spread across different agricultural fields and sub-fields. These ranged from crop science to soil science, animal health and production, and range management. The results also highlighted the complementary role of the media in disseminating agricultural information. Communication of agricultural information between researchers and extension workers and the farmers was however poor and this was done through various channels, from traditional radio and television programmes to personal visits and newer methods like mobile phones and the internet. The availability of material in local languages presented significant challenges, hence the need to translate material into local languages complementing those already provided through vernacular radio and television programmes.

Traditional methods like agricultural shows and farmer organisation’s meetings still play a role in the dissemination process. The challenges of information were further exacerbated by poor library collections and services, as shown by only 35% having access to these facilities. The results also revealed that ICTs were being utilised for communication and information management and were considered useful for disseminating agricultural information even though they were not fully developed. The use of IKS was also evident, with 100% of the respondents indicating its utilisation in some way during their work or research.

In order to improve the work of researchers and extension workers, major challenges with respect to resources, including transport and remuneration, need to be addressed. Research also has to be relevant to the needs of the farmers as expressed by the extension workers.

5. References


Chiku Mchombu

Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

Chiku Mchombu

Humans Rights and Documentation Centre

University of Namibia

cmchombu@unam.na

Janneke Mostert

Department of Information Studies

University of Zululand

jmostert@pan.uzulu.ac.za

Abstract

This paper explored the issues and challenges facing the OVC and their caregivers in Namibia, when seeking for information. It also looked at the role of service providers in the provision of both information and services to these two groups. Mixed methods were used to obtain the data, i.e. questionnaires were administered to the OVC, caregivers and service providers in the Ohangwena and Khomas regions, and Focus Group Discussions were held with caregivers and key informants in the communities. It was found that both the OVC and caregivers experienced various problems when seeking for information, such as lack of awareness of information sources, cost of accessing and information source, and lack of infrastructure to access information. The service providers also experienced challenges in providing both information and services, e.g. the lack of information in local languages, insufficient infrastructure, and uncoordinated efforts to reach these groups and so on. It has been recommended that government plays a much more prominent role in information provision and the coordination of service and information provision between the OVC, their caregivers and service organisations.
Keywords: Orphans and Vulnerable Children (OVC), Namibia, caregivers, Information seeking, information needs, service providers.

Introduction

The prevalence of orphans and vulnerable children (OVC) has become more pronounced with the recent scourge of HIV/AIDS plaguing the world, especially in Africa. As HIV/AIDS continues to decimate the economically active groups of a population – the adults - it stands to reason that more and more children will be left vulnerable or orphaned as the pandemic first cripples the affected before it gradually kills them. The growing number of OVC has a huge impact on the extended family that normally has to take care of them as well as on community members such as teachers and community elders who have to assist with the caregiving by virtue of their contact with these children. It can be assumed that both the OVC and their caregivers need information on a wide spectrum of topics in order to help them survive and thrive in often dire circumstances. The question is therefore where can this information be found, who can supply it, and are these information services really relevant to the needs of the OVC and their caregivers?

Aim and objectives

The aim of the study was to determine the role of governmental and non-governmental service providers in the dissemination of information to OVC and their caregivers. The objectives derived from this aim were as follows:

- To determine the information needs of the OVC and their caregivers
- To establish how the OVC and their caregivers find their information
- To establish the channels or sources of information preferred by the OVC and their caregivers
- To determine the challenges the OVC and their caregivers experience when attempting to access or use information

---

14 Chiku Mchombu is finalizing her PhD in the Department of Information Studies, University of Zululand. She is a librarian at the University of Namibia Library.
To determine the challenges service providers experience in their attempts to provide information to the OVC and their caregivers

Namibia’s OVC and caregivers

Namibia shares borders with Angola and Zambia in the north, Botswana and Zimbabwe in the east, and the Republic of South Africa in the south (Ministry of Health and Social Services, 2008, p. 1).

1,830,330 people were counted in the 2001 census of the Namibian population (the next census takes place in 2011). Of these, 942,572 were female (i.e., 51% of the population) and 887,721 (49%) were male. The Khomas region had the highest population at 250,262, followed by Omusati with 228,842 people and Ohangwena with 228,384 people (National Planning Commission, Republic of Namibia, 2003, p.19). Most of the population is still located in rural areas despite rapid urbanization. The 2001 census indicated that the urban population increased from 27.1 percent in 1991 to 33 percent in 2001.

In 2007, the Namibian president, President Pohamba, declared that the success of Namibia’s seventeenth year of independence from colonial rule was under threat from a challenge that threatened to undo all the nation had gained in the form of the HIV/AIDS epidemic. He noted that HIV/AIDS threatened not only the educational and psychosocial development of many children, but also robbed them of their parents, caregivers and teachers, and ultimately of their country (Republic of Namibia, 2007, p.i).

The 2001 census indicated that Namibia had more than 97,000 orphans up to the age of 15. The census also estimated that by 2021, the country would have over 250,000 orphans, which implies that one in every 10 Namibians will be orphaned. Furthermore, it was estimated that in 2004, two-thirds of all Namibia’s orphans were orphaned by AIDS (UNICEF, 2005a, p. 1; UNICEF, 2005b, p. 4; UNICEF, 2006a, p. 5; UNICEF, 2006b, p. 16). The 2006 Demographic Health Survey (DHS) estimated the number of OVC at 250,000, with 155,000 orphans. The projected figures for the year 2010 were that Namibia would have 156,000 orphans, 118,000 resulting from AIDS (Foster, 2004, p. 24).
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

The health and wellbeing of OVC depends on their caregivers. Over 60 % of the orphans were found to be living in houses headed by grandparents, mostly grandmothers who need to be cared for themselves (UNICEF, 2005a, p. 1; Kameeta et al., 2007, p. 11; Van der Brug, 2007). It is now common to find grandparents acting as primary caregivers.

Recruited and trained volunteers and informal volunteers such as friends, neighbours and church members in the community also pose as caregivers. Goodman et al. (2007, p. 428) came up with the term ‘kinship care’ to refer to aunts, uncles and siblings who act as caregivers. Van Dyk (2005, p. 323) defines caregivers in the context of HIV/AIDS as anyone involved in taking care of the physical, psychological, emotional and/or spiritual needs of a person infected with or affected by HIV/AIDS.

In Namibia, there are non-governmental organisations (NGOs), community-based organizations (CBO), and faith-based organizations (FBO) that are very active in rendering services to OVC who are affected in one way or another by HIV/AIDS. According to NANASO (2008, p. 7), Namibia has registered a total of 354 organizations with 467 centres, and of these, 104 organizations were working with OVC and caregivers. The distribution of these centres is a bit skewed in favour of Windhoek (124 centres), with only a few (23) found in Ohangwena where there is a very high number of HIV/AIDS affected people and OVC. Foster (2008, p. 18) observed that a lot of NGOs are often mushrooming in the same locality and thus providing the same households and children with services, with minimum coordination.

According to Van Beelen (2007, p. 3), community-based organisations are very important in assisting and identifying OVC and caregivers and ensuring that social grants are used effectively. Many international development partners are also playing a pivotal role in providing different services to OVC and caregivers. UNICEF and UNAIDS, for example, have engaged in a number of OVC-related research, advocacy, policy development and government projects (Foster, 2008, p. 8).
Service providers thus play a crucial role in connecting children and caregivers to the relevant authorities, providing different forms of assistance, and also providing them with useful information. Acknowledging the role played by civil society (NGOs, CBO, FBOs and other civil organizations) in providing links to local communities and increasing social capital though the interventions they sponsor, the government of Namibia introduced policy frameworks in order to create a conducive working environment for the service providers in partnership with the government, and also to prevent overlaps and the duplication of services (National Planning Commission, Republic of Namibia, 2005, p. iii). Faith-based organizations (FBO), community-based organisations (CBO), non-governmental organizations (NGO), international non-governmental organizations and international partners are thus working hard to compliment the government’s efforts in providing services.

**Information needs of OVC and caregivers**

According to Loucaides (1995, p. 4), knowledge is not only necessary to enable an individual to meet his or her personal needs, but also to enable him or her to make decisions and to participate in public affairs. The right to information is also a prerequisite for the effective defence of all human rights, specifically of vulnerable groups such as OVC and caregivers. Despite various studies in various parts of Africa that have focused on the information needs of youths, none have actually addressed the needs of orphaned and vulnerable children in particular. A study by Max-Neef et.al. (1991) identified ten general needs that children experience, but although the fulfilment of these needs implies access to information, the need for information as such was not explicitly identified. There is thus a dearth of information on the specific information needs that orphaned and vulnerable children experience.

Research studies focusing on the position and information needs of caregivers have indicated that they have a wide a variety of information needs. Booysen and Arntz (2002, p. 181) and Van der Brug (2007, p. 47) found that caregivers lack information on orphanhood and how to meet the socio-emotional and educational needs of the children. A study by Bray (2002, p. 13) indicated that a significant number of caregivers were not receiving the social grants targeted at them, especially those from poorer rural areas, due to lack of information about the social grants and how to apply for
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

Goodman, Potts and Pasztor (2007, p. 429) and Kumar and Arabinda (2001, p. 20) found that grandparents faced challenges such as: i) how to identify symptoms and signs of health or behavioral problems in their grandchildren; ii) lack of basic knowledge of HIV; iii) how to address children's emotional needs; iv) lack of information about the children's nutritional requirements; v) ways to combat stigma and discrimination directed at the child or family; vi) how to access different services like grants; vii) how to get identification documents for the children; viii) and where to get counselling. A study in Botswana found that caregivers were not aware of the different service providers available, and were therefore denied the right to make choices and use services that would help them.

In this respect, service providers could play a very useful role in connecting the OVC and their caregivers to the relevant authorities, providing assistance where they can, and providing the children and caregivers with useful information.

Studies by UNAIDS (2004, p. 6) and Yates (2007, p. 9) noted the initiatives that the government and other agencies in Namibia run in order to address the needs of OVC, including feeding programs (soup kitchens, school feeding, food parcels), educational support (uniforms, school fees exemption, hostel accommodation), legal rights and protection (life skills, information on rights, will writing), psychosocial support (home visits, counselling, camps and clubs), and economic strengthening to improve the capacity of the child’s household to be self-sustaining. Most of the health support is of a general nature through the Ministry of Health and Social Services and targets all children through primary healthcare and nutrition programs (UNAIDS, 2004, p. 6; Yates, 2007, p. 9). Apart from the efforts made by different organizations, the report noted a number of the challenges these organizations were facing. Some of the challenges noted in the report include lack of technical skills and human resources, inadequate funding, and the growing number of OVC (UNAIDS, 2004, p. 6).
One of the main criticisms levelled against service providers in Namibia is that most are based in urban areas and only a few can be found in rural areas (Badcock et al., 2008, p. 5).

Barriers to accessing information provided by service providers

In some cases, information seekers face barriers in their attempts to obtain the information they require. These barriers include ignorance about where to get information, computer illiteracy, and dependence on oral information. Chiware (2008, p. 31), Mchombu (2000, p. 59), Irivwieri (2007, p. 38) and Musoke (2007, p. 306) all mention the use of technical terms or jargon by information providers as a serious impediment to the successful dissemination of information. Ignorance and dependence on oral traditions among the black population also discourages the use of service providers such as libraries and information centres. Fairer-Wessels and Machet (1993, p. 111) found that illiterate people preferred to use personal sources of information such as friends and family members to formal service providers to address their daily queries.

Wrong timing in disseminating information on a program or unawareness about the program may be another barrier to access to information by the target group.

A study by Mchombu (1993) on rural communities in Botswana found that most extension agents or service providers often lacked a proper place to store the extension literature and operated in an uncoordinated manner, resulting in the duplication of efforts with government departments (Mchombu, 1993, p. 5).

Methodology

A survey was used to gather the data for this study. Based on the large numbers of OVC and caregivers, the survey method was chosen because it allows the researcher to generalize on a smaller sample group which has been selected from a larger population group (Powell and Connaway, 2007, p. 85).
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

The target population in this research consisted of orphans and vulnerable children, caregivers and service providers. OVC and caregivers living in Windhoek and Ohangwena were selected because Windhoek represents a major urban settlement while Ohangwena represents its rural opposite.

Caregivers in this survey included individuals who were providing direct care to the OVC, such as grandparents, counsellors, traditional leaders, relatives, friends, neighbours, teachers and single parents. Service providers included organizations, agencies, non-governmental organizations (NGOs), community-based organisations (CBOs), faith-based organizations (FBO), government departments, international organisations, and institutions.

Purposive sampling was used to select male and female single or double orphans between 8 and 18 years of age. Because it was impossible to list all the OVC and sample randomly from a list, social workers, traditional leaders, teachers, and church leaders were used to identify a sample of respondents in Ohangwena and Windhoek for inclusion in this study. The aim was to have a representative sample of the OVC in both the urban and rural settings. Snowball sampling was used to find participants among the caregivers.

Because there was no authoritative list of service providers, the snowball technique was also used to choose the organizations and departments (government departments, non-governmental organizations, community-based organizations, faith-based organizations, etc). This means that the main organizations and departments that dealt with OVC in Windhoek and Ohangwena were contacted and asked to nominate other contacts that they thought appropriate to include in the study. The nominated organizations/departments were contacted telephonically and via email to find out whether they qualified to be included in the study and if they would be willing to participate.
According to the Namibia Census Report (National Planning Commission, Republic of Namibia, 2003, p. 75), in 2003, Ohangwena (representing the rural area) had 17,000 OVC, while Khomas (representing urban life) had 6,000 OVC.

This study used a sampling ratio of 2.16 percent, i.e. 368 OVC from Ohangwena and around 198 from the Khomas region. The 2.16 percent was thought to be adequate because of the difficulties in finding the OVC due to the lack of name lists. It was believed that the number would provide reliable information that would sufficiently represent OVC in the rural and urban settings. Structured interviews with the OVC were used to determine their information needs and information-seeking behaviour, as it was assumed that due to their young age, they might not be able to fill in a questionnaire effectively.

The figure for caregivers was determined through discussion with officials from the Ministry of Gender and Child Welfare. Focus group discussions were held with the caregivers. Focus group discussions were chosen because the researcher intended to gather data that could provide in-depth insights into the information needs and the challenges experienced by this group. Eight focus groups with a total of 45 participants in Ohangwena and three groups totalling 21 participants in the Khomas region were selected to provide data about the needs of caregivers.

A mailed questionnaire was used to gather data from the service providers. Twelve service providers dealing with OVC and their caregivers were identified in the Ohangwena region and eighteen in Khomas. The mailed self-administered questionnaire was used because it was cost effective to collect information from service providers who were geographically scattered and literate to the extent that they were able to complete the questionnaires unaided.

The data was analysed using statistical data analysis packages.

Results
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

Three groups were surveyed in this study: 566 OVC (Notes: deleted – already mentioned above), 45 caregivers, and 30 service providers. However, only 19 service providers responded, i.e. 9 from the Ohangwena region and 10 from the Khomas region.

In order to determine whether service providers understand the information needs of OVC and caregivers and are able to supply the necessary information, it was important to first determine the information needs of (OVC and caregivers). The results are presented in the sections that follow.

Information needs expressed by the OVC

When asked whether they experienced any information needs, the OVC respondents indicated the following.

Table 1: Experience of information needs  N=566

<table>
<thead>
<tr>
<th></th>
<th>Khomas</th>
<th>%</th>
<th>Ohangwena</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>166</td>
<td>84</td>
<td>332</td>
<td>90</td>
</tr>
<tr>
<td>No</td>
<td>32</td>
<td>16</td>
<td>36</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>198</td>
<td>100</td>
<td>368</td>
<td>100</td>
</tr>
</tbody>
</table>

From the table, it is clear that the overwhelming majority of OVC in both the rural and urban areas experienced the need for information. This is not surprising as the loss of a parent and other conditions at home that impact negatively on their safety and comfort would lead to many questions relating to their basic survival.

Specific needs experienced by the OVC

When asked to identify specific information needs, the OVC identified the needs shown in Table 2. The needs were grouped into a number of subcategories.

Table 2: Information needs  N= 566

164
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

The table shows that there was a difference between the needs experienced by Namibia’s urban and rural OVC. For the rural children, financial assistance and access to grants were the most important information needs, while for the urban children, how to get school fees exemptions was the most important information requirement. Other needs displayed similar levels of importance for both the urban and rural OVC. Perhaps surprisingly, applying for official documents was not a problem for the urban OVC. This is probably because of easier access to the relevant government department(s) in an urban environment than in a rural area.

Information sources used by OVC to gain information

OVC can opt for various media, information systems and sources in their search for information. However, it was assumed that the rural OVC might have less of a choice than the urban OVC because of lack of various resources such as libraries, bookstores and internet cafés; intermittent or non-existent electricity; long travelling distances to access resources and systems, and so on. This question thus aimed to determine which sources and systems were used and to see if indeed different sources were used in
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

urban and rural environments. The results are shown in Figure 1.

![Information sources used: OVC](image)

**Fig. 1: Information sources used by the OVC**

While there were sources common to both groups, there were also sources specifically used by only one group. The common sources were as expected: relatives and friends and the radio. Those not shared included church leaders, traditional leaders and regional councillors, who were mainly used by the rural OVC, and television, books and pamphlets, and libraries, used by the urban children. Clearly, the ready availability of an information source or system significantly influences its utilisation.

**Problems experienced by OVC when accessing and retrieving information**

This question aimed to determine whether OVC experience problems while seeking information. The results are shown in Figure 2.
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

Problems experienced with information seeking: OVC

The majority (281) of the rural OVC indicated that they did not experience any problems when searching for information. This is probably because of their heavy reliance on oral communication and the availability of this source. Although the majority of the urban OVC (101) indicated that they experienced problems when seeking information, they were not able to coherently explain what problems they experienced.

Suggestions on how information access can be improved

Despite some of the OVC not being able to articulate their problems when searching for information, they were able to suggest solutions on how to improve their access to information and information sources/systems. The following suggestions were made:

**Ohangwena**
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

- A strong emphasis was placed on the role of the government as the main provider of information on virtually all their basic needs, i.e. access to clean water, school fees exemptions, buying of uniforms, feeding schemes, assistance with applications for birth certificates, financial assistance, and child support.
- The government should be actively involved in helping school dropouts obtain positions on farms or to apply for other job opportunities.
- The radio and newspapers should be used by councillors to disseminate information on where to obtain additional food or how to access feeding schemes.
- School principals, teachers, councillors and church leaders need to be much more understanding of the OVC’s problems and help them with finding applicable information.
- Information should be placed on notice boards at the regional council’s office or on posters to help avoid the distortion of information.
- Information should be shared through meetings.
- Computers in schools should be accessible - teachers didn’t grant the children access.

Khomass

- Information needs to be disseminated via the radio, TV and newspapers.
- Service providers should be encouraged to visit schools, print posters, distribute pamphlets, and send letters to schools so that they can send them to the caregivers.
- The need for electricity so that the OVC can access information through television.
- Church leaders should assist with the dissemination of information.
- More billboards are necessary.
- More volunteers are needed to disseminate information.
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

- Libraries should provide access to different newspapers and distribute pamphlets and other important information on services available to the communities in the Khomas region.
- Teachers need to be equipped so that they can guide the OVC.

Information needs of the caregivers

In the Ohangwena region, most caregivers stated that they required different types of information on educational issues. This information included school placements for children moving from primary to secondary school; how and where to get the required stationery, school bags and uniforms; issues concerning exemption from paying school fees; and how to obtain textbooks.

The second most sought after information was how to obtain financial support. As most caregivers participating in this study were not working, access to financial support was paramount.

Caregivers also expressed their inability to handle the children because they lacked skills in counselling and providing psychosocial support. Information on how to care for and discipline the children was another need identified in most of the focus groups.

Most participants felt that there was a lack of timely information on job opportunities for the children who had failed grade 10 and 12 exams. It was commented in one group that they got information on available job opportunities too late to allow them to gather the necessary documents to apply.

As in Ohangwena, the caregivers in the Khomas region also expressed the need for information relating to educational matters. They required information on where to obtain school fees or exemptions and how to obtain funding to buy school uniforms. Information on financial assistance to buy food was also mentioned. In one of the groups, it was mentioned that information on how to start up a business was also required.

Sources consulted for problem solving
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

From the focus group discussions, a pattern similar to that of the OVC emerged in terms of the sources used. There were also some interesting differences between the sources used in urban areas and those preferred in rural areas.

As expected, friends and relatives were also the major sources of information in both areas. However in the Khomas region, the radio was indicated as a more valued source than friends and relatives. The radio was also perceived as important in Ohangwena, but not more than the oral medium. While the television played a role in Khomas, it did not in the Ohangwena region, probably because of the general lack of electricity in some of the rural areas in Namibia. Within the rural setting of Ohangwena, the social worker, teacher and traditional leader were seen as useful sources of information, while in the urban area of Khomas, print sources, such as the newspapers found in libraries and/or stores, were also mentioned as valued sources. In Ohangwena, the library did not play any role, probably because there isn’t a library situated in the area.

Problems experienced in attempts to access or retrieve information

- The long timespan between registering a child for a birth certificate and getting feedback on the progress of the process
- Lack of funding for transport to get to town in order to either collect the required documents or get feedback
- Rudeness of service providers when assisting them physically or with information
- Language barrier, as most documents were not in their local languages
- Long waiting periods to receive any feedback on applications for financial assistance

Service providers
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

Of the 19 service providers that responded, 9 (Ohangwena, 5 and Khomas, 4) were local non-governmental organisations, 2 (Khomass) were international non-governmental organisations (NGOs), 2 (Ohangwena) were community-based organisations (CBOs), 4 (Ohangwena, 1 and Khomas, 3) were government departments, 1 (Khomass) was a faith-based organisation (FBO) and 1 (Khomass) was a regional council.

The services offered by these different groups are summarised in Table 4.

Table 4: Services provided by organisations  N=19

<table>
<thead>
<tr>
<th>Type of service provider</th>
<th>Services</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGOs</td>
<td>Income generating projects;</td>
<td>Ohangwena</td>
</tr>
<tr>
<td></td>
<td>HIV/AIDs awareness;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Home-based care &amp; treatment;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sexual reproductive health;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Human Rights awareness;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Healthcare;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Life skills;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Volunteering;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Counselling and HIV/AIDS testing;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Youth activities</td>
<td></td>
</tr>
<tr>
<td>NGOs</td>
<td>Income generating projects</td>
<td>Khomas</td>
</tr>
<tr>
<td></td>
<td>Training home-based care volunteers;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assistance with uniforms;</td>
<td></td>
</tr>
<tr>
<td>Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>International NGOs</strong></td>
<td><strong>CBOs</strong></td>
<td><strong>Government Dept</strong></td>
</tr>
<tr>
<td>Supplying transport to OVC registered with the organisation;</td>
<td><strong>Home-based care;</strong></td>
<td><strong>Counselling</strong></td>
</tr>
<tr>
<td>Soup kitchens;</td>
<td>Educational support;</td>
<td></td>
</tr>
<tr>
<td>Assisting caregivers with letter writing for school fees exemptions;</td>
<td>After-school assistance to children with disabilities;</td>
<td></td>
</tr>
<tr>
<td>Counselling - face-to-face and telephonic counselling</td>
<td>Providing transport to health centres</td>
<td></td>
</tr>
<tr>
<td><strong>International NGOs</strong></td>
<td><strong>CBOs</strong></td>
<td><strong>Government Dept</strong></td>
</tr>
<tr>
<td><strong>Healthcare</strong></td>
<td><strong>Home-based care;</strong></td>
<td><strong>Counselling</strong></td>
</tr>
<tr>
<td><strong>Educational support;</strong></td>
<td><strong>Psychosocial support</strong></td>
<td></td>
</tr>
<tr>
<td><strong>After-school assistance to children with disabilities;</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Providing transport to health centres</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CBOs</strong></td>
<td><strong>Government Dept</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Home-based care;</strong></td>
<td><strong>Shelter;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Psychosocial support</strong></td>
<td><strong>Healthcare;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Government Dept</strong></td>
<td><strong>Income generating activities;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Counselling</strong></td>
<td><strong>Providing social grants;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Psychosocial support</strong></td>
<td><strong>Providing counselling guidance;</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Psychosocial support</strong></td>
<td><strong>Regional Councillor</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Khomas</strong></td>
<td><strong>Ohangwena</strong></td>
<td><strong>Khomas</strong></td>
</tr>
<tr>
<td><strong>Khomass</strong></td>
<td><strong>Ohangwena</strong></td>
<td><strong>Khomas</strong></td>
</tr>
</tbody>
</table>
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

<table>
<thead>
<tr>
<th>FBO</th>
<th>Psychosocial support; Building resilience in children</th>
<th>Khomas</th>
</tr>
</thead>
</table>

Information requested

The service providers were asked to indicate the information that was requested most frequently by either the OVC or their caregivers. The following needs were identified:

- Where to get food
- How to apply for grants and documents, e.g. birth certificates and exemption from paying school fees
- Where to get physical/ emotional support
- Employment opportunities

Channels of communication

The respondents were asked to identify the channels of communication that they used most frequently to communicate information to the OVC and caregivers.

The findings revealed that in the Ohangwena region, 6 (43 %) of the respondents used open forums, traditional leaders, regional councillors and meetings to communicate their services. Four (29 %) respondents indicated that they used house-to-house volunteers to communicate with community members. Only 3 (21 %) reportedly used the radio and television to make their services known. In the Khomas region, 5 (33 %) of the service providers used volunteers who moved from house to house, followed by 4 (27 %) who used newspapers, brochures or printed media, and 3 (20 %) who used the radio and television.

Effectiveness of the channels
The service providers were asked whether they believed the channels they used were effective in disseminating information about their services. The aim was to determine whether or not these channels made an impact and to find out how the service providers evaluated the effectiveness of these channels.

In Ohangwena, 6 (67 %) of the respondents believed that volunteers who moved from house to house were the most effective communication channel because the number of OVC registering with their organisation increased after these visits, while caregivers increasingly registered for income generation projects. It also offered the added bonus of face-to-face communication. These respondents indicated that traditional leaders and regional councillors were also effective channels because they informed the community about their services during meetings. However, 2 (22 %) respondents felt that the channels they used were not effective because not enough OVC were coming forward to use their services. One of the reasons they offered was that the Ohangwena community is scattered over a wide area and they were unable to reach the target group. They also believed that the information materials they used needed to be translated into local languages. Only 1 (11 %) organization felt that the radio was the most effective channel because a lot of people listen to the radio. In Khomas, 4 (44 %) respondents felt that house-to-house volunteers were effective, while 4 (44%) admitted that their channels were not effective. Two service providers did not respond to this question.

**Format used to disseminate information**

This question aimed to determine which format the service providers used to provide information to OVC and caregivers. It emerged that the majority of the respondents from Ohangwena used oral communication (8; 66 %) followed by printed information (2; 22 %). Drama performances and electronic material were each used by 2 (22 %) respondents. Some service providers indicated more than one option.

In Khomas, video screening and the use of electronic communication were each used by 3 (30 %) respondents. Oral communication, print media and drama performances were each used by 2 (20 %) respondents.
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

Problems faced by service providers in disseminating information

More than half of the respondents in Ohangwena indicated that distance and too much water during the rainy season prohibited them from disseminating information properly. Another 3 (33 %) respondents indicated that the lack of local language materials made it difficult to disseminate information, and 2 (22 %) respondents cited the lack of transport to the target group as a major problem.

In Khomas, the lack of local language materials was also a concern for 7 (70 %) of the respondents, and lack of transport was a problem for 5 (50%) respondents. Two (20 %) respondents indicated that sometimes the wrong information reached the beneficiaries, and another 2 (20 %) respondents noted that there was a lack of coordination among the service providers.

Suggestions on how to improve the dissemination of information

This question asked for suggestions on how to improve the flow of information to OVC and caregivers. The respondents from Ohangwena suggested the following:

- Improved networking between service providers and the MGECW
- The need to develop committees at grassroots or regional level
- Service providers should coordinate their services so that each service provider knows which services to provide, or alternatively work together as a team at community level in order to avoid duplication

Respondents from the Khomas region suggested that:

- Information materials should be translated into local languages
- Awareness forums should be used to allow community members to clarify issues and to help organisations better understand the dynamics within their communities
- All the organisations working with OVC should be registered with the MGECW so that they are aware of each other
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

- All service providers need to be mapped according to the services they provide in the different regions
- A memorandum of understanding needs to be developed between the services providers where they commit to work together to improve services to the OVC and to revive or establish OVC forums under the leadership of individuals other than social workers who are overloaded with responsibilities and at times not available
- More community meetings and more house visits are necessary

Discussion

The information needs expressed by the OVC and their caregivers displayed a number of similarities, and as expected, concentrated mainly on basic survival. This is corroborated by the information requests received by the service providers. The main information concerns had to do with financial survival and how to cope with the demands that the school system (school fees, uniforms, etc.) places on the OVC and caregivers. Information on job opportunities was not indicated as a need by the OVC, and yet in literature it is often mentioned that OVC have to drop out of school and find employment to make ends meet, especially in child-headed households. In this instance, caregivers were the group mainly concerned with finding job opportunities for their charges.

There was a difference noted between the information needs expressed by OVC in rural and urban areas. Although both regions expressed the need for information on financial assistance and school related matters, the rest of the needs differed quite a lot in terms of issues, such as accessing feeding schemes where the urban OVC expressed a higher need for information than their rural counterparts. It would have been expected that this would be the other way around. Furthermore, no urban child expressed a need to find out about how to register for a birth certificate, whereas in rural Ohangwena it was a concern for some. Applying for these certificates can only be done at specially designated offices that might not always be in reach of the rural child.
As expected, most information requests in the urban and rural areas were posted to friends and relatives. However, while urban OVC relied quite heavily on the use of mass media such as the radio and television to gain information, it played no role at all in the lives of rural children. This could probably be ascribed to: i) the lack of access to electricity in rural areas, and ii) in urban areas, access to a television set is much easier to come by, even if the OVC do not have one in their own homes. The role that things like poverty and lack of ICT skills plays in the provision of information was also clear in the fact that the service providers reported very few instances of information disseminated using the electronic medium. While ICTs, especially a medium such as the mobile phone, is a powerful communication medium in most African countries, it seems as if this medium has either not yet reached the majority of the population in Namibia, or is not affordable to the OVC and their caregivers, as no mention of cell phones for the sake of information access was made.

In the rural areas in particular, the use of community meetings needs to be strengthened as this would contribute towards the dissemination of important information. Service providers felt strongly that more community meetings should be held where the whole community could benefit from the services and information that a service provider could offer to the OVC and caregivers within the community. However, physical conditions such as impassable or badly worn roads make it difficult for service providers to access those in need of their services. Additionally, the cost incurred by travelling to a service provider makes it difficult if not impossible for the OVC or caregivers to travel.

The fact that printed materials were mainly in languages other than locally spoken languages was raised by caregivers as a serious barrier to information. The same problem was also mentioned by some of the service providers who indicated that it impeded their ability to render services.

**Recommendations**
Issues and challenges in the provision of information to orphaned and vulnerable children (OVC) and their caregivers

- Service providers should actively promote themselves and their services to the communities. In addition to house-to-house visits, they must also actively use mass media to advertise their services and to disseminate information crucial to the empowerment of OVC and their caregivers.
- All information should be provided in the local language as this improves clarity and therefore the chances that the recipient would effectively act upon (the information).
- Ways should be sought to provide information timeously to this group, e.g. about school fees, available grants and how to apply for them, feeding schemes, job opportunities, etc., so that they may benefit from the information.

Suggested model

From the responses of both the OVC and the caregivers, it was clear that both these groups view the government and its associated departments as their major sources of both basic service delivery and information. What became clear, however, was that the caregivers especially experienced many frustrations because of lack of knowledge or information concerning whom to contact or how to get feedback on their various applications for assistance or getting documents such as birth certificates and ID documents for their charges.

Service providers also expressed frustration with uncoordinated service delivery resulting in many caregivers and OVC moving from one service provider to the next in the hope of getting the assistance that they require. Lack of information on what each service provider has to offer frustrates both the respective service providers and those they aim to serve. Coordination and cooperation therefore need to be strengthened.

The information sources used by the OVC and caregivers to gain information and those used by service providers seemed to correlate strongly, although all these groups mentioned the same frustration: the lack of materials in local languages that would
allow OVC and their caregivers to access information in a language with which they are familiar. To overcome all the above, it is proposed that the government, as the main role player and service provider, needs to convene a regular meeting (maybe twice a year) with all other role players involved in caring or assisting OVC and their caregivers. These meetings should ideally be convened on a regional basis as needs might differ from region to region as would the kind of service providers operating in an area. Representatives from all the government departments involved in the service delivery of OVC/ caregivers, representatives of the service providers in a region, as well as elected traditional leaders, school principals and regional councillors, need to be part of these meetings. A very important group in these meetings should be media or communications specialists.

References


This paper reports on a research project that the author is currently undertaking for his Master’s Degree in Information Studies (MIS).

Introduction and background

The enrolment of international students in higher education institutions across the globe is not a recent phenomenon in academia. The 2007 figure for the number of students leaving their home countries for higher education abroad came to around 2.8 million (UNESCO Institute for Statistics, 2009). This represents an increase of 4.6 % from the previous year and growth of almost 53 % since 1999. UNESCO’s (2009) survey revealed that almost two thirds of the international students were enrolled in seven countries, namely the United States of America (USA), the United Kingdom (UK), France, Germany, Australia, China and Japan. The report also revealed that the largest contingent of students going abroad for their studies (over 40,000 students) was from China, and the two top host countries for these students were the USA (21.4 %) and the UK (12.6 %).

According to the Institute of International Education or IIE (2009).

The number of international students at colleges and universities in the United States of America (USA) increased by 8 % to an all-time high of 671,616 in the 2008/09 academic year. This was the largest percentage increase in international student enrolment since 1980 - 1981, and marked the third consecutive year of significant growth with increases of 7 % in 2007 - 2008 and 3 % in 2006 – 2007. (Notes: page?)
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

In 2005/06, the total number reached 564,766. According to the Texas Woman's University (TWU) International Education Office's student statistics, 80% of the students in 2007 were female and 20% were male. The students were from 61 countries; 62% were graduate students, while 38% of the students were undergraduates (Yi, 2007).

By connecting communities around the world, globalisation can shape both the context and content of economic activity (Lewis, Thornhill, and Saunders, 2003: 36; Held et al., 1999: 2). Although the concept of globalisation is not new, it still has a crucial impact on education in the new millennium (Ohmae, 2005; Castells, 2001). Moloi, Gravett and Petersen (2009) looked at the impact of globalisation within the context of education in South Africa and concluded that South African universities always need core alliances and networks with other higher education institutions around the world. They suggest that these alliances would create opportunities with respect to sharing knowledge and skills and also contribute towards greater economic development. The internationalisation of the higher education sector across the world has shown that it is an essential cornerstone for every nation's development, and this is true for South African universities as well. Botha (2010), for example, shows that compatibility does exist between the internationalisation and Africanisation of higher education in South Africa.

UKZN is widely recognised as an academic centre of excellence in Africa. Its mission (UKZN, 2004) is to be the “premier University of African scholarship” with research focusing on the African Renaissance. The university aims to continue to seek global partnerships that provide opportunities for both local and international students and the university’s staff. UKZN has five campuses in two major cities - four in Durban and one in Pietermaritzburg - with a total student population of approximately 42 000, 20% of whom are postgraduates. The internationalisation of the university is focused primarily on its postgraduate enrolments which are 14% of the total postgraduate enrolments, while international undergraduate enrolments comprise four percent of the total undergraduate enrolments (UKZN, 2011).
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

In the context of supporting and assisting the significant number of international students who come from both within and outside the African continent to study at UKZN, the university has initiated three International Student Offices (ISOs) located on the Westville, Howard College, and Pietermaritzburg campuses. These three offices have a dedicated team that provides on-going assistance to international students registered at all five campuses. In this paper, the ISO signifies a channel of communication that connects the university authorities (advisors) to a significant number of international students studying at UKZN. The Pietermaritzburg campus has a total of 866 international students registered for the 2011 academic year, and the vast majority (797) are African (ISO, 2011). International students at the Pietermaritzburg campus thus form a large and arguably important cohort. Their information needs should therefore not be neglected.

According to Nicholas (1996), an information need “arises when a person recognizes a gap in his/her state of knowledge and wishes to resolve the anomaly”. In other words, when a specific situation or question is encountered by an individual, then the required information, if available, is accessed and used to answer the question or solve the problem. Ben-Haim (2006, 16) points out that the gap in knowledge or information can contribute to a severe level of uncertainty, and this stands between what is known and what needs to be known in order to make fully competent decisions. Thus information has the potential to reduce whatever uncertainty the international students who study at the Pietermaritzburg campus may experience in such a new environment while also helping them make sense of specific situations where decisions have to be made or problems need to be solved (Cleaver, 1987, 29).

The research problem

International students at the UKZN, Pietermaritzburg campus, are divided into two main categories: international students mostly from America and Europe who are on a university exchange programme and stay for a short period of one semester; and students who stay for an entire degree, mostly African international students as indicated above. The researcher agrees with Stilwell’s assertion that, “Every society has
specific needs and the provision of the information to assist this society to meet these needs should be in a form and language that is useful to them” (1991, 20). This applies equally to the international students at the Pietermaritzburg campus. For example, English - the predominant language of communication on campus - is a second or even third language to the majority of these students (Kuhn, 2009:55). This immediately creates communication barriers and makes it more difficult to satisfy the information needs of these students. It is inevitable that these students, being far away from home, will have questions that require answers. These students are new to South Africa (and possibly ‘university life’), and hence need information to help them adjust and settle on campus and in the broader society of which UKZN is a part.

Given the above, this study intends to identify the information needs and information seeking behaviour of international students at the Pietermaritzburg campus of UKZN. Such a study would help to determine whether the information services that are delivered by UKZN meet the information needs of international students.

Research questions

In light of the above, the study attempts to answer the following questions:

- What is the demographic profile and academic level of study of the international students?
- What are the languages spoken by international students and how do they rate their ability to communicate in English?
- What kind of information do they need?
- How do they get the information they need?
- Where do they find the information they are seeking?
- What problems do they experience when searching for information?
- What does the UKZN-PMB do with respect to providing services to the international students?
- How can services that are offered to international students be improved if necessary?
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

Rationale of the study

As a member of this community of international students at the UKZN in Pietermaritzburg, the researcher has some knowledge of the problems that international students commonly experience. The fact that they generally have different information literacy skills and educational, cultural and language backgrounds, does suggest that they have a variety of information needs in the South African university context and numerous obstacles to overcome in meeting those needs. While there are previous studies focusing on the information needs of international students at the UKZN, these were conducted at Postgraduate Diploma level and were concomitantly small in scale. This research intends to push these studies further by providing a more comprehensive and in depth assessment of the information needs and information seeking behaviour of the international students on campus. As already pointed out, international students are a significant and felt presence on campus, and the findings of the study should benefit them and future students who study at the university. The findings may be able to help the university improve information delivery systems and at the same time contribute to ensuring the quick and easy integration of international students at UKZN.

Scope and limitations

According to Locke et al. (2000), “All studies have inherent delimitations and limitations. Whether these are listed in a separate section or simply discussed as they arise is an individual decision. If they are few in number and perfectly obvious, the latter is desirable.” This study will be limited to the Pietermaritzburg Campus of UKZN because of the time constraints of a course work Master’s and limited financial resources. The study will consist of a sample of all undergraduate and postgraduate international students registered for the 2011 academic year on that campus. The study will include both international students who fall under the exchange programmes and those who follow the normal degree programmes.

International students in the South African context
The potential benefits of hosting international students are linked to skills’ migration, economic growth, public diplomacy, and more importantly, to research and innovation which contribute towards the knowledge society (Daly, 2011, p. 60). UNESCO (1998) has argued in the past that without enough higher education and research institutions to supply a large number of skilled and educated citizens, no country can ensure sustainable development, and developing countries in particular cannot reduce the gap separating them from industrially developed nations.

Kishun (2007: 456) revealed that the international student numbers in South Africa had more than quadrupled during the dozen years of democracy, from around 12 500 in 1994 to nearly 53 000 in 2005 - more than 7 % of the total higher education student body of 730 000. Kishun (2006: 8) also noted that international students from Africa represented 70 % of the total number of foreign students. Most students from the Southern African Development Community (SADC) were registered for undergraduate courses, while students from other African countries were mainly registered for postgraduate degrees. Furthermore, SADC students were drawn to higher education in South Africa on account of proximity, cultural and linguistic ties, and the quality of educational resources (Kishun, 2006).

The role of International Student Offices

Kishun explains that, “The responsibilities, positions and reporting of staff managing international offices differ from institution to institution” (2006: 8). Consequently, South Africa realized the need to increase the number of international offices in order to correctly manage the influx of international students who came in after the 1994 democratic election. The UKZN has recognized the important role of international offices, and the university has initiated three International Student Offices (ISOs) to serve all five campuses. The international student office is a department that falls within Student Services. The office on the Pietermaritzburg campus provides a number of services to international students, such as applying for medical aid cover for students who do not have such cover, study visa/ permit applications and extensions, and registration clearance. Other services provided include receiving and sending faxes
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

and registered mail (free of charge) from or to home countries. Other forms of assistance to foreign exchange students include collection from the airport and familiarization with the campus and surrounding areas. In case of death, the office helps with the relevant documentation to repatriate the deceased to their country of origin (Marais, 2011).

Definition of key terms

This section briefly defines the key terms used in this study.

Information

Case (2002: 62) defines information “as data that has been gathered, processed and analysed to provide a useful result called information”. According to Saracevic and Wood (1981: 11), information is “the meaning that a human assigns to data by means of the known conventions used in their representation”, and this definition is mostly influenced by the discipline with which they are associated. From an information studies perspective, Kaniki (2001: 191) defines information as “ideas, facts, imaginative works of the mind and data of value, potentially useful in decision making, question answering and problem solving. It leads to a state of knowing”. In this paper, the term ‘information’ will refer to the latter definition.

Information needs

Feather and Sturges (1997:216) define information needs as, “The expression used in a wide range of ways to refer to any context where information is sought and it represents all forms of information seeking”. Needs vary across society and individuals, and needs keep changing over time. Atkin (1973), as cited in Case (2002:69), regards an information need as, “A function of extrinsic uncertainty produced by a perceived discrepancy between the individual’s current level of certainty about important environmental objects and a criterion state that he seeks to achieve”. Once there is uncertainty, there is a need to carry out some information search in order to solve that information problem.

Information seeking
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

Case (2002: 5) defines information seeking as, “A conscious effort to acquire information in response to a need or a gap in your knowledge”. Whenever a person realises that there is an information gap, their desire to bridge that gap kicks in and may lead to searching for and then applying information from various sources. According to Ikoja-Odongo and Mostert (2006: 148), information seekers may take personal responsibility for their own processes or decide to work through an intermediary.

Information seeking behaviour

Davis (2000: 57) defines information seeking behaviour as, “An activity of an individual that is undertaken to identify a message that satisfies a perceived need” In this context, information is viewed as a stimulus that reduces uncertainty. In other words, information behaviour describes, “Those activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transforming that information” (Wilson, 1999:249). Therefore, the effort to satisfy the perceived need results in information seeking behaviour. In the information studies context, information needs sometimes refer to what people feel while searching for or using information, and information needs are recognised as the motivation behind information behaviour (Pettigrew, Fidel and Bruce, 2001; Hewins, 1990).

International student

The UNESCO Institute for Statistics (2009) defines international students as, “Those who study in a foreign country of which they are not a permanent resident.” With its focus on the South African context, the definition of an international student used in this paper is one provided by Project Atlas (2004), i.e.: “One who undertakes all or part of his/her higher education experience in a country other than the home country.” This definition does not consider an international student to be a permanent resident of the host country and obviously the main motivational factor here is formal education.

Initial literature review
The literature review is described by Hofstee (2006) and Gash (2000) as the body of previously published works by other scholars on a specific topic, e.g. books, journals, and unpublished theses and doctoral dissertations. The beneficial results of conducting a good review of related literature have been highlighted by many researchers (Hofstee, 2006; Stilwell, 2004; Galvan, 2006; Kaniki, 2001). According to Stilwell (2000, p. 173), “A good literature review needs to indicate the different views, agreements, disagreements and trends of thought on the topic of research and be accurately portrayed and acknowledge in the text.”

In the initial review, the major challenges experienced by international students when searching for information and their main sources of information will be outlined. This will be followed by a brief review of available studies on the information seeking behaviour of international students.

**Major challenges experienced by international students**

International student groups have been the focus of research studies by many researchers over the last decade (Liao, Finn and Lu, 2007; Hughes, 2005; Wang and Frank, 2002). Overall, the researchers appear to have identified three barriers that were repeatedly experienced by international students with respect to information, namely language and communication issues, cultural issues, and information literacy issues (Nataowitz, 1995; Onwuegbuzie, 1997; Song, 2004). Brown (2000) and Burns (1991) especially highlight the communication problems experienced by international
students. Other problems identified include library anxiety (Brown, 2000; Baron and Strount-Dapaz, 2001), and social and personal uncertainties (Burns, 1991).

Language and communication issues

Language skills in this study refer to the ability to write, read, speak, and listen in English, which is the foundation of effective communication in the university environment. Foley (2010, p. 10) notes that, “Most international students come from countries where English is neither an official language nor a medium of instruction.” A study based on international students’ acquisition of library research skills in relation to their English language proficiency has revealed that international students with English as their second language had half the reading comprehension of home students, and even poorer oral comprehension skills (Bilal, 1989). In the context of the present study, English may either be an open door to students who are proficient, or a barrier to communication for those who are still struggling with the language.

The study recognises that English is the official UKZN language and that it is not the first language of the majority of international students enrolled at UKZN. Because this can negatively impact on the communication searching and learning between international students and the university system, UKZN has initiated access programmes to assist those students who come from disadvantaged schools and those international students who come from countries where English is neither an official language nor a medium of instruction in order to improve their academic understanding and their English proficiency.

Cultural issues

International students are expected to adjust to the host country’s education and cultural dimensions (Baron and Strount-Dapaz, 2001). Mu (2007, p. 573), for example, states that, “Cultural and communication differences make international students uncertain about the subject resources and services available in a library.” However, studies focusing on inter-cultural contexts in higher education have revealed that international students wish and expect to make contact and build friendships with host students (Ward, Bochner and Furnham, 2001; Smart, Volet and Ang, 2000), and that
contact and friendships can contribute to high academic performance and the prompt socio-cultural adaption of international students (Kudo and Simkin, 2003).

In a study focusing on the interests, issues and constraints of multicultural students studying abroad, Brux and Fry (2009, p. 521) found finances to be the main constraint faced by international students. This applies to international students at UKZN as well, given that some of them are from developing countries characterised by economic and financial instability.

**Information literacy issues**

Siddiqui (2011, p. 57) states that: “Today, information technology has developed rapidly and has had a huge impact on access to information and on information seeking behaviour.” Generally, information literacy skills include knowledge about and the ability to use information and communication technologies (ICTs). International students come from both developed and developing countries. Therefore, their levels of ICT knowledge and skills cannot be the same, and this can influence the ways in which they access information. Many international students from developing countries encounter libraries and computers for the first time when they enter tertiary institutions. In this respect, Wang and Frank (2002, p. 208) identified several factors that commonly contribute to the underutilisation of library services by international students, namely: the fact that international students tend to be unfamiliar with the organisation and the mission of the academic libraries of the host countries; library services from their home countries are not necessarily available to all students; access to books and other forms of information may be limited; databases may or may not be available and accessible; and card catalogues are still used in some libraries and information centres. One of the consequences of the above is the international students’ heavy reliance on assistance from librarians who have the ability to use information technology systems and databases. Korobili, Malliari and Zapoundou’s (2011) survey on factors that influence the information seeking behaviour of students highlighted the need to improve the level of graduate students’ information literacy skills. Mu (2007, 575) suggested information programmes that could develop the
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

Information literacy skills of international students for their academic purposes, and these include: library orientation, which can help familiarise the students with the library environment; an introduction to library resources; searching the library catalogue; locating information; information retrieval skills; critical skills for evaluating retrieved information; proper citation of information; and providing follow-up sessions. It is acknowledged that there are many local students whose information literacy skills are poor and need to be improved.

Main sources of information used by international students

According to Case (2002: 12), an essential distinction that is made in the literature on information seeking is between “formal and informal sources of information”. Case specified that formal sources refer to printed sources such as textbooks, encyclopaedias and daily newspapers. Informal sources tend to be family, friends, and colleagues (Boadi and Letsolo, 2004). Abdoulaye (2002: 193) found that the sources of information that were mostly consulted by African students studying in Malaysia were library books, periodicals, textbooks, the internet, the Online Public Access Catalogue (OPAC), lecturers’ handbooks and notes, and friends. Reference librarians and online databases were also consulted. Generally, international students were found to approach the library staff for various kinds of assistance in the course of searching for information (Adedibu and Adio, 1997).

Studies on the information seeking behaviour of international students

The search for literature revealed that there have been only a few studies conducted in South Africa focusing on the information needs and information seeking behaviour of international students in tertiary institutions. The number of relevant international studies is also limited (see for example Song, 2004; Abdoulaye, 2002; Hughes, 2005). Many of the studies are library-focused, suggesting a need for further research on the topic ‘beyond the library’ both nationally and globally. It is also evident that the
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

Problems faced by local students may mirror those faced by international students with respect to needs and information seeking behaviour (Hughes, 2005: 172).

As noted earlier, other studies have been carried out on the information seeking behaviour of international students at UKZN. As with this study, these studies went beyond the environs of the library and highlighted the information needs and behaviour in the university context as a whole. The most common finding of the previous studies was the information gap between the university administration and the international students as information seekers. An example was the lack of information regarding the extra student service levy of R 1 700 per annum that international students had to pay. Among other important findings, Chisa (2004) and Muhambe (2009) found that colleagues were the best source of information on campus for international students, especially for academic purposes. Both researchers noted that academic information was the main information required by the international students who study at UKZN. Asah (2000) and Chisa (2004) both found that a large number of international students felt that preferential attention was likely to be given to international students who were part of the university's exchange programmes. Accommodation was also cited by students in these studies as a problem. However, the extent of this problem did tend to vary across the studies. 24% of the students in Asah (2000) and Chisa’s (2004) research cited accommodation as a problem; 6% of the students in the study by Letsoalo (2006) and 13% in Muhambe’s (2009) research complained about accommodation. The other main problems identified in previous studies were poor library guidance and the inability to search and retrieve online information via online databases on the internet.

Muhambe (2009) concluded that because of the large number of international students at the PMB campus, there was a need to further investigate their information needs and information seeking behaviour – a recommendation that this study has taken to heart.

**Conceptual framework**
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

Using theoretical information seeking concepts could lead to a better understanding of university students’ information seeking behaviour in relation to existing information systems. Wilson (1999, p. 250) pointed out that the models and theories proposed by certain researchers, including but not limited to Wilson (1981), Belkin (1982), Dervin (1983), Kuhlthau (1991) and Ellis (1993), have gained strength because they have been adopted as the basis for further research by other scholars. Wilson’s (1981) model of information behaviour will underpin the present study. In this model, information needs, information seeking, information exchange, and information use are integrated in a flow diagram. This model is based on two key points: first, the model looks at the need for information as a secondary need that arises out of a more basic or primary need; and second, during the process of discovering information in order to satisfy a need, the information seeker tends to encounter obstacles or barriers of different kinds (Wilson, 1999, p. 252). These barriers may be personal, interpersonal, environmental, economic, etc.

Wilson’s 1999 model was selected because it attempts to describe and explain user information behaviour. Wilson’s model has been developed and updated (from the 1981 model to the 1999 model) and has been usefully applied by different researchers, including but not limited to Yang (2007) in his study on the information seeking behaviour of international students for career decision making at the University of Tennessee; Mostert and Ocholla’s (2005) investigation of the information needs and information seeking behaviour of parliamentarians in South Africa; and Seyama’s (2009) study on the information seeking behaviour of students with visual impairments at UKZN. The diagram of Wilson’s (1999) model of information behaviour is provided below.

Research methodology

Nature of the research

“Qualitative and quantitative are the two basic paradigms of research” (Kothari, 2004, p. 5), and both will be applied in the proposed study. The study will focus on obtaining comprehensive information and statistical data concerning the information needs and
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

information seeking behaviour of international students. Glesne and Peshkin (1992, p. 7) explain that the qualitative approach is used to contextualize and interpret results using induction to derive possible explanations based on observed phenomena, while the quantitative approach involves collecting numerical data that can be counted. The combination of two methodologies in a single study has been described by Babbie and Mouton (2001, p. 257) as methodological triangulation, which is likely to lead to more valid and reliable findings. When used in combination, both qualitative and quantitative data yield a more complete analysis of the subject because the two paradigms complement each other (Creswell et al., 2004).

Population and sample

As already noted, there are presently 866 international students registered on the Pietermaritzburg campus (ISO, 2011). Krejcie and Morgan (1970) would suggest that with a population size of 850, a good sample size would require approximately 265 respondents. However, due to limited financial resources, time constraints, and the nature of MIS coursework and research, a sample size of 150 students will be targeted. The participants will consist of both undergraduate and postgraduate international students who are registered in all faculties. They will also either fall into the university exchange programmes (38 students were registered for the first semester; the registration for the second semester is still being finalised) or belong to the normal degree programmes (a total of 828 students).

150 students will be identified via a non-probability sampling method, namely snowball sampling, which will be used to reach the anticipated sample size. In the words of Babbie and Mouton (2001, p. 167), “Snowball refers to the process of accumulation as each located subject suggests other subjects.” One International Student Officer will also be interviewed. An effort will be made to ensure that both undergraduate and postgraduate students are represented as well as those on exchange programmes and those registered for degree purposes. In order to identify and gain access to the international students, use will be made of the various student associations or clubs which international students join based on their countries of origin. Contact will be
made with the chairpersons of these clubs and suitable students will be contacted with the assistance of the chairperson and members of those clubs.

Students who fall under the exchange programme category will be identified with the help of the Student Housing Division. Such students are accommodated in the various university residences. The snowball approach will be very useful in this proposed study because it will allow the researcher to reach the target sample quickly. Efforts will be made to ensure that the proportion of students in terms of year of study, gender and country of origin, reflects the population as much as possible. This is to ensure that all bases are covered - first year international students, for example, may have information needs and information seeking behaviour different to those of the more senior students at UKZN.

**Data collection technique**

Data collection methods will consist of a semi-structured interview and questionnaires. The semi-structured interview with the International Students Officer will be recorded using a tape recorder (once permission is granted by the Officer). According to Babbie and Mouton (2001, p. 162), using a questionnaire can reduce interviewer bias and ensure the anonymity of the respondents. The questionnaires will be administered by hand to respondents and, wherever possible, they will be asked to complete them immediately. If this is not possible, arrangements will be made to collect the questionnaires at a later date. The questionnaires will contain both close-ended and open-ended questions and will be administered in English. While the researcher’s involvement in the community of international students studying at UKZN may motivate collaboration and communication between the researcher and the respondents, it may also result in bias on the part of the researcher, and this will be guarded against. Through the use of questionnaires, critical incidents experienced by the international students will be explored. According to Case (2002, p. 105), a critical incident examines a memorable episode, in this case episodes that relate to the students’ search for information or information behaviour. The questionnaire designed
Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus

by Kaniki (1995) will be adapted and used as the main data collection instrument because it has been successfully applied in previous studies.

Pretesting the questionnaire

The pre-test or pilot provides the researcher with the opportunity to revise the questionnaire and refine it prior to the main study (Hallonda and Campbell, 2005). The questionnaire will be pre-tested with three international students under the normal degree programmes and one student falling under the university exchange programmes.

Data analysis

Before analysing the data, each completed questionnaire will be evaluated to check for missing data, ambiguity and errors. The questionnaire responses will then be coded and entered into the computer for cleaning to identify inconsistencies (Williams, 2003). The researcher will analyse data from the questionnaires with the help of the SPSS package version 15.0 for Windows. The data will be presented in the form of graphs, charts and tables. Content analysis will be the preferred method of data analysis for the open-ended questions (Fereday and Muir-Cochrane, 2006).

Data collection will begin towards the end of September, and it is anticipated that the study will be completed by the end of the year.

References


Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus


Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus


Information needs and information seeking behaviour of international students at the University of KwaZulu-Natal, Pietermaritzburg campus


Hofstee, E. (2006). Constructing a good dissertation: A practical guide to finishing a Master’s, MBA or PhD on schedule. Sandton: EPE.


Moise Majyambere


Assessment of outsourcing of information technology services by public university libraries in Kenya

Naomi Wangari Mwai

Kenya Polytechnic University College, Nairobi, Kenya

(mwinaomi@yahoo.com)

Abstract

This study was conducted in public universities in Kenya. The study’s aim was to assess the outsourcing of information technology (IT) services by public university libraries in Kenya in order to be able to design and develop a framework for guiding outsourcing to improve information service provision. The specific objectives of the study were to: examine the perception of the librarians on outsourcing IT services; identify the factors influencing the outsourcing of IT services; examine the areas outsourced; examine the legal and infrastructural requirements of outsourcing IT services; examine the strategies adopted by the libraries to outsource IT services; and establish the challenges associated with outsourcing IT services. The study is founded on the theoretical framework advanced by Pfeffer and Salancik (2003) - the Resource Dependence theory (RDT) - and Williamson’s (1985) Transaction Cost theory (TCT). The study adopted a multiple case study strategy involving the isolated study of outsourcing in four public university libraries. The universities covered in this study included Moi, Kenyatta, Jomo Kenyatta and the University of Nairobi Library. Data collection was done using a semi-structured interview schedule administered to university librarians concerned with the procurement process. Findings indicated that academic libraries in Kenya outsource IT services. Findings show that all libraries were guided by similar motives, including cost cutting, technology transfer, inadequate technical and professional skills, and the drive to concentrate on core competencies.

15 Naomi Wangari Mwai is a Lecturer in the Department of Library and Information Science, Kenya Polytechnic University College, Nairobi, Kenya
Furthermore, technical librarians with the IT skills and ability to design and set up IT infrastructure on par with librarians in the developed world are few or virtually non-existent in Kenya's libraries. Kenyan Procurement Laws are also an impediment to the outsourcing of IT services.

1.0 Introduction

Libraries operate within a social environment, and their growth is influenced by the same social, economic, political and management paradigm shifts and factors that affect all social and business entities that share their environment. One of the dominant trends in businesses and other entities such as libraries in recent decades have been the assimilation and diffusion of information and communication technologies (ICTs) in rendering services.

The growth and complexity of ICT has created new challenges with respect to the management control, design, and the use of ICT in organizations. Information technology (IT) has permeated all areas of human development and is used in almost all business and service organizations. Libraries have embraced ICT in their activities and therefore a lot of the activities in libraries are performed using IT. Many modern business organizations are currently outsourcing specific IT functions, and as if to borrow a leaf from them, many public university library administrators are looking towards outsourcing as a way of securing critical IT support services.

In recent years, IT outsourcing has been used increasingly in the public sector as a policy instrument for changing the way publicly funded services are provided (Khalfan and Gough, 2002). Decreased funding and the rapidly increasing costs of information materials have led many public universities into financial difficulties, especially with respect to libraries. Consequently libraries are reconfiguring their operations by adopting strategies such as outsourcing to cope as well as other cost-cutting strategies.

‘Outsourcing’ is a term that is used to mean the use of outside contractors for important parts of a business's operations, which were either previously undertaken in the information centers or were brought in as new services from the beginning (Grover et al., 1994). According to the Oxford Dictionary (2011), outsourcing refers to “obtaining goods and services by contracting outside sources”. The term is used for all
varieties of external procurement and also decisions to use external procurement. Outsourcing occurs when a business entity takes work traditionally performed internally and contracts it to an external service provider.

Outsourcing is viewed by organizations as a way of ensuring that the outsourced processes help to fulfill the institution's mission and long-term goals and objectives (Grover et al., 1995). Libraries can no longer assume that all organizational services must be provided and managed internally; competitive advantage may be gained when outside suppliers produce products or services more effectively and efficiently. Outsourcing utilizes external suppliers to satisfy and supplement any of a library's capital requirements, including information resources, labour, service provision, equipment and processes.

Originally, companies outsourced their non-core activities as a cost-cutting measure while the core-competencies were relegated to the organization. However, the current stage in the evolution of outsourcing is as a tool in the development of strategic partnerships as well as gaining a competitive edge, leading to a situation where almost all functions could hypothetically be outsourced.

1.1 Overview of outsourcing

Historically, outsourcing was used to supplement subordinate library operations. But today, it is replacing major library departments. For many years, academic libraries have outsourced non-core services such as security, cleaning, couriering and information technology (IT). Other services, such as acquisition, selection and cataloguing, have been accepted as core to librarianship and thus left to internal management and personnel to handle.

As early as 1901, part of the Library of Congress in the United States of America began the mass-production and provision of catalogue cards to other libraries utilized all over the world, thereby becoming perhaps the first vendor of cataloguing services (Martin et al., 2000). Although outsourcing has been practiced in academic libraries on a more moderate scale for years, its popularity as an alternative to direct in-house services grew rapidly in the 60s and 90s.
With the development of approval plans in the 60s, part of the functions of collection development and acquisitions was also outsourced. The 70s and 80s saw cataloguing and acquisitions’ functions begin to be outsourced (Martin et al., 2000).

Several events in the mid 90s led to growing concerns within the library profession about the increased outsourcing of library functions, to the point that some librarians were worried about the complete privatization of publicly funded libraries. These concerns led to the American Library Association establishing an Outsourcing Task Force (OTF) in 1997 (Martin et al., 2000).

In 1993, high-flying outsourcing cases that raised eyebrows included the case of the Wright State University, which completely closed its cataloguing department and outsourced from the Online Computer Library Center. Inc (OCLC) Techopro service. The director cited massive savings of operational expenses, estimated at $250,000 for the first year, which raised further concerns among library professionals (Benaud and Bordeianu, 1998).

Hawaii’s Public Library Systems contracted Baker and Taylor to provide materials and save costs (Martin et al., 2000; Benaud and Bordeianu, 1998). However, the outsourcing was mismanaged and the library system did not save money as anticipated. On March the 31st in 1995, Baker and McKenzie dismissed the entire library staff at the Chicago office and contracted Barbara A. Schmidd, a librarian, to re-institute their law library and bring it into the electronic age (Benaud and Bordeianu, 1998). This led the American Library Association to constitute and fund the Outsourcing Task Force (OTF) to study the impact of outsourcing in libraries (Martin et al, 2000).

Another wave of outsourcing took place in the technical services departments. Among them was the Florida Gulf Coast University, the state university that outsourced most of its library collection development and cataloguing to the Academic Book Centre and OCLC in the summer of 1997 (Benaud and Bordeianu, 1998). As a result, the university also placed most of its staff on multiyear contracts rather than tenure.

Due to recent technological advances, the trend has been to take advantage of the world of information technology outsourcing, such as data transcription and call center.
operations. More drastic changes include full or total outsourcing which has begun to displace the selective outsourcing traditionally practiced by libraries.

According to Kakabadse and Kakabadse (2000), the potential for outsourcing appears to be particularly high in various areas of Kenya’s economy, including service areas. This is further enhanced by the increased use of the internet (Kakabadse and Kakabadse, 2000). Outsourcing is increasingly being used to reduce costs and achieve strategic goals. Kenya has over 50 registered operational companies, with more prospects on the way with the installation of Seacom fiber-optic undersea cables that have led to reduced costs, higher-speed, greater reliability, and less expensive telecommunications connectivity.

A study by Alsudari and Dwivedi (2010) reveals that countries like the USA, UK, South Korea and Australia have recorded the largest amount of published literature on outsourcing. In Kenya, however, very little research has been done on the same. This study therefore sets out to address this gap by conducting an exploratory study in this area.

A survey by Alsudairi and Dwivedi (2010) on outsourcing literature found that outsourcing in academic libraries is on the rise. Proponents of outsourcing, such as Dubberly (1998), see it as a universal remedy to all librarians’ problems. However, many academic librarians view outsourcing as a threat to the library profession because it strikes at the very heart of the librarian’s identity, and may in due course result in the end of librarianship (Benaud and Bordeianu, 1998).

Most librarians do not perceive outsourcing as good or bad in itself. They recognize it for what it is, namely a tool in the armory to improve productivity, increase efficiency, and cut costs. Discussion of outsourcing tends to focus on one or more of the following topics: advantages of outsourcing, disadvantages of outsourcing, and factors that influence outsourcing decisions (Martin et al., 2000).

The major benefit of outsourcing, as seen by many authors, is that it allows a firm to focus on its core competencies (Petrice, 2000; Hayes et al., 2000; Smith et al., 1998; Grover et al., 1994; Lacity et al., 1994; Willcocks et al., 1995; Claver, 2002; Rajabzadeh, 2008). Gupta et al. (2005), claims that outsourcing provides indirect advantages to
institutions because it introduces an element of competition. Additional benefits to the institutions include risk avoidance (such as reducing the risk of obsolescence) and variable staffing. Other researchers, including Glickman (2007), Grover et al. (1994) and Gonzalez et al. (2010), assert that risks, such as liability issues and insurance coverage, can be transferred to the vendor. The outsourcing firm may gain easier access to expertise and new technological developments as professed by Mohammed (2005). Outsourcing can deliver considerable savings in office space, general overhead, company cars, pensions, insurance, and salaries (Petrice, 2000).

Concerns about outsourcing include possible damage to company morale (Petrice, 2000; Antonucci et al., 1998) and loss in other areas besides the personnel, as suggested by Petrice (2000), Antonucci et al. (1998) and Slaughter and Ang (1996). There are also concerns that relate to the nature of the outsourcing relationship(s) since, over time, outsourcing providers may demand greater premiums (Claver et al., 2002). Other concerns include lack of long-term vision or loyalty from providers, especially on a short-term contract as suggested by Petrice (2000), Gonzalez (2010) and Antonucci et al. (1998).

Outsourcing benefits cannot be achieved if the associated risks are not properly identified and managed. Ngwenyama (2007) and Claver et al. (2002) outsourcing facilitates access to the technical knowledge and expertise from information system specialists. However the outsourcing firms rely heavily on the employees of the organization they are serving. Gonzalez (2010) and Miles (1996) warn that many of the firms that decide to outsource may lose business knowledge and experience since the tasks are taken by the contractor’s staff, who are highly qualified. In addition, during the period that precedes the signing of the contract, and even after the contract has been signed, outsourcing generates anxiety, low morale, and a feeling of insecurity among the staff (Palvia, 1995). Outsourcing brings with it many hidden costs such as those linked to provider control and coordination that the client may not always be aware of (Willcocks et al., 1995; Barthelemy, 2001).

Library contracting services must keep in mind the disadvantages and risks that come hand in hand with outsourcing. In particular, attention should be paid to the contents
of the contract and the technical capabilities of the contractor, among other considerations.

1.2 Theoretical framework

Information systems and information technology outsourcing studies have utilized several theories and theoretical constructs from various disciplines, including management, business, and finance, marketing, and information systems. Among the theories used are the Social Exchange theory, Economic theory, Game theory, Mum Effect theory, Knowledge-based theory, Transaction Cost theory and Resource Dependency theory. This study draws from the theoretical approaches outlined in Pfeffer and Salancik’s Resource Dependence theory (RDT) (2003), and Williamson’s Modified Transaction Cost theory (1985).

1.2.1 Pfeffer and Salancik’s (2003) Resource Dependence theory (RDT)

The procurement of external resources is an important tenet of both the strategic and tactical management of any company. The Resource Dependence theory (RDT) has implications on libraries with respect to outsourcing services to fill in gaps in their systems (Pfeffer and Salancik, 2003). RTD implications are that organizations are dependent on resources and that these resources originate from the environment of the organizations. It also suggests that resources are a basis of power. It concludes that legally independent organizations can therefore be dependent on each other. Thus, power and resource dependence are directly linked (Pfeffer and Salancik, 2003).

1.2.2 Williamson’s (1985) Transaction Cost theory

TCT predicts when certain economic tasks can be performed by firms and when they can be performed on the market. Often this involves considering ‘transactions’ not only as the obvious cases of buying and selling, but also day-to-day emotional interactions and informal gift exchanges (Williamson, 1985).

1.2.3 Relevance of RDT and TCT in outsourcing library IT services

Libraries have internal and external coalitions from the environment that emerge from social exchanges that are formed to influence and control behavior, (Pfeffer and
Salancik (2003). Such an environment may contain scarce and valuable resources essential for organizational survival. However due to competition for these resources, the scarcity may pose problems to libraries as they face uncertainty in resource acquisition.

RDT considers the outsourcing of some of the library functions as a strategic decision which can be used to fill gaps in the libraries’ capabilities. In the process of filling gaps, the library is influenced by those who control the resources they require in general. The library will try to exert an influence to retain its independence by opting to choose the least-constraining device to govern relations with the exchange partners. This allows the library to minimize uncertainty and dependence and maximize its autonomy (Pfeffer and Salancik, 2003).

TCT expands RDT by suggesting that as the library considers the options of in-sourcing or outsourcing, transaction costs must be factored in (Williamson, 1985). Transaction costs arise because complete contracting is often impossible due to lack of information and uncertainty, (According to Williamson, this gives rise to incomplete contracts that in turn give rise to subsequent renegotiations and shifts in the balance of power between the transacting parties (Williamson, 1985). Transaction costs therefore increase due to lack of information. According to TCT, librarians need to analyze transaction costs before deciding on whether to outsource or in-source.

1.5 Statement of the problem

The modern librarian must have sufficient IT skills in areas such as database management, web design and digitization, as well as an understanding of how these skills should be applied for the best utilization within the library service as a whole. The librarians must be able to respond in a meaningful and timely way to ever more technically sophisticated information technologies and expectations of their users. They must be technical innovators who can develop high quality information technology services within the overall service framework.

Unfortunately, the majority of the Kenya’s top librarians have been equipped with a traditional set of library skills centered on the acquisition, organization and preservation of print-based information sources and the provision of retrieval and
reference services. This is supported in a study by Okemwa (2000) which revealed that facilities for training librarians in Kenya were inadequate and not well maintained, and the IT skills taught to students were more theoretical than practical.

Those entering the profession and trained in IT move to alternative professions, leaving a vacuum in libraries. This leaves the existing traditional librarians struggling to provide quality services due to inadequate technical skills. Their desire to conform to modern librarianship, forces them to complement their services with outsourced information technology services, especially for online content, electronic journals, and databases such as HANARI and EBCOHOST.

The university management, on the other hand, fails to appreciate the services provided by the traditional Kenyan librarian, placing more emphasis on contractors. Lack of recognition and appreciation is born of the inability by the traditional librarian to embrace information technology. This leads to the management hiring librarians on contract while also contracting IT services to drive the library in the right direction as the heart of the campus. Outsourcing in Kenya is relatively new and there are no clear models for outsourcing, leading to a state of confusion and inconsistency in contracting processes. In light of the above, there is a need to have a clear model for outsourcing that would improve the services.

1.3 Aim of the study

This study aimed at assessing the strategic role of outsourcing information technology services in public university libraries in Kenya in order to design and develop a framework for guiding outsourcing to improve information service provision.

1.4 Objectives of the study

The objectives of the study were to:

1. Examine librarians’ perceptions of outsourcing information technology services in public university libraries
2. Identify the factors influencing the outsourcing of information technology services

3. Examine the areas outsourced in information technology services

4. Examine the legal and infrastructural requirements in outsourcing information technology services

5. Examine the strategies adopted by public university libraries in Kenya to outsource information technology services

6. Establish the challenges associated with outsourcing information technology services

1.5 Research questions

1. What are the perceptions of librarians with respect to outsourcing information technology services in public university libraries in Kenya?

2. What measures are adopted by the libraries to enhance the outsourcing of information technology services?

3. What legal frameworks govern the outsourcing of information technology services?

4. What criteria are used in selecting and evaluating the contractor(s)?

5. How do public university libraries in Kenya outsource information technology services?

6. What are the opportunities and challenges associated with outsourcing information technology services in public university libraries?

7. What are the trends of outsourcing information technology services in different public universities?
1.6 The limitations and scope of the study

The study was limited to the outsourcing of information technology services in four public university libraries in Kenya, namely Kenyatta University in Kahawa, Nairobi; Moi University in Eldoret; University of Nairobi in Nairobi; and Jomo Kenyatta University of Agriculture & Technology in Juja, Thika. These are public libraries, meaning that some of the findings may not be generalized to private universities, which are more flexible. This being a qualitative study (and taking into consideration the subjective views where bias could occur), the researcher ensured that the research was reliable by recording and taking notes during the interviews and by using peer-debriefing and professionals in the field to ascertain their views.

2.0 Research methodology

The study implemented qualitative research methodology. The target population consisted of Moi, Kenyatta, Jomo Kenyatta, and Nairobi University libraries. The primary data on outsourcing practices was collected by means of semi-structured interviews that targeted the top library management staff, IT managers, and university administrators. This was reinforced by open-ended questionnaires that targeted service librarians and contractors.

2.1 Multiple case study

Multiple case studies were used involving the isolated study of outsourcing in four public university libraries in Kenya (Moi, Nairobi, Jomo Kenyatta and Kenyatta university libraries). The use of multiple case studies was considered appropriate because public university libraries share similar characteristics as publicly funded and operated institutions. They are governed by almost similar laws and structures and are accountable to Kenya’s Ministry of Education. However they differ in the way that they are internally managed. Each university has its own organizational culture which boosted this study by shedding more light on the topic.
2.2 Study population

The researcher used purposive sampling where only those individuals involved in outsourcing processes were selected. Specifically Deputy Vice Chancellors directors of ICT, acquisition or procurement librarians, university library managers, systems managers or ICT librarians, and service provision librarians (circulation librarians, reference librarians, etc.) were selected.

<table>
<thead>
<tr>
<th>Respondents Targeted</th>
<th>Moi</th>
<th>Kenyatta</th>
<th>Nairobi</th>
<th>JKCAT</th>
<th>Total</th>
<th>ACTUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deputy Vice Chancellor (finance)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Director Of ICT</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>University Librarian</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Systems Librarians</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Acquisition Librarians</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Reference Librarians</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Circulation Librarians</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Providers/Contractors</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>36</td>
<td>32</td>
</tr>
</tbody>
</table>
2.3 Research instruments

Open ended questionnaires were designed to obtain a comprehensive overview of Kenya’s information technology outsourcing practices in public university libraries and to supplement the information obtained through semi-structured interviews. These questionnaires were administered to contractors and providers of IT services. The semi-structured interviews were conducted during the period of data collection. The groups interviewed included university librarians, Heads of Departments, ICT librarians, ICT directors, and Deputy Vice Chancellors in charge of finance.

2.4 Data presentation and analysis

The data obtained from the interviews was coded and then analyzed using the Statistical Package of Social Sciences (SPSS) software. Coding and classification was used in order to present results using the qualitative and quantitative descriptive techniques. Qualitative data was organized by scanning and sorting data into different types to enable the researcher to establish categories that were applied to raw data through the coding process, which was done manually. Various research objectives and topics obtained from literature and those addressed in the theoretical discussion were used to organize data into various themes.

2.5 Ethical considerations

The researcher took all the steps necessary to ensure that no person’s rights were violated and that ethical issues were considered in all stages of the research.

While designing covering letters for the data collection tools, the reasons for conducting the study, were included. During data collection, participants and the study
Assessment of outsourcing of information technology services by public university libraries in Kenya

sites were respected. Permission was sought from the National Council for Science and Technology under the Ministry of Higher Education, Science and Technology and the universities before entering the sites.

The data collection followed the principle of ‘informed consent’ as stated by Creswell (2007) and Rosnow & Rosenthal (1997) - informed consent is where the participants are entitled to know what they are getting into and are acquainted with the essential facts of the study. Finally, during the data analysis stage, the data collected was not falsified or invented to meet researchers’ or audience needs.

3.0 RESEARCH FINDINGS

This section presents the study’s findings based on the objectives of the study. 32 of the 36 targeted respondents were interviewed, an overall response rate of 88.8 %.

3.1. Perception of the librarians on outsourcing IT services in public university libraries

The study established that the majority of the library staff (81.7 %) supported the decision of the library to outsource information technology services. A small proportion of the staff (3.7 %) opposed the decision, while 14.8 % remained neutral.

Reasons given to support their claims in descending order were as follows: i) the library is able to access services that it cannot offer from within due to lack of skills (29.7 %); ii) staff are able to concentrate on their core-competencies (22.2 %); iii) the library is able to save money (14.8 %); iv) the contractor outside the library offers the services and therefore bears the risks that may result from additional costs, such as software updates (11.1 %); and v) the library is able to gain more from contracted services, especially e- resources (7.4 %).

The greatest fear regarding outsourcing was that it can lead to job layoffs, with 37.0 % of the respondents holding this view. Other fears included the high costs incurred from the training of staff after outsourcing (22.5 %), and the risks, especially where there are
Assessment of outsourcing of information technology services by public university libraries in Kenya

no outsourcing policies (11.1 %). 3.7 % felt that outsourcing makes the staff lazy, exposes organizational secrets to the outside world, provides rigid services in some instances (especially cataloguing), and can lead to the employment of unreliable contractors. Finally, the divergent views arose because outsourcing was a new area and it had not affected the library staff in terms of for example losing their jobs.

3.2 Factors that influence the outsourcing of IT services

The factors that were cited as prompting libraries to outsource in order of merit were:

1. **Knowledge and technology transfer.** This was cited by 25.9 %. The argument was that the librarians are able to gain easier access to expertise and new technological developments from the staff providing the services. The contractor is more likely to have more advanced and experienced staff since they derive their livelihood from consultancy and therefore strive to remain informed about the latest trends in technology. The library can therefore move with the times with the technology that the contractors introduce.

2. **Cost cutting.** It is cheaper in the long run since the overhead costs are covered by the contractor and not the library. This was cited by 22.2 % of the respondents.

3. **Allows the librarians to concentrate on their core-competencies.** When services are outsourced, they take on areas of IT while the librarians are left to concentrate on their own areas of expertise, such as serving users. This was rated third by 18.5 %.

4. **To gain more e-resources.** This was cited by 7.4 %. Libraries are able to get more resources by pooling together as institutions. This way, each library is able to get more than they would have if they had done it on their own. According to one librarian, the library was able to get 50000 journals more through the
Assessment of outsourcing of information technology services by public university libraries in Kenya

Kenya Library and Information Services Consortium (KLISC - the consortium of institutions in Kenya).

5. **Faster way of doing things.** Considering that the contractors hire staff who are more experienced than the library staff, they are able to perform the tasks at a faster speed than the library staff. This was also cited by 7.4 % of the respondents.

6. **Prompt support in case of breakdown.** The contractors have better and more sophisticated equipment than the library and staff experienced with handling emergencies. In case of a breakdown, they are able to reinstate the services faster than the library. This was cited by 7.4 %.

7. **Improved productivity.** The library is able to improve the efficiency of its services because the services contracted were mainly those in which the libraries lacked staff capacity and skills. These services are outsourced to staff that are more competent and able to provide a seamless service. This helps to improve the services provided to the clients of the library, and was rated by 7.4 %.

8. **Risk reduction.** The library is able to minimize certain risks that may stem from IT, such as liability issues, insurance coverage and risk of obsolescence of technology. The contractor owns the technology accessed by the client library. These risks can be transferred to the vendor and the library is released from incurring losses. This came last at 3.8 %.

### 3.3 Areas outsourced

The findings indicated that all four of the libraries outsourced information technology services. Both long-term and short-term outsourcing was carried out by all the libraries. In short-term outsourcing, the library contracts a particular service only for a short time, for example the training of staff on a programme. Long-term contracting is when
Assessment of outsourcing of information technology services by public university libraries in Kenya

the service is contracted for long periods, sometimes running over a year or more. Of the two, short-term contracting was more prominent. This included using management consultants such as Digital Divide Data (DDD) and LINUS to perform management consultancy in areas such as IT training.

The study established that the information technology services outsourced by all four of the university libraries included e-resources, the internet and library management systems.

1. **E-resources.** This is a service that all the libraries outsourced through a consortium of institutions. Consortia works with PERI (Programme for Enhancement of Resource Information) and the INASP (International Network for the Availability of Scientific Publications) programme to get in touch with the publishers and provide feedback to the country representative(s). PERI sources for services and the requests are passed to INASP. The participating institutions represented by their appointed representatives sit together and decide about the distribution of the money among the participating libraries.

2. **Internet services.** These are contracted at subsidized prices by all the libraries from Kenya Education Network (KENET), a non-profit organization.

3. **Library management systems.** All four of the libraries had outsourced their library management systems, albeit from different sources. Kenyatta and Jomo Kenyatta had outsourced open source software, KOHA. Nairobi University had outsourced their LIS from the University of Brussels and also relied on them for the maintenance of the system. The library had no staff with skills to maintain the system and still completely relied on the University of Brussels. Moi, on the other hand, had outsourced an open source software (ABCD) system from Belgium from Prof Egbert Schmidt who developed it. This was initiated in 2010 and was still on-going at the time of writing. It was outsourced because it was well developed and better than the others that they had evaluated, and was
Assessment of outsourcing of information technology services by public university libraries in Kenya

more cost effective than developing one internally. The development and implementation of the ABCD system was supported by the donor MUK-VLIR-IUC programme in collaboration with Moi University and Belgium universities and the Flemish International University Council.

4. **Training of staff** was also outsourced by all the libraries because most librarians lacked skills and were using outsourced software. For instance, Nairobi was outsourcing the maintenance of its cataloguing software since the library had no staff with the skills to do it, so they relied on the library of Brussels to maintain the software. Thus all the libraries had engaged in the outsourcing of maintenance services. Kenyatta university library was outsourcing the maintenance of rifts, while Moi University had outsourced training - specialists in ICT courses from certified organizations, such as CISCO, LINUS, Oracle and Dbase, were outsourced to train the library staff and other university staff in certain skills from time to time.

5. **Digitization.** Due to limited storage space and the need to convert most of the institutional repositories into digital format, 75 % of the libraries had already either engaged a contractor or were in the process of engaging one to digitize their print resources. For instance, Nairobi University was in the process of engaging a firm to digitize their institutional repositories. The reason given was that the library did not have IT experts to do the work.

6. **Web-designing, OPAC.** All four of the libraries had operational websites. This service had also been outsourced.

7. **Automation.** All the libraries had outsourced the automation of the library, especially user services such as circulation and acquisition. At the time of writing, almost all the libraries had already automated their libraries.
8. **Security - CCTV, RFID.** All the libraries had outsourced security services, either by engaging firms to provide the services on a regular basis, or contracted a firm to erect a security system for the library. Moi and KU were already in the process of contracting a firm to set up a Radio Frequency Identification (RFID) System. Jomo Kenyatta had commissioned 3M to erect a Close Circuit Television (CCTV) security system. Nairobi was using a security firm to man their library.

9. **Cataloguing –LC, MARC records and tags.** All four of the libraries were using Library of Congress and Marc Record tags.

10. **ICT, Consultancy, especially installation of software.** 50% of the libraries had outsourced the installation of the LIS software and the training of staff. Kenyatta and Jomo Kenyatta had engaged the services of staff from Strathmore University despite the fact that it was open source software. This was because none of the libraries had members of staff that were acquainted with the working of KOHA.

### 3.4 Contractors

The findings revealed that all four libraries had engaged the same contractors for similar services that were done jointly through consortia. These contractors included KENET for internet services, and INASP and PERI for e-resources. The rest of the services were contracted to different vendors, such as Digital Data Divide (DDD), which Nairobi University was commissioning for digitization, Power Techniques, commissioned by Moi for cabling, and 3M, contracted by Jomo Kenyatta for security. A large proportion (75%) of the librarians expressed dissatisfaction with the way their respective libraries outsourced various library management systems. Various contractors were subcontracted without the universities benchmarking with the pioneers organizations.
3.5 Legal and regulatory infrastructural rudiments in outsourcing services

Findings indicated that there were no stipulated guidelines for outsourcing. All four libraries did not have written guidelines and policies to guide the process. Many of the outsourcing cases were dealt with on a case-by-case basis.

The rules and procedures concerned with the procurement of services, including the outsourcing of services in the Kenyan public sector, are found in the Public Procurement and Disposal Act of 2005. Although procurement regulations were used by the libraries, they do not cover all aspects of outsourcing. All four of the university libraries were found not to have outsourcing policies in place. 75% had draft policies while 25% did not have any.

All four of the libraries had signed service level agreements and one library in particular had engaged the services of a lawyer for legal interpretation when drawing contracts between the library and the contractor.

3.5.1 Strategies adopted by the libraries to outsource IT services

3.5.2 Legal framework

According to the findings, 100% of the libraries did not have clear cut guidelines for outsourcing procedures. The procurement laws that were in use are not elaborate on issues of outsourcing. It was found that when it came to the awarding of contracts, the lowest bidder was awarded in compliance with the Kenya Procurement Act 2005. This requirement is disputed by other organizations including libraries. This explains why 50% of the libraries adopted other avenues of awarding contracts, for example, by adding other criteria such as technical expertise, in selecting a vendor.

3.5.3 Selecting a vendor

The criteria that the librarians used to select a vendor (in descending order) included technical and professional qualifications, reputation, level of service, experience, reliability of service delivery, quality of service, attention to detail, follow-up, and resource capacity.
3.5.4 Involvement of library staff in selecting contractors

It was found that while 50% of the librarians were involved in making decisions about the services to be contracted from outside, others were not consulted, which left these librarians feeling let down. For instance, in one of the libraries, the management information system was forced on the staff despite their desire to have another system that they felt comfortable with.

3.5.5 Evaluation of contracted services

It was found that 62.7% of the respondents were not keen on assessing the quality of the services provided by the contractor, while 37% signed service agreements with the vendors and used the same to follow up on the evaluation of the services provided. Other measures that libraries had adopted to ensure that the services were as agreed include the termination of contract, non-payment, renegotiations, committees, and legal action. One library, however, confirmed that legal action was only taken if there were no other way of settling the dispute.

The methods that the libraries applied in evaluating the services of the contractors included; use of surveys, use statistics (for example clients visits to the websites) and complaints analysis from suggestion boxes. Among the complaints that the libraries got from their clients in relation to the services rendered by the contractors were limited access to the internet, slow connectivity, security issues, lack of experience, and the underutilization of resources due to customers’ lack of awareness of the service.

3.5.6 Steps in outsourcing

The study established that there were no guidelines and documented procedures for outsourcing. Each library followed different procedures in different cases. There was a general consensus that outsourcing processes were wanting in many ways. Procurement cases were dealt with on a case-by-case basis based especially on how much money was at stake. Projects awarded less than Ksh. 100,000 were not subject to tendering processes the same way as big projects of Ksh. 500,000, which had to go
Assessment of outsourcing of information technology services by public university libraries in Kenya

through most of the major outsourcing steps. The steps suggested (in order of frequency) were as follows:

1. The department first originates the request having considered the needs and having conducted a feasibility study.
2. A committee is formed.
3. The ICT technical committee advises the university’s management on ICT issues. The committee is made up of an ICT director, librarian, Deans, purchasing staff, and other heads.
4. If the decision is accepted, purchasing rules or guidelines are followed.
5. Quotations are floated. However, other additional criteria to the lowest bidder, such as financial and technical analysis, are also used. Based on the above, the additional factors help them to pick the best.
6. The vendor is given the Local Purchasing Order (LPO-).
7. Service level agreements are drawn up.
8. Legal officers are involved in the process of drawing agreements between the user department representative, representative from the management, and the vendor.

3.6 Challenges associated with outsourcing IT services

Findings indicated that there were challenges associated with the outsourcing of IT services. These included:

1. Obscure outsourcing procedures. Opportunities for outsourcing were often evaluated and implemented on a case-by-case basis and lacked coordinated strategic planning across the functions and services. Furthermore, university library administrators had not necessarily taken the right steps internally to build an effective governance organization and maximize the benefits of an outsourcing model. Vendor selection was pegged on the lowest bidder, thus contributing to the selection of unqualified suppliers. Lack of policies and a legal framework was a major hindrance; all four libraries did not have a legal framework to guide the process. Procedures of outsourcing were also not
Assessment of outsourcing of information technology services by public university libraries in Kenya

documented. 75% acknowledged that in case contracts are broken, the university may be forced to sue as a last resort because injunctions can derail the process with long court battles and no legal representation. 75% of the libraries had legal officers hired by the university to deal with legal issues.

2. The cost of the services and price fluctuations were another challenge that forced the institutions to open up (re)negotiations so that the providers, especially of e-resources, could continue to provide services.

3. Poor service delivery. The study established that the librarians relied on outsiders (INASP) to do the negotiation of e-resources for them. This also included the selection of materials and negotiating prices. This left librarians vulnerable and without much control and influence in the process. Many companies they dealt with had no representatives locally and this contributed to delayed responses.

4. Vendor closure/ broken warranties. This was a challenge that libraries encountered when contractors closed shop, either because of a change of business, or lack of finances to sustain their business. For example, Moi University had contracted the Wantech Company to oversee radio communication between its campuses. Wantech closed after some time. Equipment broke down because the staff had not been trained on how to maintain the system. The library was therefore left to deal with the problem.

5. Change of technology. This is a problem because technology requires librarians to keep upgrading their facilities. IT is always on the move, with new technology being introduced at faster rate than libraries can change. For example, Nairobi University was still using a manual security system while Moi and Kenyatta were outsourcing RDIF, a current technology, and Jomo Kenyatta was using CCTV.

6. Security issues and copyright issues in outsourcing. The library entrusts its data to the contractor. If the contractor is not trustworthy, he/she may manipulate the data or it may fall into the wrong hands. Copyright issues arose when Moi digitized its academic research reports because some students used to plagiarize these works. The library withdrew the service and is now considering outsourcing DSPACE which is more reliable. On the other hand, the University
of Nairobi library is drawing up an open access policy so that anyone who has used the university either to carry out research or was funded by the university would be expected to deposit the document in the university repository upon completion of the work.

7. Other problems arose from lack of publicity or marketing of the services on offer by the library. For example, the users were not sensitized enough when it came to the use of the e-resources which led to the underutilization of these resources. The library as a result was not able to effectively evaluate the services that they were getting from the contractor.

8. Lack of access to information resources by the users. This was a problem that was experienced by all four of the university libraries. It was primarily caused by the librarians and management. The librarians had not sensitized the users effectively on the use and techniques of accessing e-resources. Meanwhile, there were few internet terminals. 75% of the libraries had tried to rectify the situation by introducing remote access terminals near the libraries so that those with their own computers could access the libraries. However, not many students were aware of the remote area access.

9. Loss of control of the services. Not many contractors provided full disclosure about their services. For example, some parts of the software’s documentation known as ABCD that Moi university library had outsourced from the Belgium (Prof Egbert Schmidt) was written in Spanish language which forced the library to keep relying on the contractor for the support with the system. This resulted with the library essentially losing control and relying heavily on the vendor.

3.7 Ways of improving IT outsourcing processes
The study established that the processes of outsourcing services were lacking in many ways. Respondents suggested possible ways of improving the services as follows:

1. There should be a clearly documented policy on outsourcing. The procurement laws do not cover outsourcing processes adequately.
2. Outsourcing guidelines should also be streamlined so that every person involved is aware of the procedures to follow.

3. The departments’ staff should be involved. The departments should be involved in all the outsourcing activities that are to be implemented in their departments. The staff must participate in decision making so that responses to change and the adoption of the system would be smooth.

4. Implement service level agreements. A study should be undertaken to understand all the transaction costs involved. This would make it possible to negotiate contracts in a more effective manner and reduce the likelihood of renegotiating contracts.

5. Staff training. To avoid paying for services that are not well utilized, there is a need to train the staff and users. In all the libraries, the staff was still struggling to manage outsourced services with limited skills.

6. Improvement of ICT infrastructure. All four libraries had outsourced internet services. However, the greatest challenge was connectivity; low bandwidth and limited access. Two of the libraries (50 %) were already providing remote access by providing wireless connections near the libraries. The Wezesha programme had also been introduced by the government, allowing students to purchase computers at a 10 % discount from vendors, making it possible for many students to own laptops and thus access information.

7. Joining a library consortium. E-resources and internet services that were acquired through a consortium of libraries were more successful. Thus libraries should pool resources together and outsource jointly to cut on costs.

8. Benchmark the services. The study revealed that libraries had not benchmarked some of the activities that they had outsourced. For example, 50 % of the libraries were using library management systems that were imposed on them, by the University management. These decisions did not take into account the
9. The library staff reiterated their recommendation of benchmarking before acquiring services to facilitate systems acceptance and avoid situations where ineffective systems are outsourced.

10. Promoting the services - most of the users in 75% of the libraries were not aware of the services the libraries were paying for, especially the electronic resources. The only library that had provided regular training was the University of Nairobi.

11. Evaluating the services - this area required improvement. The staff rarely conducted an evaluation of the services provided by contractors.

4.0 Summary of the findings

Findings indicated that most of the staff (81.7%) supported the decision of the library to outsource information technology services. The greatest fear of outsourcing was that it would lead to job layoffs.

Among the most common factors cited as prompting libraries to outsource were knowledge and technology transfer, cutting on costs, allowing staff to concentrate on their core-competencies, and gaining more e-resources.

The findings indicated that all four of the libraries outsourced both long-term and short-term information technology services. The study established that the information technology outsourced by the libraries included e-resources, the internet, and library management systems. Other areas outsourced included digitization, web-design, OPAC, automation, security (use of CCTV and Radio Frequency Identification (RFID), cataloguing – LC, MARC records and tag, and the installation of software.

The study revealed that the four libraries had engaged the same contractors for similar services that were offered jointly through a consortium. The contractors included KENET for internet services, and INASP and PERI for e-resources.

Findings also indicated that there were no stipulated guidelines for outsourcing. The rules and procedures concerned with the procurement of services, including outsourcing services in the Kenyan Public sector, are the Public Procurement and
Disposal Act 2005, which does not cover outsourcing adequately. The awarding of contract was based on the lowest bidder, and this was found not to work in the case of libraries. Outsourcing cases were also dealt with differently between the libraries. All four of the libraries had signed service level agreements, albeit not consistently. One library in particular had engaged a lawyer, but only because they had been sued at one point for breach of contract.

The criteria that the librarians used in selecting a vendor, in descending order, were technical and professional qualifications, reputation, level of service, experience, service delivery, reliability, quality of service, attention to details and follow-up, and resource capacity. However, the procurement law was mainly used in most cases where the contractor was selected for giving the lowest prices.

Lack of policies and legal frameworks were cited as the major challenges associated with outsourcing IT services; there should be a policy on outsourcing that is clear and in a written and documented form, as suggested by 22.2% of the respondents. The outsourcing guidelines should also be streamlined to ensure that every person involved is aware of the procedures to follow.

5.0 Conclusion

The study revealed that the outsourcing of IT services was being practiced in Kenyan university libraries. However, there are challenges that the management and users face due to the lack of outsourcing guidelines. The decision to outsource can lead to many benefits in university libraries in Kenya. Considering that the contracting of library IT services may become a growing trend in university libraries, especially since it has become a management tool to control costs, increase resource capacity and keep up with advances in technology, there is a need to have a harmonized system that is clear to all the stakeholders.

6.0 Expected outcome of the research

Outsourcing is a relatively new concept in Kenya, especially in university libraries. The results have thus far pinpointed gaps in literature as well as in how the outsourcing processes are conducted. There was a general lack of consensus among the
respondents on how to deal with the issue of outsourcing in libraries and different cases. In fact most of the outsourcing contracts were dealt with on a case-by-case basis.

The implications of the study are that outsourcing needs to be guided by clear policies that are documented and communicated to all the stakeholders. All four of the libraries already recognized the need to have an outsourcing policy. There is also a need to have the Kenya Procurement Laws revised.

Ultimately, the findings will help in designing an outsourcing model that can be used to guide outsourcing processes in Kenyan libraries. The study has also provided recommendations which, if adopted, will go a long way in regulating the outsourcing of services.

Considering that outsourcing is also a new field in IS, more research needs to be undertaken by other researchers, especially on e-resources and vendor-client relations.

References


ICT skills and library usage of law students in Nigerian universities

Olorunfemi, Doreen Yemisi

yemtopy2k@yahoo.com

Department of Library and Information Studies
University of Zululand

Abstract

There has been much written about the information seeking behaviour of law students and their ICT skills. However, in the context of Nigeria, most of the studies have been limited in scope and context. This study therefore aims to investigate the information seeking behaviour and ICT skills of law students in the selected universities offering law in Nigeria in order to improve law students' ability to use ICTs to source library information. Twelve of the current thirty law universities in Nigeria will be selected through simple random sampling. Qualitative and quantitative sampling techniques will be used to elicit data from the respondents of the selected law universities. The informants of the study will be interviewed, while a structured questionnaire instrument will be distributed to the sampled students. This is an on-going Doctoral study; the final results of this study will be disseminated at a later date.

Introduction

This paper reviews literature for on-going research on the information seeking behaviour and ICT skills of law students in Nigerian universities. Law students in Nigerian universities do not seem to be exposed to information retrieval tools that are essential in the law profession or skilled enough to use facilities such as computers, the internet, and other information databases available in the law library. As observed by this researcher, many of these students seem to be apathetic towards library resources, believing that they have all the books required to graduate at home. They

---

16 Olorunfemi, Doreen Yemisi is a PhD student in the Department of Information Studies, University of Zululand, South Africa
mainly use the library as a quiet environment in which they can read or write assignments.

Much has been written about the information seeking behaviour and ICT skills of law students by various authors (Doherty, 1998; Watt, 2004; Ajidahun, 2005; Tuhnmwire and Okello-Obura, 2010; Ossai, 2011). Previous studies that have focused on Nigerian law students' information seeking behaviour and ICT skills, e.g. Ossai’s (2011), are few in number and limited in scope and context. Ossai (2011) focused mainly on how law students in one of thirty law universities in Nigeria, the University of Benin, Benin City in Nigeria, use information resources. At present, no detailed work appears to have been carried out at Doctoral level in Nigeria to investigate how law students in selected Nigerians universities seek and retrieve information and use ICTs. This study seeks to bridge this gap through an investigation of the ICT skills and use of the library by law students in Nigerian universities.

**Purpose of the study**

As observed by Ajidahun (2005), library information resources are very expensive. Therefore, librarians need to properly manage the resources they have and make them accessible to users. In order to attain cost effectiveness in university library services, it is necessary to promote the use of library ICT resources as this would improve law students' knowledge of, and ability to use ICTs to source library information. This study therefore seeks to investigate the ICT skills and library utilization of Nigerian law students in the hope of improving their information seeking attitude.

Based on the problem and highlighted objectives, the following research questions were generated to guide this study:

1. Do the law students use ICTs to search for information in the libraries?
2. How do the law students in Nigerian universities use ICT resources?
3. What are the ICT facilities available in Nigerian university law libraries?
4. Why are law students not using the ICT resources?
5. Is there any inhibiting factor against the use of ICT resources?

6. What is the perception of ICT resources by the law students?

7. Which of the ICT facilities are most frequently used by the law students?

**Literature review**

**The concept of information in legal study**

Kemp as cited by Reddy, (2010) believes that information is an important resource that can be ranked just after air, water, food, and shelter. The concept of information in legal study is of paramount importance to people in the legal discipline, such as judges, lawyers and law students. They need legal information in order to make decisions in all areas of law. Law students particularly require information for various reasons in their study areas, for example when information may be acquired through the systematic study of legal processes. Law students also generally need information to pass their examinations and write assignments. According to Reddy (2010), information can be acquired, processed, and disseminated through university law libraries where library resources, users, and information managers interact together for the transmission of 'informational knowledge'. Reddy (2010) advocates that it is imperative for the library manager (librarian) to understand how library resources are searched and used through research into users’ needs in order to determine the levels of their satisfaction.

**Concept of legal education in Nigeria**

**History of legal education in Nigeria**

Legal education refers to the act or process of training law students and the course content of the law courses studied in Nigerian universities. According to Olugbenga Oke-Samuel (2007) and Fafunwa (1971), legal education and the current legal profession in Nigeria has its roots in colonialism. The colonial administration required lawyers who were trained in the English common law to occupy judicial positions in the then common law courts. The lawyer’s job was to advise the administration, draft agreements, render general advice on commercial transactions, and plead the case of
litigants in common law courts. The Chief Justice was empowered to appoint persons with basic education and without prior education in law but experienced in court procedure as lawyers (such as court clerks). They were given licenses to practice law while others were appointed as local-made attorneys and colonial solicitors to occupy judicial positions (Nigerian Supreme Court Civil Procedure Rules, 1948; Ike, 1977). The appointed attorneys were known as local-made solicitors, self-taught attorneys, or colonial solicitors (Doherty, 1998, p. 5).

By 1879, a number of people had traveled overseas to train in the available four Inns of Courts (Middle Temple, Inner Temple, Lincoln’s Inn, and Gray Inn) in Great Britain to learn law, and came back to join the local attorneys and enroll as practicing lawyers at the Supreme Court. These lawyers, according to Onalaja (n.d), had no degree in law; they were trained only at the Court Inns to read for the Bar examinations and to observe the compulsory twelve dinning terms required to be called to the Bar or to write the law society’s examination after serving an apprenticeship under experienced solicitors. Onalaja (n.d) claims that there was no local institution for the training of lawyers during Nigeria’s independence. Lawyers were trained in universities in Great Britain with the unwritten constitution of the Westminster model and unitary system of government. Meanwhile, the same lawyers were expected to practice with the federal structure and a written constitution when they returned to Nigeria. The deficiencies in the overseas training package of Nigerian lawyers became a major debacle. In order to rectify the situation, Olugbenga Oke-Samuel writes that the colonial government constituted the Unsworth Committee in 1959 to examine and make recommendations for the future of legal education and the admission of lawyers into legal practice in Nigeria.

The committee recommended that academic legal education should be taught within the universities, followed by professional training at a vocational school (Nigerian Law School) where law graduates from Nigerian universities would undergo compulsory practical training before admission into the Nigerian Bar. The report of the Unsworth committee forms the basis of the Legal Education Act of 1962 (Nigeria) and the Legal Practitioners Act of 1962 (Nigeria). These developments gave birth to the establishment of law faculties in five different universities in Nigeria, i.e.: the University
of Nigeria, Nsukka, University of Ife (re-named: Obafemi Awolowo University in 1987), University of Ibadan, Ahmadu Bello University, Zaria and the University of Lagos.

Today, there are thirty public universities offering law education in Nigeria. Twenty nine are run on a full time basis and one is for distance learning, offering part-time programs in law and other courses for people who are gainfully employed but need to upgrade their level of education (National Open University of Nigeria). The federal government owns fourteen of these law faculties, the state lays claim to sixteen, and private ownership has four universities (NUC, 2011; UME/JAMB brochure, 2010/2011). Law education in the universities follows a four- to five-year training program with the award of the Bachelor of Law degree upon completion.

Purpose of legal education in Nigeria

The purpose of legal education in Nigeria is to produce law graduates who are able to use the law as a tool for the resolution of social, economic and political conflicts in society. Training in law is specifically aimed at producing lawyers whose level of education would prepare them to serve as advisers to governments, companies, business firms, associations, families and individuals. Because all activities are expected to be done within the legal framework, the output or end result of the law program should meet the needs of agencies and institutions such as international organizations; academic teaching and research institutions; federal, state and local government bodies; various industrial, commercial and mercantile associations; and various social, family and domestic groups (Olugbenga Oke-Samuel, 2007).

Library information and its relevance to law students

Riley (1999) defines ‘information relevance’ as information contributing to the achievement of a genuine or legitimate purpose. According to Opeke (2000), a well organised system of information is a prerequisite for effective decision making, organisational function, and higher educational goal attainment. Law students need to make effective use of information resources and services that are relevant to their studies in order to achieve their educational goals. Information centres or libraries are the best agents to provide these information sources and services (Igbeka, 1995).
Law students require library information to cope with their academic work, which includes substantive law courses like Contract Law, Constitutional Law, Criminal Law, Equity and Trust, Evidence, Land Law, Jurisprudence and Torts, etc. In order to be able to achieve success in these courses, they need to be able to use library sources and services, especially digital libraries. A digital library refers to an electronic library where legal information can be accessed to complement the lecture notes and traditional mode of teaching used by lecturers. Law students need to be good researchers because as lawyers, they will have to not only give legal advice, but also know where to find laws. In the words of King George III (cited in Watt, 2004): “A lawyer is not the one that knows the law, but the one who knows where to find law.”

Information sources and services in the legal discipline

There are distinct information sources available in the legal discipline, and these are divided into primary and secondary legal sources. Primary sources of law fall into two categories: (a) Legislation (i.e. statutes and regulations), and (b) Case law (court decisions and administrative tribunals). Primary legal resources are products of the legislature, i.e. the official bodies with the authority to make laws. Secondary legal sources are the sources cited in court for their informative values - they provide relevant references to primary sources of law. Secondary legal sources include law textbooks, legal journals, legal encyclopaedias, case law digests, and electronic databases. The electronic resources in law libraries include Westlaw, LexisNexis, Legalpedia, Compulaw and Ebscohost. Secondary legal sources can be an excellent starting point for legal research because they provide a broad overview of the law (Singh, 2011).

ICTs in the legal profession

University libraries are shifting from the traditional mode of manual service provision to the electronic mode of ICT channels for effective and efficient information service delivery. ICTs are electronic networks of hardware and software that are linked via a vast array of technical protocols. ICTs are embedded in networks and services that affect the local and global accumulation of the general flow of knowledge (Mansell and
Silverstone, 1996 cited in Bosire, 2011, p. 55). They are electronic tools used for gathering and storing information such that it may be easily accessed by users.

The changing nature of ICT applications in the library setting has led to the evolution of different ICT resources, such as electronic journals, electronic databases, electronic books, computers, the internet, wireless networks, digital libraries, etc. Digital libraries’ collections are locally stored in digital format and can be remotely accessed through computer networks by different users in different locations. These collections consist of full-text and bibliographic information sources (Aina, 2004: 329; Akpoghome and Jerome, 2010; 108-113).

The channels for service delivery in most law libraries in Nigerian universities include electronic databases, internet services, and computer systems. The application of ICTs in Nigerian university libraries has had a great impact on service delivery in areas of storage, retrieval, and the dissemination of library information resources (materials). This tends to represent a symbolic increase in the productivity of knowledge and modern education in Nigeria. Bosire (2011: 9) would agree, explaining that ICTs are instrumental in increasing productivity, efficiency, competitiveness and growth in every sphere of human life. This would explain why, as observed by Akpoghome and Jerome (2007), many academic libraries are now actively involved in building institutional repositories of their library material - books, papers, theses and other works are digitised and made available to students and the general public without much restriction. The relevance of the Online Public Access Catalogue (OPAC) as an ICT in the university library is also confirmed in making online information resources available to all users irrespective of their subject fields.

**Information needs of law students in Nigerian universities**

The specific information needs of law students arise from the availability of information sources and services and teaching and research in law education in the following respects:

- Current information on research findings emanating from law conferences, seminars, workshops, etc.
• Information on current affairs and general knowledge (Odusanya and Amusa, 2003)

The information needs of law students in Nigerian universities also include information for daily campus life; information on business and economic matters, consumer goods, health, good living, politics, religion, food, shelter, student unionism on campus, etc.; and information on scholarships, bursaries and job opportunities. In this instance, the other types of information that law students may need are secondary to the legal information requirements in their academic curriculum.

Information seeking strategy of law students in Nigerian universities

From observation, law students tend to exhibit a high level of contentment when they use the information that they retrieve from textual sources in the library. They appear to feel highly satisfied with the library’s textbooks, writing assignments, and going through the lecture notes provided to them by their lecturers. Other students prefer to use their own textbooks in their rooms to accessing information from libraries.

Ossai (2011) studied how University of Benin law students in Nigeria use information resources in their law library. Most of the law students in her study claimed to rely heavily on library resources in the course of their academic programmes. But the results of Ossai’s study also revealed that most of the law students struggled when it came to locating and identifying suitable library information sources for case law and legislation and experienced a lot of difficulty with journal articles. Ossai submitted that law students should be encouraged to use library facilities more frequently and spend more time in the library. This would enable them to maximize their use of ICT resources and services while also enabling them to increase their ICT knowledge and skills. Various other research efforts have ascribed deficiencies in the information seeking behaviour of law students to various factors, such as:

• Traditional teaching methods, i.e. lectures and note-taking adopted by law teachers with little or no room for new or interactive teaching
methodologies. These methods do not encourage law students to develop a sense of independent research skills (Tunkel, 1997; Mock, 2001; Cuffe, 2002; Milles, 2005; Niedwiecki, 2006; Oke –Samuel, 2007; Barkan, 2007; Lawal, 2007)

- The specific information needs of information seekers are either not well-known or not well understood by them
- Information professionals seem to lay more emphasis on information technology than on the quality of the information usage in itself
- Inadequate libraries or information centres with inadequate qualified staff
- Economic squeeze
- Lack of relevant and up-to-date information materials (resources)
- Lack of knowledge about how to obtain required information
- Non-conducive operational hours
- Lack of ICT facilities, e.g. internet services, e-mail facilities, computer facilities, databases
  - Low patronage of the libraries due to the non-availability of desired information resources, access problems, obsolete facilities, and the absence of online facilities
  - Inadequate technical staff, unstable staff, and insufficient computer literate manpower
  - Lack of a constant power supply as experienced in Nigeria
  - Lack of maintenance (Oyediran and Tidings, 2004; Adetunmisi, 2005; 25-45; Akpoghome and Jerome, 2007; Adegbore, 2010)

All these stand as an impediment to law students’ use of law libraries to source required information.

**Methodology**
The descriptive survey method will be adopted to investigate law students’ ICT skills and library utilization in some of Nigeria’s universities. The study will use both qualitative and quantitative techniques - the mixed method approach - to collect data from the respondents and the key informant. A self-administered structured questionnaire and in-depth exploratory interview will be used to collect data for this study.

The study will target the entire population of thirty public law universities located within three regional groups and six geo-political zones in Nigeria. Thirteen public law universities will be selected based on the existing stratified three regional groups and six geo-political zones. Of the thirteen universities, one will be set aside for the pilot survey, meaning that 12 will be surveyed in the final study. Private law universities in Nigeria will not be included in this study because they are not on par with the public universities that are being funded by the Nigerian government. There are also just four law universities whose names appeared in the database of the National Universities Commission - the government body in charge of universities in Nigeria.

The researcher will use two different sampling techniques to select the population to enable an in-depth study and a tenable degree of reliability and validity in the results. The study hopes to employ both probability (random and stratified) and non-probability (purposive) sampling techniques - the random sampling technique will be used to select law students, the stratified sampling technique will be used to select law universities, and the purposive sampling technique will be used to select key informants for the study.

The findings and conclusions of this on-going study will be disseminated in future conferences when completed.

References


Olorunfemi, Doreen Yemisi


The information needs and information seeking behaviour of adult diabetic patients in Addington Hospital in Durban

Praba Naidoo
University of KwaZulu-Natal

Abstract
This article introduces research that will be carried out on the information needs and information seeking behaviour of type 2 diabetic patients in Addington Hospital in Durban. Type 2 diabetes is a lifestyle disease that can be prevented and managed through the correct administration of medication, exercise, and by following a particular eating plan. This study will examine the active and passive information seeking behaviour of type 2 diabetic patients using Longo et al.’s (2010) Health Information Model as a guide.

Introduction
Diabetes Mellitus, often simply referred to as diabetes, is a chronic disease associated with abnormally high levels of glucose (sugar) in the blood. It occurs when the pancreas is unable to produce sufficient insulin or “when the body cannot effectively use the insulin it produces” (World Health Organization 2011b), Hyperglycaemia (or high blood sugar) is the result of uncontrolled diabetes, and over time can lead to the deterioration of the body’s systems, such as the heart, blood vessels, eyes, kidneys, and nerves (World Health Organization 2011b). This study will focus on type 2 diabetes. Recent statistics show that more than 220 million people worldwide have type 2 diabetes. In 2004, an estimated 3.4 million people died as a result of the disease, and the World Health Organisation (WHO) projects that this figure will double before the year 2030. The WHO also estimates that there are currently just under 900,000 diabetics in South Africa, and predicts that this number will grow to 1.3 million by 2030 (World Health Organization 2011a). Type 2 diabetes is therefore a major public health problem in both developed and developing countries (World Health Organization 2011a).
The information needs and information seeking behaviour of adult diabetic patients in Addington Hospital in Durban

While the focus is geared towards the clinical treatment and management of the disease, patients also need to share increased responsibility for managing their health and diabetes. With relevant knowledge, lifestyle changes and information, type 2 diabetic patients can improve and manage their condition effectively. Hence information provision is especially salient for the management of diabetes (Peel, Parry, Douglas and Lawton, 2004, pp. 269-270).

Addington Hospital is a district and regional hospital situated on the south beach in Durban, KwaZulu-Natal. This public sector hospital serves a multicultural community from the greater Durban area with 571 beds and a staff of 2 200. Most of the patients served in Addington come from economically disadvantaged communities. The use of the medical library at the hospital is restricted to medical and nursing personnel, nursing students and other categories of staff at the hospital. Patients do not have access to the hospital’s medical library.

Aim and Objectives

The main aim of the study is to investigate the information needs and information seeking behaviour of adult type 2 diabetic patients in Addington hospital.

This study will be guided by the following research questions:

- What prompts type 2 diabetic patients to search for information on diabetes?
- What are the information needs of type 2 diabetic patients?
- What is the information seeking behaviour of type 2 diabetic patients?
- Where do they obtain information about diabetes?
- What sources or types of sources do they use to answer questions about their diabetes?
- What are the challenges they encounter when searching for health information on diabetes?
Has the way in which they obtain information about their diabetes changed over time?

Do they think there is enough information available on type 2 diabetes?

Do they rely heavily on the doctor and the nursing staff at the hospital for their diabetic education?

Conceptual framework

A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. When well articulated, a conceptual framework functions to scaffold the research and help the researcher explain and argue about subsequent findings (Smythe, 2004). The conceptual model for this study was adapted from Longo et al.’s (2010) ‘Health Information Model: information seeking, passive receipt and use’. The model (Figure 1) was selected because it will enable the researcher to broadly look at all the dimensions of the information needs, information seeking, and information behaviour of diabetic patients. The model is especially useful because it looks at the role and importance of the ‘passive’ receipt of information compared to the ‘active’ process of information seeking (Longo et al., 2010: 337 and Longo, 2005: 189).

The Health Information Model was initially developed for cancer patients, but has since been successfully used in other health-related studies. Recently, the model was used to study health information seeking, receipt and use in diabetes self-management (Longo et al., 2010: 334-340). The model was derived from the experiences and reports of the patients themselves, and may therefore be useful in placing “the research findings in a broad patient perspective” (Longo, 2005: 191-193).

Literature review
The initial review of the literature identified varying characteristics and trends resulting in different articulations and interpretations of the information needs and information seeking behaviour of diabetic patients. Over the last ten years, a small number of theoretical and practical studies centred on the information needs and information seeking behaviour of diabetic patients have emerged.

Despite the plethora of studies on information behaviour (information needs and seeking behaviour) from a number of disciplines, a glance at relevant international literature indicates that there are limited comparable studies on the information needs and information seeking behaviour of type 2 diabetic patients. A survey of South African literature reveals that no local studies have been done on the information needs and information seeking behaviour of type 2 diabetic patients. The researcher therefore found it valuable to review literature that is not necessarily identical to the study with the intention of establishing a relationship and connection between various research results.

Content, methodology and results of the study

Active and passive information seeking

The study by Longo et al. (2010) on health information seeking, receipt and use in diabetes self-management is particularly relevant to this study on the information needs and information seeking behaviour of type 2 adult diabetic patients. The focus of Longo et al.’s (2010) study was patients’ preferences for sources of health information. The study also aimed to determine how individuals with diabetes seek and use healthcare information. Five themes emerged from the study: the passive receipt of information; patients’ tendency to weave their own information web; indications of the patients’ personal relationships with healthcare professionals; the impact health literacy has on the patients’ ability to understand and use information; and how the patients’ personal relationships helped them understand and use information.
Longo et al.’s (2010) qualitative study used focus group interviews. Participants of different age, race and gender were recruited in order to attain the broadest possible representation (Longo et al., 2010: 335). The participants identified a wide range of information sources, from traditional health information resources, to information from the internet, television, newspapers and friends. Many of the focus group participants reported on the passive receipt of information. Here the individuals did not actively engage in information seeking behaviour, but came “across relevant health information about their diabetes” by watching television or reading a newspaper or magazine. Some of the participants’ actively searched for important information sources to manage their diabetes. These participants identified health-related sites, books, pamphlets and printed information provided by healthcare professionals (Longo et al., 2010, p. 337).

Longo, Ge, Radina, Greiner, Williams, Longo, Mouzon and Natale-Pereira (2009) studied the health information seeking behaviour of breast cancer patients in the US. Pre-tested questions were used in a survey of 150 breast-cancer survivors, revealing that 71% of the respondents actively searched for information, all the patients (100%) were able to use the information, and 81% used the information to make healthcare decisions.

Boissin (2005) conducted a study on the internet information seeking behaviour of French general practitioners, and found that even general practitioners (GPs) used the active mode or passive mode when finding information. The active mode refers to information that was actively sought by the GPs, while the passive mode refers to information that was received but not asked for.

**Provision of information at the time of diagnosis**

Peel, Parry, Douglas and Lawton’s (2004) study focused on newly diagnosed type 2 diabetic patients. In-depth interviews were carried out on a sample of 40 newly diagnosed patients with type 2 diabetes and analyzed using thematic analysis. Results suggest that at the time of diagnosis, the amount of information provided is often too
much for a patient who is also dealing with the emotional aspect of the diagnosis. Correlatively, the emotional stress the patient encounters at the time of the diagnosis directly impacts on the patient’s ability to retain the information that is provided (Peel, Parry, Douglas and Lawton, 2004: 269).

However the results of Peel, Parry, Douglas and Lawton’s (2004) research also reveal that Peel et al. (2004) identified three themes which they classified as “three main ‘routes’ to diagnoses”. These ‘routes’ were the ‘suspected diabetes’ route, ‘illness’ route, and ‘routine’ route. Their results indicated that irrespective of their route to diagnosis, the patient wanted more information about the management of diabetes at the time of the diagnosis (Peel, Parry, Douglas and Lawton, 2004: 269).

Fourie’s (2010) study likewise revealed that at the time of the diagnosis, cancer patients and their families required factual information about the type of cancer, the prognosis, treatment and side effects. The study indicated that their “emotional experiences are seldom expressed in terms of a need for information” (Fourie, 2010: 40).

**Patient empowerment, education and barriers**

Funnell and Weiss’ (2008) article on the empowerment of the diabetic patient is of potentially significant benefit to the reluctant patient. The authors suggest that despite the enormous strides that have been made in the treatment of diabetes, patients still do not achieve optimal outcomes (Funnell and Weiss, 2008, p. 75). The patients in Funnell and Weiss’ study were not familiar with any of the current material or literature on diabetes. One patient in particular believed that neither the healthcare professionals nor her family members had the power to manage her diabetes: “She understood that diabetes is a self-managed disease, and that she was the ‘self’. Her statement described empowerment perfectly” (Funnell and Weiss, 2008: 75).

Funnell and Weiss (2008) defined patient empowerment as, “Helping patients discover and develop the inherent capacity to be responsible for their own health and life” (Funnell and Weiss, 2008: 75). Their article outlines four fundamental lessons that need to be addressed as a part of patient education and provides a straightforward
The information needs and information seeking behaviour of adult diabetic patients
in Addington Hospital in Durban

approach, which the authors refer to as a LIFE plan, to help the patients take charge of
their diabetes (Funnell and Weiss, 2008: 75).

The LIFE approach consists of four clear steps: i) Learn about diabetes; ii) Identify and
understand the three guiding principles, namely the role, flexibility and targets; iii)
Formulate a personal self-management plan; and iv) Experiment with and evaluate the
plan (Funnell and Weiss, 2008: 75).

Pooley et al.’s (2001) quantitative questionnaire survey focused on the nature of the
patient-practitioner relationship and the implications of this relationship with respect
to patient empowerment and the effective self-management of diabetes. The
practitioners felt that the amount of time they had was insufficient to deal effectively
with patients’ concerns. The patients in turn felt that it was unrealistic to prolong a
consultation by asking too many questions (Pooley et al., 2001:320). The results of the
survey indicated that both patients and practitioners had similar concerns and both
groups identified the same problems in the “delivery of care to people with diabetes”
(Pooley et al., 2001: 324).

Patient preferences in information sources

Many previous studies have focused on the information needs and information seeking
behaviour of patients with various health conditions, such as cancer patients
(Mcloughlin, 1994; Leydon et al., 2000; and Fourie, 2010). Leydon et al.’s (2000) study
focused on exploring the reasons behind why cancer patients do not wish to seek
information beyond what is offered by the doctor during a consultation. Here the
patients expressed their faith in the doctor’s medical expertise and this precluded their
need to seek further information.

The study by Longo et al. (2009) revealed that interpersonal communication was more
often cited as a source of information than the use of the internet or the traditional
print and broadcast media. The study also showed that many of the patients sought or
received information from other patients or support groups and 83 % were able to use
the information and make healthcare decisions (Longo et al., 2009: 193-195).
Some of the findings of studies on the information needs and information seeking behaviour of cancer patients contrasted explicitly with those of the diabetic patient. For example, many of the studies revealed the cancer patients’ awareness of the severity of the disease and their need to seek out additional information. However, literature on the information behaviour of diabetic patients revealed varying degrees of indifference towards the disease. Of course, this could simply stem from the nature and severity of each of these medical conditions.

Proposed research methodology

A large part of this study will use the qualitative approach for data collection while incorporating some elements of the quantitative approach. This is known as the mixed methods approach (use of multiple methods), and it will be used to enhance the validity and reliability of the study. The research population will consist of the entire population of 103 adult patients with type 2 diabetes, one medical practitioner, one dietitian, three registered nurses, and one medical librarian. The study’s data collection instruments will consist of a self-administered questionnaire, face-to-face and telephonic interviews, and focus group discussions. Before data collection, the questionnaire and the interview schedule will be pre-tested to eliminate any ambiguities and mistakes. The short self-administered questionnaires will mainly consist of close-ended or pre-coded questions, with some open-ended questions designed to obtain information about the patients’ information needs from the perspective of the health-care professionals. The qualitative aspect of the study will feature in semi-structured interviews with the adult type 2 diabetic patients in a face-to-face setting. Telephonic interviews using the same semi-structured interview questions will be conducted with patients who are dispersed or may not be available for the face-to-face interview.

Each focus group will consist of between six to eight respondents. Participants for the focus group will be carefully selected using the purposive or judgmental sampling method. Content analysis and qualitative coding will be used to interpret the responses
to the open questions in the questionnaire, while thematic content analysis will be used as the main data analysis technique for the interviews. In this process, each report will be read independently in order to get a sense of the whole content. In this way, key phrases or concepts such as a string of words, a sentence, or several sentences bound together by their content or meaning will be identified. These phrases or concepts will then be sorted into categories. The data will be entered into a computer and analyzed using the Statistical Package of Social Sciences (SPSS). Data will be presented in the form of bar graphs and pie charts. Cross-tabulation of the responses to certain questions will be presented in tables.

Conclusion

Information needs and information seeking behaviour have become an important topic in literature to help patients with the treatment of their medical conditions. While this paper on type 2 diabetics is still at the preliminary research stage and there aren’t any conclusive results to comment on, much of the information behaviour (information needs and information seeking) research done to date has focused on the characteristics of the users. However, without an extensive understanding of the effects of information on type 2 diabetic patients and their behaviour, we have an incomplete picture of how information changes these patients' behaviour and how or in what way healthcare information can help them.

References


The information needs and information seeking behaviour of adult diabetic patients in Addington Hospital in Durban


The status of records management at the University of Zululand

The status of records management at the University of Zululand

Coetzer Xolile Patience17

Department of Information Studies

University of Zululand

machicky@gmail.com

Abstract

Records management seeks to efficiently and systematically control the life-cycle (creation, use, maintenance, archiving or appropriate disposal) of records that are routinely created as a result of activities and transactions. This study sought to investigate the status of records management at the University of Zululand, to determine whether the university has a functional records management policy in place and if so, to what extent it complies with government regulations on records management. The preliminary findings show that the University of Zululand still has a long way to go with respect to records management. The university has neither a records manager nor a policy that governs records management.

Keywords: Records, records management, records keeping, records management programme, regulatory policy, University of Zululand, administration and academic departments

1. Introduction

In its day-to-day operations, the university should create the correct records, file them correctly, keep them for the correct period of time and dispose of them appropriately when necessary. Records management is the process by which physical or electronic

17 Xolile Patience Coetzer is a Masters Student in the Department of Information Studies, University of Zululand, South Africa.
The status of records management at the University of Zululand

records - whether internally or externally generated are managed from their inception to their receipt, storage, and disposal (Ngulube, 2000, p. 164; Wallace, 1987, p. 2; Yusof & Chell, 1999, p. 10). Place and Hyslop (1982, p. 4) describe records management as a “process of controlling information from creation through to its final disposition”. The activities of the university are predominantly documented in the records that it produces. These records are a vital asset in ensuring that the institution is governed effectively and efficiently, and is accountable to its staff, students and the community that it serves. Records support decision-making, document general operational activities, provide evidence of policies, decisions, transactions and activities, and support the university in cases of litigation. They are central to the university’s operation, and managing them effectively is an important task for all members of staff. Good records management helps to ensure that the university adheres to its legal, professional and ethical responsibilities.

Records management is important because it eases records access. The National Archives of Scotland (2008, n.p) states that information is every organization’s most basic and essential asset, and in common with any other business asset, recorded information requires effective management. Universities generate various volumes of records that they produce daily, both electronically and physically. The preservation of records facilitates continuity in decision-making while providing substantiation of precedent activities and historical superiority for future generations. Van Albada (2001, p. 39 in Ngulube, 2003) states that records and archives help to “establish communications between the past and future generations”, for without records and archives there would be severe limits to society’s ability to learn from the past and make informed decisions.

It is a fact that preservation is a core function of any records office. Preservation helps to ensure that everyone has an equal opportunity to access and enjoy unique and important records. Policies play a major role in that they clearly state the responsibilities of the archivist, i.e. the preservation of archival materials of all types in
order to guarantee access to the information they contain, both for the current generation of archives and records users, and for generations to come (Ngulube, 2003, p. 117). Ngulube further states that policies set out goals to be archived as well as guidelines for implementing them. Universities are sustained and guided by policies that they set for the management of their operations. Therefore the development of preservation policies is an essential step in the preservation of records. A preservation policy serves as a reminder of all the restrictions that need to be accepted if important records are to be saved for present and future generations. According to Cloonan (2001, p. 232), the policy issues pertaining to preservation is a neglected area. Surveys that were carried out by the National Archives and the National Library proved that policy formulation for preservation is neglected (Albrecht-Kuszeri & Kastaly, 2000).

The main objectives of this study were to find out if the University of Zululand has a records management system and whether it has a formal policy and filing system that governs it. Universities have heterogeneous profiles and cultures with long, varied and separate histories. This is reflected in the university’s diversity of activities and the devolution of administrative functions. This state of affairs results in some disparity in practices across the units (faculties, departments), and does not always easily facilitate a common approach in the management of corporate records. Effective and efficient records management is, therefore, of critical importance to an organization such as a university.

2. Methodology

The study used the survey method to assess records management at the University of Zululand. Questionnaires and interviews were used as primary data collection instruments. The study targeted both the administrative and academic (only Heads of Departments) employees of the University of Zululand. Purposive sampling was used to select twenty six Heads of Departments. Both purposive and snowball sampling was used to twenty four (24) administrative staff. The results were presented quantitatively using tables, graphs, pie charts and percentages.

3. Results

Records management infrastructure is in danger of collapsing in various departments at the university, especially in the administration offices. Very few or no staff were
The status of records management at the University of Zululand

equipped with the knowledge, skills and abilities required to develop and rebuild
records infrastructure that is relevant to the university’s needs. The study reveals that
there is no proper records management at the University of Zululand, no policy that
governs records management, no records manager, and no indication of any filing
system. Departments that make use of records management follow their own
guidelines. In other words there is no coherent system. Departments manage records
using computer-aided software, and employees who work in the records offices do not
possess any records management related qualification. The study also established that
the university does not have a proper records management program to run records,
either physically or electronically.

The solemn lack of records management at the University of Zululand is mostly at
faculty and departmental level where no formal records management policy or system
is in place. There is a major difference between records management in administration
and records management in faculties and departments. Records management in the
administration offices deals mostly with business and students’ services, human
resources, financial records, etc., whereas records management in faculties and
departments deals with courses offered and the curriculum, faculty and departmental
committees, and projects and budgets, to name a few. It is unfortunate that the
university’s records management system, the Integrated Tertiary System (ITS), does
not include any faculty or departmental management, and this brings forth problems in
the management of records in faculties and departments at the University of Zululand.

The study also indicates that the ITS (which acts as an Enterprise Resource Planning
System) does not cater for most of the daily records that are produced either
departmentally or centrally. Rather it caters for certain entries - e.g. student marks,
procurement, student finances, human resources and a few others - to the extent that
employees use the ITS when they are sure of what they have to enter into the system.
Even though the ITS is a central system, employees depend more on decentralization
for the easy retrieval of their files. The inadequacy of this system has resulted in staff
using filing cabinets and boxes as their records management system for physical
records, leading to the loss of many useful records. Even though there are claims that
the university has a records management policy, there seems to be no dissemination of
such a policy to staff members - a number of employees were not aware of such a policy. Employees managed records in whichever way suited them because they were unaware of a records policy at the University of Zululand.

Conclusion

In order to achieve improvement in records management, the University of Zululand requires resilient governance and a developed records management policy. The policy would have to be endorsed by the Rector and disseminated to the staff. A records management programme/ system will only function effectively if it is developed as part of the overall environment of the university so that procedures reflect the overall management’s objectives; records management will only work effectively if it operates centrally.

4. Recommendations

The recommendations of the study are as follows:

1) The University of Zululand needs to establish a records department where records may be kept
2) It is essential to develop a policy or /procedure on records management
3) Employees should be made aware of the policies of the university, including records management policies or procedures and filing systems
4) The university has to hire a records manager who will know his/her responsibilities and roles as a manager, and qualified staff to run the records department
5) There is a need for training and workshops on records management
6) A centralized system needs to be implemented that will focus on all aspects of the university
7) Each department must have its own storeroom for paper records
8) The ITS system must be upgraded to include day-to-day records creation
9) The filing system needs to be organized so that records can be protected against loss and damage
10) Top management should support all the departments, i.e. administrative and academic departments

11) The university needs to develop an improvement agenda that should be endorsed and supported by the departments

5. References


E-government concepts defined

Nkomo Ntando

Department of Information Studies,
University of Zululand

Abstract

The practice of offering services electronically by government and public institutions is referred to as e-government or e-governance. As a rapidly developing area of government service delivery globally, it is a popular yet often misunderstood area of research. This paper is based on a Doctoral study, “Harnessing mobile phones for e-government-delivery: the case of rural KwaZulu-Natal”, that investigates mobile phones in the delivery of crucial services to the public. Mobile phones are seen as an essential part of a government’s policy and responsibility in the development and use of ICTs for the social and economic development of a country and its people. This paper seeks to clarify some of the commonly used terms and concepts in this field of research.

Keywords

ICTs, e-government, e-governance, cellular technology (mobile phones), m-government

Introduction

The concept of the information and knowledge society is an ideal that countries globally are striving to achieve. The varying benefits that such a society offers to its citizens are identified by ITU (2011, p. 23) as the following:

• Converged voice and data networks that empower text messaging, email and instant messaging
• Options for e-government platforms that facilitate online public access to government information, programmes and services

---

Ntando Nkomo is a Lecturer in the Department of Information Studies at the University of Zululand. He is also a PhD student.
E-government concepts defined

- Access to social and educational services, including distance learning, tele-medicine, training, cooperative extension and other public benefits
- Revolution in business and commercial behavior, empowering telecommunication, accelerating e-commerce, and innovating new ‘virtual’ companies
- A whole new universe of social networking, allowing individuals and groups to share information, pictures and contacts online
- A growing ‘networked environment’ of appliances, automobiles and handheld devices that are ‘aware’ of their environs and can adapt their utilization of energy and other functions accordingly

This paper is mainly concerned with the second point in the above list. There are several reasons for investigating e-government, the first of which is the decisive role it plays in the promotion of ICT access and use within government (government-to-government) and other sectors (government-to-business, government-to-citizens, government-to-employees, government-to-non-governmental organisations, etc.). In a conscious effort to implement e-government, governments at various levels have to first set up measures and draw policies and frameworks for its success. A lot has been written about how countries that fail to leverage ICTs in their plans will be left behind digitally, economically, infrastructurally, technologically, educationally, etc., creating further divides and poverties. Grönlund, Andersson and Hedström (2005, p. 17) observe that “in a modernization agenda, eGov services may serve as a leverage.” Inevitably if ICTs are a key ingredient of government, they will be improved, thus providing communities with access to many ICT induced benefits such as ease of use, speed of service, globalisation and 24/7 service, to name a few. In a nutshell, e-government can spark ICT investment, and ICT investment can spark e-government.

While this relationship is symbiotic, there are many other issues to consider in order for it to be successful. We have seen (e.g. Ndou 2004) wanton investments in developing countries in ICT that have achieved nothing from community centres and tele-centres that were built with no plan of sustainability, and massive donations of computers with no relevant support requirements (spares, maintenance, internet, etc.). Hype and unrealistic expectations are commonly cited reasons for e-government failure (Misra 2004, Ndou 2004, Grönlund, Andersson and Hedström 2005).
The second motivation is to determine the conditions that affect a country’s decision to engage in e-government. E-government is a necessity, and governments need to start implementing it now irrespective of the condition that they are in. According to Grönlund, Anderson and Hedström (2005, p. 10), “E-government is a comprehensive term covering a Maturity process of public administration…. This process can start anywhere, something which the talk of “joined-up”, “24/7”, etc., government might sometimes conceal as it is often used to allude to a relatively mature administration with a high level of ICT penetration.” The road to e-government is long but must be travelled, “…embarked on at any point, and the sooner the better as avoiding it will likely lead to more of disparate developments and as a consequence later setbacks” (Grönlund, Andersson and Hedström, 2005, p. 12).

South Africa began implementing e-government with a service delivery focus a while back, but it appears that using mobile phones in this endeavour has not yet fully kicked into gear. Because mobile phones are tools that can realistically improve government service delivery, the conditions requisite for their implementation were the focal point of the Doctoral study from which this paper is drawn.

Conceptual framework of ICT, e-government and m-government relationships and timelines

This section defines e-government concepts using the ICT, e-government and m-government framework of relationships and timelines suggested below. The framework shows how these concepts link and/or interlink and how the researcher applied them in his study.

Thanks to the phenomenal development and diffusion of digital electronic communication technology in the last decades of the 20th century, virtually every concept can be prefixed with an ‘e’ for electronic, hence the mushrooming of numerous terms detailing something ‘e’ (e-government, e-democracy, e-voting, etc.) today. As with all new technologies, the marriage between old and new technologies has introduced a host of new terms and varied definitions as to their meaning. This is particularly the case with how the ‘e’ prefix should be used. Should it be capitalized or should it be in lowercase or even hyphenated? Misra (2009), in “What is the correct way of writing E-government?” raises exactly these questions.

Riley (2003, p. 8) reasons that descriptions of the terms ‘e-government’, ‘e-governance’, ‘e-democracy’ and similar terms emerging as a result of the applications of information and communication technologies (ICTs) in government, should no longer be used, nor should
E-government concepts defined

definitions of these new constructs be attempted. Perhaps the logic here is that constantly churning out new definitions is not an extensive interrogation of a discipline and can be detrimental as scholars squabble over the suitability or correctness of a definition. However, Riley also reflects on his suggestion to ‘stop’ new definitions by calling for debate, as conversely it is through the development of terminology that subject matter can evolve. These latter cautionary remarks are part of the reasoning behind this paper’s pursuit of definitions, but with the acute realization that the ICT field is undergoing constant changes in nomenclature, and cognizant of Scholl and Belardo’s (2001, p. 1) assertions that ‘e-prefixing’ can be a ‘sense making or nonsensical infinitium’ act.

The terms that are addressed in this paper include ‘information and communication technologies’ (ICTs), ‘e-government’, ‘e-governance’, ‘cellular technology’ (mobile phones) and ‘m-government’. Other related terms that receive attention include ‘e-delivery’, ‘e-commerce’, ‘e-democracy’ and ‘rural’.

The conceptual framework below presents the pattern of relationships of key concepts and their timelines, and guides the review of literature in the sections that follow.

Fig 1: Conceptual framework of ICT, e-government and m-government relationships and timelines
IT vs ICTs (old vs new technologies)

In the 60s, before ICTs were trendy, people spoke of information technology (IT). By the 1970s and 80s, IT was also referred to as ‘media’. With the arrival of the World Wide Web in the early 90s, the focus began to shift from information technology, to information and communication technology or ICT. By the beginning of the 21st century, the more encompassing/inclusive term of ICT came to replace IT.

According to Olson and Kesharwani (2010, p.8), IT can be defined as referring to anything related to computing technology, such as networking, hardware, software, the Internet, or the people that work with these technologies. Furthermore, as we live in the ‘information age’, information technology has become a part of our everyday lives.

ICTs on the other hand can be defined as a collective term describing the digital integration of both old and new technologies. In the words of the World Youth in Civil Society (2005, p. 77):

ICT has become a significant factor in development and is having a profound impact on the political, economic and social sectors in many countries. While many associate ICT primarily with mobile and more advanced technologies, a more useful definition of the term is one encompassing all technologies that enable the handling of information and facilitate different forms of communication. Expanding the characterization of ICT to include both older and newer technologies ranging from newspapers, radio and television to camcorders, computers and cell phones makes it possible to acquire a better understanding of the full impact of ICT... The distinctions between old and new technologies may soon disappear as radio, television, satellite technologies and the Internet are combined in innovative ways to reach a wide range of target audiences.

Although there is a marriage of old and new technologies, the two groups can still be distinct. According to Gurumurthy (2004), old ICTs include non-electronic media like print and analogue technologies (information is transmitted bit-by-bit through electronic waves) such as the radio, while new ICTs refer to digital technologies (information is digitally...
transmitted in one go) such as computers, the internet, electronic mail (e-mail) and multimedia. Gurumurthy maintains that “old technologies still have a defining role to play in meeting the information and communication needs of a large majority”, even while the wave of ICT research continues to obsess with new technologies (Adeya, 2002, p. 11). In Gurumurthy’s (2004) view, the emphasis on new technologies is a result of two factors, the “shift in the vastness, depth and the ease of use of the information and communication processes...allowing processes that were previously not possible, like a seamless interactive communication on the one hand, and [the second] cheaper and more efficient handling of information through digitization, on the other”. While the first led to the maximization of old ICTs (mobile and internet telephony improving old telephony; internet radio as an improvement of the old radio; and broadband that enables streaming live TV over the internet), the latter has led to technological possibilities that allow for interesting social opportunities, peer communication, and easy creation, storage, low-cost reproduction, manipulation and distribution of information (Gurumurthy, 2004).

In advocating the introduction of new technology in schools, Dussel (2010) points to the widely cited merits of access to vast knowledge, many tools, oral and visual content, and the sharing options of ICTs and remarks, “If this is valid for developed countries, imagine so for small villages in isolated communities.” Although the quote is not intended for e-government, it draws our attention to what new technologies can do and succinctly captures the reason for the current emphasis on ICTs in many areas, including but not limited to e-government. As Dussel points out, the motivations put forth are pedagogical but also applicable elsewhere. Clayton in Dussel (2010) responds to the debate as follows: “I particularly like the fact that ICTs can provide all, but especially those in disadvantage areas, access to different ideas and different ways of seeing the world as well as the capability to express and share their perspectives in a variety of forms.” This line of thinking is shared by the researcher.

According to Górniak-Kocikowska (2008, p. 9), the starting point of modern or new ICTs is the invention of a computer – “it does not matter here what particular automated calculating device should be regarded as the first computer. Computer technology (digital technology) constitutes the foundation of the current ICT revolution.”

E-governance concepts defined
Debates persist as to whether there is a cut-off point delimiting where e-government begins and ICTs ‘end’ or whether it is merely a continuation of an old thing under a new name. Arguably, e-government and e-governance can be distinguished from general ICTs in the public service by virtue of their association with the internet and their ability to take communication and thus the government to the masses. These terms are discussed further in the sections that follow.

**Government and governance defined**

de Loe et al. (2009, p. 9) observe that the terms ‘government’ and ‘governance’ are considered synonymous by some scholars. Some sections of literature, however, point to the terms being different. For example Meehan (2003, p. 2) states that, “It is also accepted that there is a discernible difference between government and governance.” The view of IT in Action (n.d, p. 27) is that ‘governance’ is not a synonym for ‘government’. They arrived at their view having attempted to show the relationship between the terms, whereby government and governance are understood to both be about getting the consent and cooperation of the governed, with government as the formal apparatus for this objective, while governance is the outcome as experienced by those on the receiving end. They further state that governance in the public context is closely related to government and democracy, but has a different focus. These three concepts can be considered as different views or political entities: government is the ‘institutional view’, democracy is the ‘legitimacy view’, and governance is the ‘regulatory view’.

A number of studies have a phrase either in their title or subtitle that reads as follows: “From government to governance.” (For example de Loe et al. 2009; Bellamy and Palumbo, 2010; Meehan, 2003, etc.). This seems to suggest an element of progression; de Loe et al. would argue that the term ‘governance’ has taken on more nuanced meanings. Certainly of late there has been a lot of talk about governance in many diverse fields (law, sociology, management, political science, international relations, public sector management, corporate government, etc.). This idea of transition or shift is shared with Meehan (2003, p. 5), who suggests that, “Governance turns the state from being the central, dominating source of authority within a defined territory to being an activator or coordinator in the
E-governance concepts defined

negotiation of positions which suit a multitude of actors on specific topics over a territory where borders are less obviously fixed.” This conclusion was arrived at by comparing governance to a traditional centralized hierarchical authority.

Loughlin’s adaptation of the work by Eising and Kohler-Koch (in Meehan, 2003, p. 4) attempts to differentiate between ‘government’ and ‘governance’ as detailed in figure two below (government sits to the left and governance to the right).

![Table showing differences between government and governance]

**Fig 2: Difference between government and governance**

According to the figure, ‘government’ is state-based while ‘governance’ is corporate-based. Meehan’s (2003, p. 2) observation about governance is that “the notion is hard to pin down...” given influences such as globalization, new political cultures, devolution, etc.”. This could perhaps explain the confusion on whether or not it is separate from e-government.
The conclusion reached in this paper is that the government is the entity with which to achieve governance.

**E-government and e-governance defined**

‘E-government’ and ‘e-governance’ are confusing terms because e-government is a term with many synonyms (Löfstedt, 2005, p. 39). Löfstedt (2005) also notes the ambiguity of the terms, particularly regarding their difference. As a new field, these confusions are to be expected. According to Löfstedt (2005, p. 40), “E-government remains a knowledge field in its exploratory stages and is, consequently, difficult to accurately define. Furthermore, it encompasses such a broad spectrum that it is difficult to find one expression that specifies what e-government really represents.” Grönlund and Horan (2004, p. 719) observe that we are not helped in the endeavour to define and differentiate between e-government and e-governance by confusing definitions - an unfortunate practical problem, as most conferences, journals, and research sponsors (and consequently most researchers) use the term e-government even when they actually discuss governance or take a governance perspective. This definitional confusion is perhaps one we will have to live with because the term ‘e-government’ seems to be quite well established, and because e-government research appears to be dominated by IS researchers who prefer the term ‘government’ while political scientists use the term ‘governance’. Critics may question the desire to come up with new definitions for e-government, as Misra (2006, p. 2) does: question, “...what is the need for proposing yet another definition of e-government?” defence, “...everyone is right in defining e-government in her own way and every one’s definition could prevail, and ... yet another definition of e-government is needed as the current definitions are often generalised and lack content elaboration”. Besides, lack of appropriate definitions or narrow ones limit how a field is understood.

In literature, e-government has been defined from a technical point of view, a narrow or broad view, or as a simple or comprehensive concept. Misra (2006, p. 2) claims that beyond the variations in definitions, e-government is also perceived differently by people at different levels of occupation (lower, middle and top). Fang (2002, p. 4) offers a comprehensive view of e-government having looked at definitions that the author terms narrow, broad or technical, defining it as “a way for governments to use the most innovative
information and communication technologies, particularly web-based internet applications, to provide citizens and businesses with more convenient access to government information and services, to improve the quality of the services and to provide greater opportunities to participate in democratic institutions and processes.”

The shift towards offering services electronically is a global trend. Tehrani and Maysami (n.d) claim that, “Today governments at all levels respond to millions of citizen demands electronically.” This evident inclination is not new; for a long time now governments and public institutions worldwide have used technology to offer their services to the public. Why then is there so much excitement about it today? The answer lies in Tehrani and Maysami’s assertion that, “The ability to improve citizens’ access to services online has made e-government a desirable application for government organizations.” There is often mention of service delivery in e-government definitions and research, but do the two equate? The researcher believes that they do not; rather electronic service delivery is subsumed in e-government. Electronic service delivery is viewed as one of the pillars or goals (government to citizens or G2C) of e-government. Löfstedt (2005, p. 41) writes, “Sometimes e-government is defined as electronic service delivery to citizens, but those working in the field maintain that e-government is concerned with far more than simply making some public information and citizen services available on the internet.”

The use of technology to offer services to the public was termed e-government in the 90s (Sokolova, 2006; Gronlund and Horan, 2004). The e-government agenda is generally seen to have originated during the Clinton Administration in the USA in the early 90s with Vice-President Al Gore’s association of “information superhighway” concept and with the reinvention of government (Beynon-Davies, 2007, p. 14). The two concepts - e-government and e-governance - are today, widely spoken about and researched, yet still misunderstood despite their roots in practices that have been around for a while. Yildiz (2007, p. 647) raises concerns over what he terms “the vagueness of the e-government concept”, and quotes a horde of authors to support his argument. But for all its vagueness, access to government information by people and organisations is a key ingredient to effective government. Care must be taken that we do not confuse simple computerization or general use of technology which has been with us for centuries now as e-government
(Lakshminarayanan, 2005; Dawes, 2002). There are also concerns about the common failure to recognise, “E-government as a multidimensional and complex concept, which requires a broad definition and understanding, in order to be able to design and implement a successful strategy” (Ndou, 2004, p. 3).

The difference between e-government and e-governance is viewed by some as a question of preference (Grönlund and Horan, 2004) and others as a genuine distinction (Meehan, 2003; Pena, 2007; Sheridan and Riley, 2006, etc.). This study adopts the genuine distinction view. E-government is seen as the precursor to e-governance. Pena (2007), an online columnist, claims that, “Perhaps we can then say that e-government is the means to achieving e-governance”. Sheridan and Riley (2006) view e-governance as a broader topic that deals with the whole spectrum of relationships and networks within government regarding the use and application of ICTs. For Prathab and Joshi (2006, n.p), the difference lies in the fact that “governments’ foremost job is to focus society on achieving the public interest” while "governance is a way of describing the links between government and its broader environment - political, social and administrative". Keohane and Nye (in Palvia and Sharma, n.d, p. 2) add that,

Governance implies the processes and institutions, both formal and informal, that guide and restrain the collective activities of a group. Government is the subset that acts with authority and creates formal obligations. Governance need not necessarily be conducted exclusively by governments. Private firms, associations of firms, nongovernmental organizations (NGOs), and associations of NGOs all engage in it, often in association with governmental bodies, to create governance; sometimes without governmental authority.

They particularly note that e-governance can be performed by any organisations, even those without a public mandate. Fang (2002, p. 5) distinguishes e-government from e-governance by noting that e-governance is beyond the scope of e-government, and in the broadest sense, e-governance has more implications than e-government. Riley (2003, p. 10) borrows from Kettl’s work to distinguish between government and governance and e-government and e-governance and suggests the diagram below for comparison.
E-government concepts defined

A different take on the concepts of e-government and e-governance is offered by Palvia and Sharma (n.d, p. 3):

... e-government’s focus is on constituencies and stakeholders outside the organization, whether it is the government or public sector at the city, county, state, national, or international levels. On the other hand, e-governance focuses on administration and management within an organization, whether it is public or private, large or small.

An inconsistency is noted in the above definition when compared to earlier views, in that e-government, like e-governance, is explained as focusing on relationships with outside organisations. Perhaps what stands out in the above quote is that e-governance is an activity in which public and private institutions engage, while e-government is the preserve of public institutions. This is also noted by other scholars (Pena, 2007; Sokolova, 2006). In the words of Sokolova (2006, p. 6), “The term eGovernance, like governance itself, includes activities not only by government organizations but also private entities, such as companies, voluntary organizations, and – often forgotten! – individual citizens.”

---

<table>
<thead>
<tr>
<th>GOVERNMENT</th>
<th>GOVERNANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>superstructure</td>
<td>functionality</td>
</tr>
<tr>
<td>decisions</td>
<td>processes</td>
</tr>
<tr>
<td>rules</td>
<td>goals</td>
</tr>
<tr>
<td>rules</td>
<td>performance</td>
</tr>
<tr>
<td>implementation</td>
<td>coordination</td>
</tr>
<tr>
<td>outputs</td>
<td>outcomes</td>
</tr>
<tr>
<td>e-Government</td>
<td>e-Governance</td>
</tr>
<tr>
<td>electronic service delivery</td>
<td>electronic consultation</td>
</tr>
<tr>
<td>electronic workflow</td>
<td>electronic controllership</td>
</tr>
<tr>
<td>electronic voting</td>
<td>electronic engagement</td>
</tr>
<tr>
<td>electronic productivity</td>
<td>networked societal guidance</td>
</tr>
</tbody>
</table>
E-government concepts defined

This paper conceptualizes e-government to mean the provision of public services via ICTs (especially the internet) and e-governance as the intricate relationships with many stakeholders that need to be upheld and maintained for e-government to be achieved.

There are several types of e-government and e-governance. The e-government types are also referred to in literature as e-government services, pillars or transactions. Literature often lists three or four, i.e. government-to-citizen (G2C), government-to-business (G2B), government-to-employee (G2E), and government-to-government (G2G) [Pascual 2003; Ngulube, 2007]. Those that list three, such as Nokia’s (2008) Globally Summary Report and Farello and Morris (2006) omit government-to-employee (G2E). Fang (2002, p. 7) provides an extended list of eight types, which are government-to-citizen (G2C) and citizen-to-government (C2G); government-to-business (G2B) and business-to-government (B2G); government-to-government (G2G); government-to-nonprofit (G2N) and nonprofit-to-government (N2G); and government-to-employee (G2E). Crowley (2008, n.p) lists and contrasts the characteristics of both e-government and e-governance in Table 2 below.

**Table 2 Characteristics of e-government and e-governance**

<table>
<thead>
<tr>
<th>E-government characteristics</th>
<th>E-governance characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>Connections</td>
</tr>
<tr>
<td>Efficiencies</td>
<td>Relationships</td>
</tr>
<tr>
<td>Back office workflow</td>
<td>Front office interactions</td>
</tr>
<tr>
<td>What is accomplished</td>
<td>How and why it is accomplished</td>
</tr>
<tr>
<td>The entity</td>
<td>The connections between entities</td>
</tr>
<tr>
<td>Information</td>
<td>Collaboration and participation</td>
</tr>
</tbody>
</table>
E-government concepts defined

E-government evolutionary stages or stages of development

Evolutionary stages, stages of development, implementation phases, evolution stages, etc., are some of the terms used in literature to refer to the steps involved in the implementation of e-government. In benchmarking e-government, Fang (2002, p. 9) identifies five stages of development, namely emerging web presence, enhanced web presence, interactive web presence, transactional web presence, and fully functional web presence. UN/ASPA in Holliday and Kwok (2004, p. 550) also list five stages, i.e. emerging, enhanced, interactive, transactional and seamless. The e-Government Primer by infoDev/World Bank (2009, p. 11) identifies four evolutionary phases of e-government, namely presence, interaction, transaction, and integration and transformation. The characteristics of e-government as it develops include: i) Offering policy and regulatory information online; ii) Providing government forms for download; iii) Early stages of bidirectional communication with citizen requests via email or electronic request forms; and iv) Interactive activities such as application for permits and licenses among other activities (D’agostino et al., 2011, p. 3).

Netchaeva (2002, p. 467) likewise explains that establishing e-government is a multistage process, beginning with the formation of various websites for departmental and ministerial specific information in stage 1, which later become interactive with the option to ask questions through email in stage 2, take part in forums and opinion polls in stage 3, and access online services in stage 4. The fifth and final stage is the unification of websites in a portal to offer a complex set of services, from online discussions to commenting on policy and legislation proposals and voting online.

Riley (2003, p. 15) summarizes the primary intent of e-government as vastly improved service delivery.

Requirements for setting up e-government or e-governance

Embarking on e-government without any assessment of what is necessary for its implementation contributes to its failure. Developing countries have many times engaged in e-government projects that have resulted in failure (Ndou, 2004). Although reasons for failure are many, the blind thrust mentioned above is certainly one of the top causes. The requirements for setting up e-government are invariably linked to the political, socio-economic
and technological contexts of countries and the governments implementing it. According to the UN in Löfstedt (2005, p. 40), there are three prerequisites that affect the potential of e-government, namely a minimum threshold level of technological infrastructure, human capital, and e-connectivity for all. Other identified factors are the need for a concrete set of goals and objectives (IT in Action, Unit 2 E-governance, n.d, 31) along with the following detailed list of criteria and factors:

- Improved e-readiness as an aspect of e-governance, referring to human resources, budgeting resources, inter or intra departmental communication flows, and society’s readiness
- Investment in telecommunications infrastructure
- High speed internet connectivity
- Governmental human resources
- Budget resources
- E-business atmosphere, which includes legal frameworks and the security of the information. Starting with a simple approach, and as the infrastructure develops and e-governance is accepted among the various entities, functions can be added in stages
- Involving top leadership
- Promoting awareness in the public about the importance and potential of e-governance
- Encouragement and support from all the departments
- Maintaining consistent implementation
- Monitoring assessment
- Ensuring security
- Encouraging the private sector
- Starting with a plan locally, but keeping the global user community in mind
- Involving stakeholders such as high-tech companies, software houses, the banking sector, etc.
- Adopting international standards wherever possible, minimizing customization and thereby reducing the risks of software and compatibility problems
E-government concepts defined

Reilly and Echeberria (in Sokolova, 2006, p. 8) list the typical motivations behind implementing e-government as:

- Political, such as an election campaign promise or political prestige
- Economic: international economic competitiveness, globalization, appearing modern or investor friendly, and pressure from private enterprise, including the IT sector
- Information society: addressing the digital divide or promoting a knowledge-based society
- Management of public administration: modernization of the state, government restructuring, coordination of IT infrastructure, efficiency in government, customer relations management, standardization of government operations, and implementation of managerial controls
- Promises: ideas such as good governance; anti-corruption; citizen-centered government; customer relations management; use of ICTs to promote or facilitate agendas such as decentralization; use of ICTs to ‘improve the quality of life of citizens’ or ‘facilitate growth and equitable distribution’; change in the culture of government or new values in the public service; and making citizens more confident in their government Pressure from international relationships, e.g. international meetings, benchmarking studies, and the agendas of international agencies

Von Haldenwang (2003, n.p) recognizes that fast results in e-government can only be achieved when a sound institutional base and good technical and infrastructural facilities already exist.

The requirements for setting up e-government mentioned above can also be viewed as limitations or challenges to e-government. In this respect, Misra (2006, p. 4) warns e-government is not a remedy to all the ills facing governments, noting limitations such as costly investments in information and communication technology (ICT), manpower and infrastructure; lengthy times necessary to design and implement e-government; risky activity with no fail-safe strategies; the many sceptics of e-government; and e-literacy or the minimum level of knowledge and skills on the part of citizens to be able to use it. Ndou (2004, p. 12) lists the requirements of e-government as follows:
E-government concepts defined

1. ICT infrastructure (e-readiness, computer literacy, telecommunications equipment)
2. Policy issues (legislation)
3. Human capital development and lifelong learning (skills, capabilities, education, learning)
4. Change management (culture, overcoming resistance to change)
5. Partnership and collaboration (public/private partnerships, community and network creation)
6. Strategy (vision, mission)
7. Leadership role (motivate, involve, influence, support)

Looking at the requirements, limitations and challenges of e-government is necessary to give those attempting to implement it the chance to be conscious of what may trip them up in their endeavour. After all, herein lies the beauty of travelling a path others have travelled before: learning from them. Dada (2006) observed that e-government and general computerisation success stories in developing countries are few, but failure stories are plenty. The main reason for the failure in implementation, according to Dada (2006), was pushing ahead with electronic mediums without any political and social changes.

Ways of providing e-government information and service delivery

Mutula (2010, p. 39) opines that, “In modern governments, e-government and service delivery are inextricably intertwined.” It is this inextricably link that has been many a government’s motivation for engaging in e-government. It is often claimed that through e-government, governments shed their bureaucratic character to assume a service orientation. One outcome of a service-inclined government is access to government information that is crucial for informed participation by citizens (e-democracy).

The methods that governments and public institutions use to deliver information and services to their citizenry to achieve e-participation and democracy are plentiful. These delivery methods have shifted over the years with the introduction of ICTs. Mphidi (n.d) citing Kroukamp observes that government communication in the past used to be via public meetings, printed media, radio and television, but today communication is also
E-government concepts defined

done via modern ICTs such as the internet and satellite. According to Whitson and Davis (2001, p. 82), “Information access and dissemination has transitioned from a paper-based to an electronically based paradigm.” It is this transition that has seen the shift from traditional government to e-government. The e-government drive hinges on the realization that, “Increasingly, electronic data and records are the formats desired by users. They are also shifts from staff-supported access models to direct user access models, now made possible over the Web” (Dawes et al, 2003, p. 1).

There are many delivery channels for e-government. In essence, these constitute the various ways of providing internet access. The common option is public (government) office desktops or laptops, often through cabled networks. Government portals are becoming popular, but access to them tends to be chiefly via desktops or laptops in the government department itself, or other spaces like libraries, government information centres, internet cafes, etc. A common thread in the above forms of access is their apparent lack of mobility. Although laptops can offer some level of mobility, they only do so if the access method is wireless rather than cable, and still within a certain radius from the receiver. OCLC’s (2003) “Environmental scan: Technology landscape” reports that Wi-Fi (short for wireless fidelity) has captured the heart of the information consumer and is filling tables at coffee shops across the world. Do rural communities in developing countries exploit Wi-Fi and similar technologies? What many developing governments provide does not conform to global patterns of internet adaptation, which show an increased inclination towards mobile services by internet users. This is still a dream for rural communities where the delivery channels are not there and there is a lack of basic ICT infrastructure. In other words the information revolution is simply not reaching those who reside in rural areas.

M-government and mobile phones

Mobile devices, particularly mobile phones, are the tools for achieving m-government. By definition, mobile phones are hand-held (portable) telephone devices that do not require the use of landlines. They are also referred to as wireless or cellular phones. Having grown into one of the most widely used devices in the world, mobile phones of today carry features and capabilities that predestined them for e-government. While
E-government concepts defined

even early (first generation) phones were applied in the service of citizens by government, this trend seems to be increasing and growing more complex at present. Such activities have come to be known as mobile government or m-government.

M-government arises out of advancements in e-government, which perhaps explains why it stalls in developing countries that lack the relevant infrastructure and political will to implement e-government. According to Kuschchu and Kuscu (n.d), “E-government efforts aim to benefit from the use of most innovative forms of information technologies, particularly web-based internet applications, in improving governments’ fundamental functions. These functions are now spreading the use of mobile and wireless technologies and creating a new direction: mobile government (m-government).”

Zefferer (2011, p. 7) argues, “The general idea of m-Government is to make use of mobile technologies in order to enhance existing e-Government procedures and services and to develop new mobile approaches in this field of application.” M-government is currently a topic of global interest. Zefferer (2011, p. 7) reveals that in literature “…there is common consent that m-Government is a subset of or complement to e-Government. M-government is no replacement or successor of e-Government; it aims to enhance existing e-Government services using new mobile technologies and to extend the set of offered services.” According to Ghyasi and Kushchu (2004, p. 3),

E-Government encompasses usage of all technologies to deliver services to citizens and improve the activities of government and streamline their processes. On the other hand, m-government is an add on to the e-government confined to use of mobile technologies such as mobile phones, PDAs (Personal Digital Assistant), Wi-Fi enabled devices, blue tooth, wireless networks in delivering services. (Notes: check quote – use [sic])
E-government concepts defined

M-government is a technology-specific sub-category of e-government, and there are other similar sub-categories like u-government (ubiquitous government) or g-government (GIS or GPS applications for e-government) [Kumar et al. in Zefferer, 2011, p. 7].

Definition of related terms

Terms related to the key terms of the study are briefly explained here. An investigation into e-government will inevitably touch on e-commerce, e-delivery, e-democracy and in the context of this study, rural communities as well.

E-delivery

E-delivery (electronic delivery), e-service delivery (electronic service delivery) or e-service (electronic service) denotes electronic access to and the delivery of services by businesses and governments. The migration of services to the electronic environment means services are increasingly offered to citizens through electronic platforms. This is in reaction to the public’s proactive use of the internet or World Wide Web. E-delivery thus refers to a business concept born of the idea that the World Wide Web is moving beyond e-business and e-commerce (that is, completing sales on the web) into a new phase where many business services can be provided for a business (or consumer) using the web. Some interaction is offered to the user across the internet that has meaning and economic value.

IT in Action’s “Unit 2 E-governance” document (n.d, p. 27) views e-services as one of the two components which together, constitute e-government. The other is e-administration, defined as the use of ICTs to modernize the state, the creation of data repositories for MIS, and the computerization of records. A well-known shortcoming of e-service delivery is the digital divide (Riley, 2003, p. 15). By definition, the digital divide is a technological gap that emanates from and reflects the highly skewed distribution of global research expenditures between the north and the south (James in Guðmundsdóttir, 2005 p. 1).

E-commerce
E-government concepts defined

E-commerce is ICT applied in commerce. The AACSB in Scholl and Belardo (2001, p. 4) explains that, “Electronic commerce is any transaction completed over a computer-mediated network that involves the transfer of ownership or rights to use goods or services.”

E-democracy

Increasingly, democratic processes and participation in government by citizens is achieved via electronic means. E-government is viewed as a facilitator of e-democracy because of its utilization of information and communication technologies to support democratic decision-making processes and because it allows more effective and transparent engagement between governments, businesses, and citizens. A key component of e-democracy, which many governments have begun to offer, is electronic voting (e-voting).

The definition of e-democracy, as offered by IT in Action (n.d, p. 27) is: “The use of IT to facilitate the ability of all sections of society to participate in the governance of the state.”

Rural

The term ‘rural’ in the South African context refers to a non-urban area with a spatially dispersed population (less than 150 persons per sq km) and which is dominated by agriculture as an economic activity. It is often remote and lacks reliable public facilities or infrastructure such as power and telephone lines. Included are former homelands, resettled communities, and areas in and around commercial farms and mining towns (Chetty, 2005; de Satge, n.d; Integrated Strategic Rural Development Strategy, 2000).

References


E-government concepts defined


E-government concepts defined


E-government concepts defined


The influence of open access on journal cancellations in university libraries in South Africa

Ruth Hoskins

Information Studies, School of Sociology and Social Studies, University of KwaZulu-Natal

hoskinsr@ukzn.ac.za

Abstract

This paper is based on part of a survey that investigated the influence of open access (OA) on journal cancellations in university libraries in South Africa. 17 university libraries in South Africa were surveyed using an online questionnaire to establish the influence of open access on journal cancellations. The results reveal that South African university libraries, like most academic and research libraries world wide, are faced with choices in terms of deciding which journals to cancel. Open access has not been embraced yet by university libraries in South Africa when in fact they should be making concerted efforts to facilitate access to local research by way of institutional repositories and taking advantage of the free content available through open access initiatives.

Introduction

The loss in buying power caused by the annual 10 % - 20 % price increase of library periodicals has had a negative impact on many (if not all) academic libraries over the years. In trying to find solutions to this and similar economic challenges, libraries have had to resort to annual journal cancellations (Hoon, 2003, p. 33). As the increase in

19 Ruth Hoskins, PhD, is a Senior Lecturer in the Information Studies Programme at the University of KwaZulu Natal, South Africa.
The influence of open access on journal cancellations in university libraries in South Africa

Journal publishing costs outstrip many library budgets, cancellation projects have become a routine part of the library collection management of universities. Although there has been a growing effort to find a long-term solution to the serials’ crisis, librarians have been investigating alternative sources, such as open access (OA) initiatives. Using the definitions provided by the Budapest Open Access Initiative (2002) and the Bethesda Statement on Open Access Publishing (2003), Lor (2007, p. 195) defines ‘open access’ as scholarly literature (peer-reviewed or not) that is subject to copyright (not in the public domain) and made available free of charge through deposits in a long-term, reliable, standards-compliant online repository with a license permitting unrestricted access and utilization subject only to proper attribution of authorship and ethical norms. Since OA provides a solution to the serials’ crisis, many librarians have supported these initiatives. However, Lor (2007) argues that while some librarians may have embraced OA, others have been reluctant to do so for various reasons. Lor (2007, pp. 197-198) argues that the potential advantages of OA for libraries include:

- Authors would own, not merely license, their own copies of electronic journals.
- Authors would have the right to archive them forever without special permission or periodic payments. Long-term preservation and access would not be limited to the actions taken by publishers with future market potential in mind, but could be supplemented by independent library actions.
- If publishers did not migrate older content, such as the back runs of journals, to new media and formats to keep them readable as technology changes, then libraries would have the right to do so on their own.
- Access and use would not be limited by password, IP address, usage hours, institutional affiliation, physical location, a cap on simultaneous users, or ability to pay. Librarians would not have to authenticate users or administer proxy servers.
- Librarians would have the right to lend and copy digital articles on their terms to any users. Librarians could offer the same services to users affiliated with their institution, walk-in patrons, users at home, visiting academic staff, and ILL users.
The influence of open access on journal cancellations in university libraries in South Africa

- Academic staff and others could donate digital literature and software without violating their licenses and could accept them without limiting their usability. All use would be non-infringing use, and all use allowed by law would also be allowed by technology. There would be no need for fair-use judgment calls and the accompanying risk of liability. There would be no need to err on the side of non-use. Academic staff could reproduce full-text documents for students without the delays, costs, or uncertainties of seeking permission.

- Librarians would not have to negotiate, either as individual institutions or consortia, for prices or licensing terms. Librarians would not have to remember, consult, or even retain complex licensing agreements that differ from publisher to publisher and year to year.

- Users who object to cookies or registration would have the same access privileges as other users. Anonymous inquiry would be possible again for every user.

- Librarians would never have to cancel a subscription due to a tight budget or unacceptable licensing terms. Researchers would not encounter gaps in the collection corresponding to journals with unacceptable prices or licensing terms.

Given the above advantages, OA could indeed be a solution to the serials’ crisis for librarians. The South African academic library is not exempt from the effects of the serials’ crisis as most journal titles subscribed to are paid for in United States (US) and British currency. A further challenge faced by South African academic libraries is the fluctuating rand or exchange rate. This study therefore plays a vital role in understanding what the status and influence open access can have on journal cancellations in university libraries in the South African context.

The main objective of the study was to investigate how open access (OA) influences journal cancellations in South African university libraries. Based on the above problems and objectives, the following research questions guided the study:
The influence of open access on journal cancellations in university libraries in South Africa

• What factors determine whether a journal, which then becomes available in an aggregation (EBSCOHost, ProQuest) product, is cancelled? What is the length of the delay period that is considered acceptable by the university libraries before deciding to cancel a subscription to a journal when it is available in an open access archive?
• What factors influence the university libraries’ decision on how short the delay period has to be before they cancel a journal?
• What freely available versions of a journal article would the university libraries consider as acceptable substitutes for a published journal article?
• How much of a journal’s content would need to be immediately freely available in an open access archive before the university libraries would consider the free content provided an acceptable alternative to a published journal?
• What proportion of the university libraries’ journal content is freely available online?
• Do the university libraries have plans to put systems in place that would allow them to estimate the overlap between their journals and freely available online content?
• Why do the university libraries not consider the immediate freely available content in an open access archive to be a good reason to cancel a journal?

The study surveyed South African traditional and comprehensive university libraries. Universities of technology or technikon libraries were not included because research is not a major function in such institutions.

Literature review

In 1994, Steven Harnad posted “A subversive proposal” to the discussion list VPIEJ-L based at the Virginia Polytechnic Institute - a list devoted to ‘electronic journals’ (Harnad, 1995a). Harnad introduced Psycoloquy, the first peer reviewed scientific journal on the internet, and in 1997, the Cognitive Sciences eprints Archive. In 1998, he
started the American Scientists Open Access Forum, a high-volume discussion list concerned with open access and open archives (Harnad, 2003). Harnad’s proposal was the inspiration for the open access initiative (Brent, 1995). He suggested that scholars should publish their preprints of unpublished, un-refereed, original work on a globally accessible archive that is freely available to scholars with network access anywhere in the world. After a work is formally published, scholars would substitute the published work for the preprint. Harnad made the point that scholars need not withdraw preprints from public viewing after being refereed and accepted for paper publication (Yiotis, 2005). Once this process became common, journal publishers would then be forced to restructure their costs for electronic-only versions to be truer to actual costs, which he estimated to be 25% less than print page costs (Harnad, 1995b). Harnad also suggested that the cost for local archiving should be built into the cost of research and be paid in advance by the author or the funding agency rather than the end user. Thus the current publishers would have to restructure their service provision, and if they did not, a new generation of electronic-only publishers would take over the market.

The intention of “A subversive proposal” was to legally bypass restrictive copyright. Publishing un-refereed preprints by self-archiving before submitting the paper to a journal enables the author to negotiate to hold, rather than transfer, copyright. If the author holds copyright, the author would self-archive the refereed postprint. If the author loses copyright, the author would self-archive the corrigenda, the differences between the preprint and the postprint (Yiotis, 2005). Either way, the article would be freely available and the author’s research impact would continue unfettered. In Harnad’s “Post-Guttenberg galaxy”, permission is not a barrier (Harnad, 1991).

Open access repositories

Repositories have existed in most institutions and universities since the onset of digital libraries. Krishnamurthy (2008, p. 50) defines OA archives or repositories as digital collections of research articles that have been placed there by their authors. This archiving can be done before or after publication. Krishnamurthy (2008, p. 50) identifies the following types of OA within the context of academic institutions

- Eprint archive (authors self archive).
• Unqualified (immediate and full OA publication of a journal)
• Dual mode (both print subscription and OA version of a journal are offered)
• Delayed open access (OA is available after a certain period of time)
• Author fee (authors pay a fee to support OA)
• Partial OA (some articles from a journal are available through OA)
• Abstract (OA limited to table of contents and/or abstracts)
• Co-operative approach (institutional members support OA journals)

Van Deventer and Pienaar (2008) provide an overview and background to South African repository development initiatives and mention the existing repositories. According to Van Deventer and Pienaar (2008), the implications of eResearch are not yet being fully supported in South Africa any coordinated way. One initiative, the South African Research Information Services (SARIS) Research Project Report, intended to make key stakeholders aware of the changing needs in research, and recommended that South Africa should position itself in the forefront of the new research paradigm (Page-Shipp et al., 2005). This implied that individual research institutions should take the necessary steps to implement such strategies, collaborate with each other, and lobby the government to support OA initiatives. The SARIS Project was started inter alia because of the extremely high costs to South African research institutes and university libraries in accessing the global research literature.

The “Report on a strategic approach to research publishing in South Africa” (Academy of Science of South Africa, 2006) recommends that OA repositories, particularly at higher education institutions, should be promoted to enhance the visibility of all South African research articles and to make them accessible to the entire international research community. The success rate for archiving articles in institutional repositories was extremely low, and no local university at the time of the report had an institutional repository for archiving locally produced articles as either pre- or postprints (Page-Shipp and Hammes, 2006).
The influence of open access on journal cancellations in university libraries in South Africa

Fortunately, organizations such as the Electronic Information for Libraries (eIFL) and the Mellon Foundation have been playing an important role in the development of OA initiatives and the development of repositories in South Africa, especially at academic institutions (Veldsman, 2007; De Beer, 2006). South Africa currently provides access to at least nine open access repository collections at several of its academic institutions. The Council for Scientific and Industrial Research (CSIR) has also established its repository.

An important OA initiative in South Africa was the inaugural meeting of the Academy of Science of South Africa’s (ASSAf) Journal Editors’ Forum which took place in July in 2007. The meeting mentioned the use of an OA model to increase the output and reach of South African research publications. It is anticipated that OA would greatly enhance the impact, reach and speed of the dissemination of South African scholarship. The ASSAf has therefore established an OA platform for high-quality South African scholarly journals. This initiative, which is supported and funded by the Department of Science and Technology, is led by the Academy’s Scholarly Publishing initiative. According to Meyer (2009), the proposed platform will enable users worldwide to access a wide range of top peer-reviewed South African academic journals in full, on the internet, at no cost, and free from most copyright and licensing restrictions.

Journal cancellation studies

Deciding which journal(s) should be cancelled can be a serious and frustrating task for librarians. Because few academic libraries have escaped the gauntlet of journal cancellation projects, literature on serials’ cancellation is extensive. Reports on the cancellation of journals by university libraries started appearing as early as the 1970s (Brennan, 1977; Carrein, 1977). Therefore, possible approaches to journal cancellation projects are as varied as the libraries that conduct them (Moore-Jansen, Williams and Dadashzadeh, 2001). Given the scope of this study, the literature review focused on the influence that OA has had on journal cancellations.
The annual *Library Journal*, “Periodical price survey 2007: Serial wars”, “Periodicals price survey 2008: Embracing openness” and “Reality bites: Periodicals price survey 2009”, conducted by Van Orsdel and Born (2007; 2008; 2009), provide some interesting statistical information. In their concluding remarks, Van Orsdel and Born (2008; 2009) note that the marked changes brought on by the advance of OA has (thus far) had little effect on the price of subscribed journals, the notable exception being some 3300 peer-reviewed journals listed in the Directory of Open Access Journals (DOAJ), all of which are free. Although the open access movement suggests that dramatic changes are on the journals’ cards, librarians are still faced with a serials’ crisis. A large proportion of the library’s budget is spent on a few publishers because of their inflated prices, leaving little money for smaller publishers and new publications. Van Orsdel and Born (2009) argue that publishers are generally not making an effort to accommodate the rising demand for OA even though recent studies, e.g. by the Joint Information Systems Committee (JISC), have found that OA could reform the scholarly communication system.

The JISC (2009) findings estimated that British universities would save around 80 million pounds a year by shifting to an OA publishing system. The study proposed that resources used for subscription would be redirected towards the costs of journal publication and dissemination. The study also concluded that significant additional benefits would accrue to business and industry as a result of greater access to research findings.

In “Seeking the new normal: Periodicals price survey 2010”, Henderson and Bosch (2010) note that despite some tremendous efforts by proponents, OA initiatives have only had a modest effect on the publishing industry as a whole. Open access journals are not yet considered mainstream publishing venues, and while the number of peer-reviewed, full open access journals represents 10 % of all peer-reviewed journals, estimates are that only 2 % to 4.6 % of the total articles published are OA.

The influence of OA on journal cancellation has also been studied by the Association of Learned and Professional Society Publishers (ALPSP). This study was commissioned by
The influence of open access on journal cancellations in university libraries in South Africa

ALPSP to ascertain what major factors were contributing to journal cancellations in US academic libraries. The study provides some new information for a debate that has thus far been short of data. The study examined the question of whether self-archiving of preprints and/or postprints by journal authors is likely to have a significant impact on journal subscription numbers. This issue is currently hotly debated and of considerable importance to scholarly/commercial publishing policy. The moves by funding bodies and some institutions to request or require authors to deposit postprints has raised a certain degree of urgency as the archives are now likely to grow in number, and more importantly, in content. The findings of the study were as follows:

- Availability of content via delayed open access was not an important factor in journal cancellations, as seen above. From examinations of all kinds of embargoed content (whether from delayed OA, self-archiving or aggregations), it is clear that the embargo has to be very short indeed to compete with a subscription: for 82% it had to be three months or less, and for 92% it had to be six months or less (Ware, 2006, p. 13). The length of the acceptable embargo varies with subject, with embargoes being less acceptable in STM journals. Embargoes were also more tolerable for peripheral journals than for core journals (Ware, 2006, p. 14).

- With respect to OA archives, there was a great deal of support for the idea that they would not directly impact on journal subscriptions in the following data:
  o 97% of respondents saw an archived copy of the publisher’s final PDF as an acceptable substitute for the journal, but this fell to 39% for a postprint and only 9% for a preprint (Ware, 2006, p. 15);
  o For most librarians (76%), the archive would have to contain over 90% of the journal’s content, and 48% wanted 100% before they would see it as a potential substitute for a journal (Ware, 2006, p. 15); and
  o Only 16% of the respondents had estimates of the overlap between their journals and archives (Ware, 2006, p. 16), and only 31% had plans to introduce systems to measure this overlap (Ware, 2006, p. 16).
A key question in this study was: If librarians did not see the free availability of the content on an OA archive as a good reason to cancel a journal, then why not? The most frequently cited reasons, in descending order, were (Ware, 2006, p. 18):

- Concerns about the long-term availability of free archives;
- Concerns about the completeness and integrity of the archives;
- Faculty demand for ‘the real journal’; and
- Pre-/ postprints not seen as an adequate substitute for the final journal article.

Respondents were asked to sum up their views: What impact would repositories have on journal holdings? Was it too early to tell? Why or why not? (Ware, 2006, p. 20):

- A small majority (54 %) said it was too early to tell; and
- Of those prepared to ‘stick their necks out’, 32 % said they thought there would be no impact, which was three times as many as those who thought there would be some impact (11 %).

What does all this mean for the debate on whether or not pre-/ postprint repositories will reduce journal subscriptions? Ware (2006) has argued that given the early stages of self-archiving in most fields, there simply isn’t a conclusive answer. But in support of the view that self-archiving will not harm journals, Ware (2006) arrived at the following conclusions:

- Repositories were clearly not seen by librarians as a substitute for properly managed journal holdings: they point to concerns over long-term availability, stability, completeness and integrity; the academics want ‘the real journal’; embargoes of even three months are a major obstacle; and postprints (let alone preprints) were not seen as an adequate substitute for the journal article;
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

- Furthermore, the large majority of librarians did not know whether the content of the archives overlaps with their holdings, and most did not plan to introduce systems to measure this;
- Availability via OA archives was ranked a long way behind the needs of the faculty, amount of use and price in determining cancellations; and
- Three times as many respondents thought there would be no impact on holdings compared to those who thought there would be some impact.

On the other hand, publishers might be worried about the following:

- 53 % said that availability via OA archives is an important or a very important factor in determining cancellations now, and this figure rises to 81 % for those who thought it would become important or very important in the next 5 years; and
- The clear and growing emphasis on measuring the use of journals via the publishers’ or intermediaries’ statistics would be of concern to publishers because there is some evidence (for example, from physics) that a well-used archive can very substantially reduce usage at the journal site.

According to Ware (2006), in contemporary society, the impact on utilization does not lead to journal cancellations for the reasons given above: the academics still want the real journal, librarians want to maintain holdings, a postprint is not seen as an adequate substitute, and so forth. Ware (2006) also opines that there is no evidence in this study that core journals are under any threat from repositories. There are some hints, however, that very peripheral journals might feel some pressure, and for this reason the threat might be felt more by aggregators than by journals, but only if there was very comprehensive coverage by repositories of the literature.

Methodology

This study employed the quantitative approach, which involves numerical data collection and the use of statistical data analysis. A two-pronged method of data
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

collection was adopted, i.e. the review of relevant literature and the use of survey research.

Previous studies relating to university libraries and OA, such as the ALPSP study, used the quantitative approach, with a questionnaire being the main data collection instrument. The present quantitative study used an online self-administered questionnaire (created using SurveyMonkey) which was directed to the heads of university libraries in South Africa. In the absence of a library head, the periodicals or serials librarian completed the survey. The questionnaire of the ALPSP (Ware, 2006) was adopted and adapted for this study and then pre-tested before being used in the local context. The population of the study consisted of university libraries in South Africa. 17 units of analysis were drawn from the Library and Information Association of South Africa (LIASA) Heads of Academic Libraries list. A total of 12 university libraries (representing 70.6 %) responded to the survey. The survey data was evaluated and analysed using the Statistical Package of Social Sciences (SPSS). In keeping with ethical considerations, the online self-administered questionnaire was anonymous and all responses were treated as confidential. Results were analysed in accordance to the frequency of responses and graphically displayed in the form of figures and tables.

Results and discussion

The information in this section deals with open access (OA) and how it influences journal cancellations in South African university libraries.

Factors relating to a journal that becomes available in an aggregation product.

The factors affecting whether inclusion in an aggregator would play a part in deciding if a journal was a candidate for cancellation were, in descending order (see Table 1): the length of the embargo period (75 %), the extent of the archive in the aggregatorion (75 %), how promptly new material is added (41.7 %), and the degree of functionality (41.7 %). Most of the libraries considered the length of the embargo period and the extent of the archive in the aggregator to be important factors. The speed at which new material is added and the degree of functionality were also considered important. In the ALPSP
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011 study (Ware, 2006), however, the degree of functionality of the product was considered relatively unimportant. The results of both studies suggest that university libraries do not consider aggregators as substitutes for journal subscriptions because they believe the content to be unstable and lack access to previously removed content (Ware, 2006).

Table 1: Factors relating to a journal that becomes available in an aggregator

<table>
<thead>
<tr>
<th>Factors relating to a journal which becomes available in an aggregator</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of embargo period after which content is included</td>
<td>Yes: 9</td>
</tr>
<tr>
<td></td>
<td>Percent: 75%</td>
</tr>
<tr>
<td>Extent of archive included in the aggregator</td>
<td>Yes: 6</td>
</tr>
<tr>
<td></td>
<td>Percent: 50%</td>
</tr>
<tr>
<td>How promptly new material is added</td>
<td>Yes: 5</td>
</tr>
<tr>
<td></td>
<td>Percent: 41.7%</td>
</tr>
<tr>
<td>Functionality in the aggregator</td>
<td>Yes: 5</td>
</tr>
<tr>
<td></td>
<td>Percent: 41.7%</td>
</tr>
</tbody>
</table>

Length of the delay period

Most of the libraries (9; 75 %) considered the length of the embargo period after which content is included in the aggregator to be the most important factor in deciding on cancellation (see Table 1). An examination of all kinds of embargoed content (whether from delayed open access, self-archiving or aggregations) reveals that the embargo period has to be very short indeed to compete with a subscription. Figure 1 shows that for 58.3 % of the libraries, the embargo period had to be three months or less, with 25 % wanting no delay and only one (8.3 %) library accepting a seven to 12 month delay period. This finding is in keeping with the findings of the ALPSP study (Ware, 2006).
From a revolution in communication to communicating a revolution:
The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

Figure 1: Length of delay period (N=12)

Factors influencing the delay period

Table 2 shows that the subject area for the journal was considered important in determining the appropriateness of the delay period by a vast majority of the libraries (91.7 %). Only half of the libraries (50 %) considered the frequency of the journal to be a factor in determining the appropriateness of the delay period.

Table 2: Factors influencing the delay period (N=12)

<table>
<thead>
<tr>
<th>Factors influencing delay period</th>
<th>Responses</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject area</td>
<td>11</td>
<td>91.7%</td>
</tr>
</tbody>
</table>
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

| Frequency of journal | 6 | 50% |

Acceptable substitutes for a journal

In terms of acceptable substitutes for a journal, 91.7 % of the libraries viewed an archived copy of the publisher’s final PDF as an acceptable substitute for a journal. This is consistent with the ALPSP study (Ware, 2006). Journals in post print and preprint were not considered acceptable substitutes; post prints were acceptable in two libraries (16.7 %) and preprints in only one (8.3 %). Journals in post print and preprint were not considered acceptable substitutes; post prints were acceptable in two libraries (16.7 %) and preprints in only one (8.3 %).

Table 3: Acceptable substitutes for a journal (N=12)

<table>
<thead>
<tr>
<th>Acceptable substitutes</th>
<th>Responses</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final journal PDF</td>
<td>11</td>
<td>91.7%</td>
</tr>
<tr>
<td>Post print</td>
<td>2</td>
<td>16.7%</td>
</tr>
<tr>
<td>Preprint</td>
<td>1</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

Availability of journal content in an open access archive

Figure 2 reveals how much of the journal’s content would need to be immediately freely available in an OA archive before the library would consider the free content provided to be an acceptable alternative to a published journal. For most libraries (58.3 %), the archive would have to contain 100 % of the journal’s content; 33.3 % required 80 % to 89 % of the journal’s content in the archive before they would consider it as a potential substitute for a journal. Most librarians (76 %) in the ALPSP study required
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

the archive to contain over 90% of the journal’s content, and 48% required 100% before they would see it as a potential substitute for a journal (Ware, 2006).

Figure 2: Availability of journal content in an open access archive (N=12)

Online journal content

Figure 3 shows that only one (8.3%) library’s content was freely available in an OA archive in most areas of their collection. None of the university libraries that participated in the survey had content that was freely available in all areas of their journal collection. This reveals that most of the journal content that is available in South African university libraries is not freely available in OA archives. University libraries are therefore dependent on maintaining their journal collections through paid-for subscriptions.
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

Figure 3: Online journal content (N=12)

Plans to estimate overlap

However, more than half of the libraries (58.3 %) did not have plans to implement systems that would allow them to estimate the overlap between their journals and freely available online content. Only five (41.7 %) had planned to implement a system that would allow them to estimate the overlap. This suggests that more than half of the libraries had no plans to take advantage of any freely available online content that overlapped with their journal content. In the case of the ALPSP study, 16 % of the US librarians had estimates of the overlap between their journals and archives, and only 31 % had plans to introduce systems to measure this overlap (Ware, 2006).
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

Reason not to cancel because of free content

A critical question in both this study and the ALPSP study (Ware, 2006) was why libraries did not consider the free availability of content in an OA archive a good enough reason to cancel a journal. As in the ALPSP study, the most frequently cited reasons in this instance were:

- Concerns about the long-term availability of the free archives (66.7 %)
- Concerns about the completeness and integrity of the archives (50 %)
- Lack of additional functionality provided by the published version (50 %)

However, librarians in the ALPSP study did consider academic staff demand for the ‘real journal’ a more important reason than lack of additional functionality (Ware, 2006).

Table 5: Reasons for not cancelling subscriptions to free content titles (N=12)

<table>
<thead>
<tr>
<th>Reasons for not cancelling subscriptions to free content titles</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Concerns about long-term availability of free archives</td>
<td>8</td>
</tr>
<tr>
<td>Concerns about completeness of free archives</td>
<td>6</td>
</tr>
<tr>
<td>Lack of additional functionality provided by the published version</td>
<td>6</td>
</tr>
<tr>
<td>Preprints/postprints not an adequate substitute</td>
<td>4</td>
</tr>
</tbody>
</table>
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

| Academic staff demand for the print edition | 4 | 33.3% |
| Academic staff demand for ‘the real journal’ | 4 | 33.3% |
| Lack of integration with the library cataloguing system | 4 | 33.3% |
| Lack of reference linking | 2 | 16.7% |
| Lack of adequate metadata | 1 | 8.3% |

Parent institutions’ support for open access repositories for institutional publications

Fortunately, the present study found that half (six or 50%), of the university libraries’ parent institutions supported and contributed to an e-print or open access repository for institutional publications. All of the university libraries whose parent institutions had repositories were involved in the administration or management of these institutional repositories. The other six libraries were therefore not fulfilling their role of assisting their institutions with the transition to OA and internet-based scholarly communication by promoting OA with their institutional publications.

However, this result also shows that only half of the libraries were exploiting the opportunity to make their knowledge output more widely known and accessible by utilising the OA paradigm. In keeping with the findings of Van Deventer and Pienaar (2008), the benefits of OA repositories in South Africa have not yet been realised. Thus, only half of the country’s university libraries have become a vehicle through which South African collections could be presented to the rest of Africa and the world. The issue of improved access through such OA repositories is important, especially since Lor’s (2007) suggestion that OA has the potential to curtail the journal publishers’
From a revolution in communication to communicating a revolution:
The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

ability to command the widespread practice of high prices for journal subscriptions, as there is no need to subscribe in order to access articles.

Furthermore, since Library 2.0 specifies that libraries are mandated to provide a more efficient and effective service to their users, the benefits of these OA repositories, such as speed of dissemination, increased access, and use and citations for South African scholarship, are not being realized.

Conclusion and recommendations

The speed at which material is added to the aggregator and the degree of functionality were considered equally important by South African university libraries when determining whether or not a journal is a candidate for cancellation. The surveyed South African university libraries did not consider aggregators to be substitutes for journal subscriptions because of unstable content and lack of access to previously removed content.

The surveyed university libraries did not consider the availability of content via delayed open access to be an important determinant in journal cancellations. However, the libraries did consider the length of the embargo period to be an important factor in determining cancellation. Whether from delayed OA, self-archiving or aggregations, university libraries unequivocally wanted the embargo period to be very short if these options were to compete with a subscription. Most university libraries required the embargo period to be three months or less. Only a few libraries wanted ‘no delay’ whatsoever. The subject area for the journal was considered to be an important factor by university libraries in determining the appropriateness of the delay period.

The surveyed South African university libraries viewed an archived copy of the publisher’s final PDF to be an acceptable substitute for a journal. However, journals in their postprint and preprint format were not considered acceptable substitutes.

University libraries in South Africa therefore want the OA archive to contain 100% of the journal’s content and this should be immediately and freely available before they consider it to be a potential substitute for a journal. However, none of the university
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

libraries had content that was freely available in all areas of their collection. The surveyed libraries also did not have existing plans to take advantage of the freely available content that overlaps with their journal content. Thus South African university libraries are not taking advantage of freely available content.

Generally, most university libraries in South Africa expect their users to find and navigate to freely available content from a database such as Google Scholar, which is not administered or managed by the libraries. Only a few of the surveyed libraries considered subject or institutional repositories to be a platform for access to their content since only half of the institutions had repositories. Because they were not involved in the administration or management of their institutional repositories, some university libraries are therefore not fulfilling their role in assisting their institutions with the transition to OA. Users of South African university services are therefore not generally benefiting from the advantages of OA repositories, such as speed of dissemination, increased access, and increased use and citation.

The surveyed university libraries were cancelling content that is freely available in an OA archive because of concerns about the long-term availability of the free archives, the completeness and integrity of the archives, and the lack of additional functionality provided by the published version. Utilization was considered by the university librarians to be a more important factor for future journal cancellation decisions than price.

In conclusion, university libraries in South Africa are dependent on paid-for journal subscriptions. Maintaining these subscriptions will become more and more difficult because of increasing subscription costs and the fluctuating rand. To mitigate some of these difficulties, university librarians should make a concerted effort to facilitate access to local research by way of institutional repositories and free content through OA initiatives.

Based on the above, the researcher makes the following recommendations:

• South African university libraries must know what percentage of their libraries’ journal content is freely available. University libraries must put plans in place to
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

take advantage of freely available content that overlaps with their collection. At consortium level, university libraries should be aware of what content is available in other university libraries to prevent unnecessary duplication.

Because they were not involved in the administration or management of their institutional repositories, some university libraries are therefore not fulfilling their role in assisting their institutions with the transition to OA. Users of South African university services are therefore not generally benefiting from the advantages of OA repositories, such as speed of dissemination, increased access, and increased use and citation.

The surveyed university libraries were cancelling content that is freely available in an OA archive because of concerns about the long-term availability of the free archives, the completeness and integrity of the archives, and the lack of additional functionality provided by the published version. Utilization was considered by the university librarians to be a more important factor for future journal cancellation decisions than price.

In conclusion, university libraries in South Africa are dependent on paid-for journal subscriptions. Maintaining these subscriptions will become more and more difficult because of increasing subscription costs and the fluctuating rand. To mitigate some of these difficulties, university librarians should make a concerted effort to facilitate access to local research by way of institutional repositories and free content through OA initiatives.

Based on the above, the researcher makes the following recommendations:

- South African university libraries must know what percentage of their libraries’ journal content is freely available. University libraries must put plans in place to take advantage of freely available content that overlaps with their collection. At consortium level, university libraries should be aware of what content is available in other university libraries to prevent unnecessary duplication.

An important and vital function of university libraries in South Africa is to facilitate access to research produced by local scholars. University libraries need to take
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

advantage of the funding opportunities provided by organisations such as the NRF to establish such institutional repositories. Furthermore, university libraries must ensure that their staff are adequately trained and have the necessary knowledge and skills to administer and maintain their institution’s repository.

- University libraries in South Africa need to embrace OA initiatives by facilitating access to OA content on behalf of their users. South African university librarians need to start considering journals in their preprint form, and particularly in their postprint versions, as acceptable substitutes for the journal. University librarians should encourage local scholars to make use of OA initiatives by alerting scholars of such initiatives.

References


From a revolution in communication to communicating a revolution:
The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011


From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011


316
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

By

CJB Le Roux
Neil Evans
Department of Information Studies
University of Zululand

Abstract.

Since the beginning of 2011, an online debate has been raging about the role that the internet, social media, and cell phone technology played in the Tunisian and Egyptian uprising referred to as the ‘Arab Spring’.

There are two schools of thought on the role of modern communication technology in the development and outcome of the revolt. The first, the ‘cyber-, techno- or internet-utopianists’ argues that while the internet cannot be credited with causing the pro-democratic uprisings in North Africa, it nonetheless played a significant role as a facilitating tool in the organisation and execution of the uprisings.

The second school, the ‘realists’ or ‘conservatists’, is of the opinion that the internet is a double edged sword that cuts both ways, and the idea of an independent internet, popularised by John Perry Barlow in 1996, is an unrealistic concept.

This paper briefly examines these views against the manner in which the internet, social media and cell phone technology were used by activists and demonstrators in the popular uprisings in Tunisia and Egypt.

Keywords: North African revolution, YouTube Jasmine Revolution, colour revolutions, Twitter, Facebook, WikiLeaks, TwitPick, Middle East, internet, social media.

Introduction.

The internet has been abuzz since the beginning of 2011 with news and debate about the popular non-violent mass anti-government protests and uprisings that took place in Tunisia and elsewhere in North Africa since late December 2010. Much of the
From a revolution in communication to communicating a revolution:  
The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

debate has centred around the role of the internet, social media sites, and cell phones in the planning and execution of these uprisings. Although the use of the internet and social media by protesters in Tunisia and subsequently in Egypt does not represent the first time that the internet was used by anti-government protesters, it clearly is a first for the manner in which popular social media technologies such as Facebook and Twitter were used by the protesters to organise and coordinate their protests and anti-government actions on a large scale – a development that was partly facilitated by the high level of internet and cell phone connectivity in both countries.

There are essentially two schools of thought on the role modern communication technology has played in the revolt (it is debatable as to whether the Arab Spring should be referred to as a revolt or a revolution). The first school, generally referred to as the ‘cyber-, techno- or internet- utopians’, argues that while the internet cannot be credited with causing the popular pro-democratic uprisings in North Africa, it has played a significant role as a facilitator in the organisation and execution of the events that unfolded in Tunisia and Egypt in 2010/11.

The second school of thought, referred to as ‘realists’ or ‘conservatists’. is broadly of the opinion that the internet is a double edged sword that cuts both ways, and that the idea of an independent internet, popularised by John Perry Barlow in 1996, is an unrealistic perception. The internet, they argue, also has a dark side, and governments, whether autocratic, authoritarian or democratic, have a lot of power to gain if they embrace and control the internet for their own dark political ends rather than use it to uphold democratic principles.

This paper briefly examines these views against the manner in which the internet, social media and cell phone technology were used by activists and demonstrators in the popular uprisings in Tunisia and Egypt as reported online since December 2010.

1. The Internet, social media and cell phones as mass communication tools in the 21st century.

When referring to the internet and social media, one essentially refers to two distinct time frames: the period before and after the design and roll out of popular social media sites such as Facebook by Mark Zucherberg in 2004, YouTube by three former Paypal employees in 2005, and Twitter by Jack Dorsey in 2006. Although websites that allowed users to create profiles, list their friends, and surf friends lists can be traced back to sites such as SixDegrees.com and Cyworld in the late 90s and Ryze.com, Tribe.net, LinkedIn, and Friendster at the start of the 21st century, they did not have nearly the same impact as the new generation sites that came online around the middle of the past decade.

According to Boyd and Ellison (2007: 1), these sites have taken the form of “profile-centric sites, trying to replicate the early success of Friendster or target specific demographics”. While sites such as LinkedIn, Visible Path, and Xing focus on business
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

people, others such as Dogster, Care2, and Couchsurfing let strangers meet through shared interests. As the social media and user-generated content experience grew, new websites with a focus on shared interests such as music (Last.FM), photo sharing (Flickr) and video sharing (YouTube) began to appear.

Facebook in particular has experienced phenomenal growth since it was founded at Harvard University in 2004. At the time of writing, it had more than 750 million users (Foster 2011, p. 1). No less than 80 million new users registered in the first three months of 2011. In terms of user demographics, more than 70% of its users are between the ages of 18 and 44, with the largest group falling in the 18 - 24 category (201 million users and the fastest growing group in 2011). The second largest group of users is the 25 - 43 age group with more than 174 million users. Those between 35 – 44 years of age represent the third biggest Facebook group with approximately 90 million accounts (Facebook Statistics 2011).

Twitter has between 100 million (Carson 2011) and 225 million (Bullas 2011) users depending on which source you consult. According to Epperson (2011) at Lieberman Technologies, Twitter had 460,000 new users signing up per day and an increase of 182% in mobile usage in 2010. The medium age of Twitter users, like those of Facebook, is between 18 and 34 years (Rubel 2009).

According to statistics released on the YouTube website (YouTube Statistics 2011), more than 70% of YouTube’s traffic comes from outside the US, with more than 13 million hours of video uploaded in 2010. Forty-eight (48) hours of video are uploaded every minute, resulting in nearly eight (8) years of content uploaded every day. Facebook, Twitter and to a lesser extent, YouTube, were the social media tools that the protesters in Tunisia and Egypt mostly used to plan, organise and execute the protest movement.

In an article entitled “The cascading effects of the Arab Spring”, Howard (2011:1) writes that Facebook was used to schedule the protest, Twitter to coordinate it, and YouTube to tell the world what was happening.

President Obama, in response to the developments in North Africa, stated that, “Mobile phones and the internet were the media by which soulful calls for freedom have cascaded across North Africa and the Middle East” (Howard 2011: 1).

The use of social networking sites was a major feature of the 2008 American Presidential Campaign, particularly in the campaign of Barak Obama. Many commentators, as one source suggests, believe that without the use of social networking sites and the internet in general, Obama would not have won the 2008 election (Evans 2010).

Anderson (2011:1) in an online article in January 2011, entitled “Tech and social movements: Beyond. Did Twitter cause the Tunisian uprising?”, writes: “One of the least important things the uprising in Tunisia is going to do is that it is going to add
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

more empirical fuel to the long-running debate about the role played by digital social media in fostering political and social change."

Two of the most outspoken sources on the debate are Clay Shirky, an Associate Professor and social media expert from New York University (NYU) who to a large degree represents the views of the ‘cyber-utopians’, and Evgeny Morozov, a Fellow at the Institute for the Study of Diplomacy at Georgetown University, whose views and writings are broadly in line with those of the ‘realist’ group.

Both Shirky and Morozov have spoken and written extensively about the role and influence of the internet and its associated technologies in society and politics. Both authors agree on the power of the internet as a tool for socio-economic and political changes, but disagree on whether it should be seen as a positive or negative tool for democratic change. While Shirky (2010: 1) perceives the internet to be a positive tool for democracy, Morozov feels that Shirky and the cyber-utopians’ overtly positive view of the internet as a tool for democratic change is overrated, over simplified and misplaced (Siegel 2011:1). The internet, he argues, has a markedly dark and dangerous side to it. Morozov and the realist’s views are supported by Malcolm Gladwell, a popular New Yorker columnist (Nukamura 2011). Gladwell has been strongly criticised for his scepticism and criticism of claims about the positive and determining role that the internet, cell phones and social media tools such as Twitter played in the colour revolutions of Moldavia (Twitter Revolution) and Iran (Green Revolution) in 2009 (Mackey 2009:1).

The realists’ main point of departure is that there were successful revolutions long before the internet, social media, cell phones and Twitter, and if it can be used as a tool for positive democratic change, it can also be used as a tool against democracy by autocratic and authoritarian regimes. Judging by the massive online debate that has unfolded since the start of the Tunisian uprising in December 2010, the general opinion is that while the internet, social media, cell phone technology and online sites such as Al Jazeera were cleverly and effectively used by the activists and protesters to gather and organise support for their cause, they were merely facilitating tools available to the protesters at the time and cannot be credited with the success of the uprisings. Revolutions are historical facts of life that come about when complex social, economic and political issues reach a critical point, waiting only for the right spark to explode.

2. The Internet, cellular technology and the colour revolutions of the late 20th and early 21st centuries.

One of the earliest examples of the use of the internet and cellular technology by pro-democratic protesters was in the pro-democratic revolts or ‘colour revolutions’ during the first decade of the 21st century. These revolts, which followed the collapse of the Soviet Union in the late 80s and early 90s, were largely in the form of non-violent, civil (students and youth in particular) resistance against corrupt and authoritarian governments. The Georgian revolt of 2003 was known as the ‘Rose Revolution’, the 2004 Ukraine revolt, as the ‘Orange revolution’ and the 2005 Kyrgyzstan revolt as the
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011


To what extent the internet, social media and cell phone technology played a role in the planning, organisation and execution of the colour revolutions is debatable. Research by scholars such as Lysenko and Desouza (Lysenko 2010) on the use and role of the internet in the Orange Revolution in the Ukraine in 2004 continues to fuel this debate. Their finding that “the case of the Orange Revolution is particularly salient, as even though only one to two percent of the Ukrainian population had access to the Internet, this was sufficient to mobilize the citizens towards an eventually successful revolution”, is questionable. This suggests that the level of connectivity does not play a significant role in the internet’s ability to serve as an effective tool to mobilise popular opposition and bring about a successful revolution.

2.1 Similarities between the Arab uprisings and the colour revolutions.

The Arab uprisings of 2010/2011 had several features in common with the colour revolutions of the first decade of the 21st century. The most prominent thread between the events in North Africa and the colour revolutions was the role that a non-politicized, internet savvy youth had played in both. They were driven by a common desire for fundamental political change and freedom from authoritarian/autocratic rule, corruption and a better social and economic life for all. A second major thread was the non-violent nature of the popular protest.

A third similarity that the uprisings in North Africa had with the colour revolutions was the speed with which the protest developed and how quickly the autocratic leadership in both Tunisia and Egypt found themselves isolated when an important element of their support base - the army - turned against them by refusing to fire on the demonstrators. This happened in Serbia in October 2000 and in both Tunisia and Egypt in 2011 (Egypt protest 2011).

Like the pro-democratic revolutions of the late 80s and early 90s and the colour revolutions of the 21st century, the Arab uprisings spread with such speed and magnitude that they caught the world by surprise and left people searching for explanations and answers, especially with respect to media reports about the internet, social media, and other modern information and communication technologies’ role in toppling the unpopular governments of Tunisia and Egypt within the space of a month.

What very few in the non-Arab world have realised is that there has been a steady growth in serious discontent among the Arab youth of North Africa since the beginning of the 21st century. This discontent became increasingly vocal following the global financial crisis of 2008. The internet and social media technologies such as Facebook and Twitter, which were first used by protesters in the uprisings in Iran, Moldavia and
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

China in 2009, were enthusiastically embraced by the unemployed and dissatisfied youth of Tunisia and Egypt.

They viewed these resources as an effective means of communicating and sharing their desire for democratic change in their countries, a view that was actively supported and propagated by the United States. While working for the US Department of State, Jared Cohen together with Jason Liebman and Roman Tsunder, co-founder of Access 360 Media, founded the Alliance of Youth Movement (AYM) in 2008. Under the guidance of Cohen, the Department of State, in partnership with major social media companies such as Facebook, Howcast, MTV, Google, YouTube, AT&T, JetBlue, and Access 360 Media, established a global network to help young people who were mobilizing against violence and oppression around the world.

The AYM has since evolved into Movement.org under the leadership of Cohen, Liebman and Tsunder (Arab Spring 2011). According to the Movement.org website, the initiative is “first and foremost about making it easier for activists to connect with each other and get the information they need”. In 2009, Hilary Clinton, the US Secretary of State, told the activists at the AYM Summit in Mexico City, Mexico, that while “you come from different cultures and countries and speak different languages you all share a common commitment to engaging with the world, to using every tool at your disposal to bring people together to solve problems. ...that makes you the kind of leaders we need as we work to meet the challenges and seize the opportunities of the 21st century” (DipNote 2009). In an address at Washington’s Newseum in 2010, Clinton again emphasised the internet’s ability to spread freedom and democracy when she said: ”We want to put these tools in the hands of people who will use them to advance democracy and human rights” (Clinton 2010).

Both Tunisia and Egypt, despite their social and economic woes, had a relatively high internet, social media and cellular user rate in 2010. Tunisia not only had one of the most developed telecommunications infrastructures in North Africa, but also one with the lowest broadband prices on the continent (Tunisia 2009). Since the start of the 21st century, the Tunisian government actively sought to provide extensive high speed internet access to its education systems, which by 2010 enjoyed a connectivity rate of virtually 100 percent. It also provided locals with state-sponsored ‘free’ internet access at the price of a local telephone call. This led to increased competition between Internet Service Providers (ISPs) which helped to significantly reduce the economic barriers to internet access (Internet filtering in Tunisia, 2009). More than 300 internet cybercafés were also setup to provide internet access to those who could not afford to own a computer (Internet Filtering in Tunisia 2009).

All this, however, came at a price - freedom. Although the Tunisian constitution guarantees freedom of the press under “conditions laid down by law”, there was no press freedom. The Tunisian media was closely controlled by the state. Tunisia was considered by media watchdog, Reporters Without Borders, to be “the region’s most authoritarian regime” with respect to civil liberties (Tunisia 2009).

Table 1 below provides an indication of the level of internet connectivity, social media and cell phone usage in Tunisia and Egypt at the beginning of 2011. Tunisia had the
From a revolution in communication to communicating a revolution:
The role that the internet, social media and mobile technology played in the popular
uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

The highest number of internet users (33.7 – 34 %) compared to Egypt which had the
second highest number of users (23.8 - 24.3 %). Tunisia also had the highest number
of Facebook (17.55 %) and cell phone (95.38 %) users in North Africa. Egypt in comparison
had the third highest Facebook subscription in North Africa at 4.6 million or 5.49 % of
its population. Morocco had the second highest Facebook subscription at 7.55 %.

Egypt had the 4th highest cell phone subscription rate in North Africa (66.96 % of the
population). This was substantially less than Tunisia or neighbouring Libya. Algeria at
93.79 % had the second highest number of cell phone users in North Africa.

### TABLE 1: INTERNET, SOCIAL MEDIA AND CELLULAR USAGE IN NORTH AFRICA AT THE
TIME OF THE 2010/2011 UPRISINGS.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internet users</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tunisia</td>
<td>10,271,506**</td>
<td>10,373,957*</td>
<td>3,499,502*</td>
</tr>
<tr>
<td>Egypt</td>
<td>82,999,392**</td>
<td>84,474,427*</td>
<td>20,135,652*</td>
</tr>
<tr>
<td>Algeria</td>
<td>34,895,472**</td>
<td>35,422,589*</td>
<td>4,700,000*</td>
</tr>
<tr>
<td>Libya</td>
<td>6,419,925**</td>
<td>6,545,1198*</td>
<td>353,900*</td>
</tr>
<tr>
<td><strong>Cellular users</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tunisia</td>
<td>10,271,506*</td>
<td>9,788,745 +/-</td>
<td>95.38%</td>
</tr>
<tr>
<td>Egypt</td>
<td>82,999,392 *</td>
<td>55,000,000 +/-</td>
<td>66.69%</td>
</tr>
<tr>
<td>Algeria</td>
<td>34,895,472 *</td>
<td>32,728,463 +/-</td>
<td>93.79%</td>
</tr>
<tr>
<td>Libya</td>
<td>6,419,925*</td>
<td>4,9400,000 +/-</td>
<td>77.94%</td>
</tr>
<tr>
<td><strong>Facebook users</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tunisia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egypt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algeria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Libya</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

<table>
<thead>
<tr>
<th>Country</th>
<th>Twitter users</th>
<th>Cell users</th>
<th>Usage %</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morocco</td>
<td>32,381,283 **</td>
<td>2,448,300</td>
<td>7.55%</td>
<td>2nd</td>
</tr>
<tr>
<td>Tunisia</td>
<td>10,373,957 **</td>
<td>1,820,880</td>
<td>17.55%</td>
<td>1st</td>
</tr>
<tr>
<td>Egypt</td>
<td>84,474,427 **</td>
<td>4,634,600</td>
<td>5.49%</td>
<td>3rd</td>
</tr>
<tr>
<td>Algeria</td>
<td>35,422,589 **</td>
<td>1,413,280</td>
<td>3.99%</td>
<td>4th</td>
</tr>
<tr>
<td>Libya</td>
<td>6,545,1198**</td>
<td>260,400</td>
<td>3.9%</td>
<td>5th</td>
</tr>
</tbody>
</table>

Twitter users
Twitter claimed to have had 100 million accounts in 2010 (Odell, 2010).

* 2009 ** 2010

3. Tunisia: The role of the Internet, social media and cell phone technology in the fall of the Tunisian government. The ‘Jasmine Revolution’


The social, political and economic problems that the Tunisian people were up against on a daily basis are perhaps best illustrated in the revelations made in the leaked US Embassy Cable of June 2008 (some sources give the date as 2009) “Tunisia - a US foreign policy conundrum” - published by the British Guardian on 7 December 2010, ten days before the uprising in Tunisia (US embassy cables 2010). In this specific embassy cable, the US Ambassador to Tunisia described the country as troubled with nepotism, corruption, and the 'sclerotic' regime of ageing President Zine al-Abidine Ben Ali. The cable in part reads as follows (First WikiLeaks Revolution 2011):

6. (C) “Despite Tunisia's economic and social progress, its record on political freedoms is poor. Tunisia is a police state, with little freedom of expression or association, and serious human rights problems.” [Although] “the GOT [Government of Tunisia] can point to some political progress in the last decade, including an end to prior review of books and ICRC access to many prisons...for every step forward there has been another back, for example the recent takeover of important private media outlets by individuals close to President Ben Ali.”

7. (C) “…while President Ben Ali deserves credit for continuing many of the progressive policies of President Bourguiba, he and his regime have lost touch with the Tunisian people. They tolerate no advice or criticism, whether domestic or international. Increasingly, they rely on the police for control and focus on preserving power...corruption in the inner circle is growing. Even average Tunisians are now keenly aware of it, and the chorus of complaints is rising. Tunisians intensely dislike, even hate, First Lady Leila Trabelsi and her family...anger is growing at Tunisia's high

---

21 Since the Jasmine is the national flower of Tunisia, the Tunisian (and subsequent) uprisings have been popularly referred to as the “Jasmine Revolution” by many of the media organisations (Why the Jasmine Revolution won't bloom 2011)
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

unemployment and regional inequities. As a consequence, the risks to the regime's long-term stability are increasing.”

Kirkpatrick (2011) of the New York Times confirms the importance of the cable, stating that “the protesters...found grist for [their] complaints in leaked cables from the United States Embassy in Tunisia”. The WikiLeaks cable provided clear documentary confirmation of the widespread belief that Ben Ali and his wife's family, the Trabelsis, were the ‘quasi-mafia’ of Tunisia. Ben Ali and his regime were able to exploit the economic system and the financial sector for their own exclusive benefit. They controlled virtually every aspect of Tunisia’s economy, from duties on imports and exports, to the media, internet providers, telecoms, banks and property development (Kirkpatrick 2011). Tunisia was clearly in trouble. According to Dickinson (2011), the combination of escalating food prices, rampant unemployment, rising corruption, lack of freedom of expression, and the revelations made by WikiLeaks created a powder keg that was ready to explode. All it needed was the right spark.

Although the opposition to and growing criticism of President Ben Ali’s autocratic and corrupt government had come a long way, the spark that set-off the chain of events began in the small Tunisian town of Sidi Bouzid on December 17, when a street vendor, Mohammed Bouazizi22, after suffering years of abuse and discrimination at the hands of local government officials, set himself on fire in front of the local municipal office following an incident with a female police official who tried to confiscate his produce cart because he could not produce a permit for it (Ryan 2011).

According to media reports, Bouazizi, upset and humiliated by the event, went to lay a complaint at the local municipal office. When they refused to hear him he set himself alight. Suffering third degree burns, Bouazizi was taken to a hospital near Tunis but died on January 5, 2011. The mass response to Bouazizi’s act of self-immolation was instantaneous and largely caught the Tunisian authorities off guard. The people of Sidi Bouzid took to the streets amass, armed with "a rock in one hand, and a cell phone in the other" and relying “heavily on social media website like Facebook and Twitter to circulate videos of each demonstration and issue calls for the next one” (Ryan 2011). The Arab online news channel, Al Jazeera, played an additional role through its persistent news coverage of the developments. Many have credited Al Jazeera’s broadcasts with forging the sense of solidarity and empowerment that united Tunisians across the country to take to the streets simultaneously (Kirkpatrick 2011).

Thus began what some call the “Jasmine Revolution”. From Sidi Bouzid, the news of Bouazizi’s self-immolation and the resulting protest and demand for political reform rapidly spilled over to the neighbouring states of Algeria, Libya and Egypt with varying degrees of success. For the Tunisians, political victory arrived on the 14th of January 2011, when President Ben Ali was deposed after 23 years of autocratic rule (Chamberlain 2011).

According to Ryan (2011) who covered the events of December 2010, what made the Tunisian uprising different from previous mass protests and uprisings in the Arab

22 Most sources incorrectly refer to him as an unemployed graduate (Toumi 2010)
world, was that it was driven by committed locals who fought to broadcast news of what was happening on the ground to the world, and succeeded before they could be stopped. Thanks to the relatively high access to the internet in the country, news of the protest spread very rapidly. On December 17, Ali Bouazizi, a cousin of Mohamed Bouazizi, posted a video of the peaceful protest led by the young man's mother outside the municipality building on Facebook. By that evening, the video had made its way onto Al Jazeera's Mubasher channel which had found it via a Facebook link (Ryan 2011).

In an attempt to arrest the rolling protest, the Tunisian Ministers of Communication, Trade and Handicrafts and Religious Affairs were sacked on December 28 (Rifai 2011). On December 29, twelve days after the start of the uprisings, Nessma TV, a private news channel, became the first major Tunisian media outlet to cover the protests. By January 2, the cyberactivist group ‘Anonymous’ had become involved in the protest by striking a number of Tunisian government websites with “direct denial of service” attacks, by flooding them with traffic and temporarily shutting them down. The government hit back by hacking into activists’ email and Facebook accounts (Rifai 2011).

According to Ryan (2011), non-internet users were informed of the protests via satellite news channels, including Al Jazeera, France 24, and, playing catch-up with its competitors, Al Arabiya. Throughout the uprising, Tunisian protesters relied on Facebook to communicate with each other. Facebook, unlike most video sharing sites, was not included in Tunisia’s online censorship.

On January 7, following the death of Mohamed Bouazizi two days earlier, the authorities arrested a group of bloggers, journalists, activists, and a rap singer in a crackdown on dissent. By January 12, the uprising had spread nationwide and on January 13, the day before he fled Tunisia, President Zine El Abidine Ben Ali announced unprecedented concessions in a television address, vowing not to seek re-election in 2014. He pledged to introduce more freedoms into society and widespread reforms, and perhaps as a gesture of ‘goodwill’, some formerly blocked or banned websites subsequently became accessible (Ryan 2011) (Rifai 2011).

3.2 Social media and the fall of Zine El Abidine Ben Ali

In 2011, Hanson Hosein, an academic at the University of Washington, examined the views of media specialists such as Ethan Zuckerman, Evgeny Morozov, Andrew Sullivan, Marc Lynch, and Phil Howard on the role that social media had played in Tunisia’s uprising. According to Hosein, Zuckerman and Morozov both argued that while the internet and social media undoubtedly played a role in the planning and execution of Tunisian protests, “any attempt to credit a massive political shift to a single factor — technological, economic, or otherwise — is simply untrue”. In the words of Zuckerman,

---

23 Nessma TV, founded in 2007 and based in Tunisia, is a subsidiary of the Karoui & Karoui World Group. It operates as an entertainment channel aimed at Arabic speakers in the Mediterranean region.
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

“Tunisians took to the streets due to decades of frustration, not in reaction to a WikiLeaks cable, a denial-of-service attack, or a Facebook update” (Hosein 2011).

Morozov felt that the Tunisian uprising would have happened irrespective of the kind of social media available to the people. He was struck by how in Tunisia’s uprising, “Social media seems to have failed in what many would have thought would be its greatest contribution (outside of social mobilization)” — namely, “in helping to generate and shape the coverage of events in the mainstream media” (Hosein 2011).

A similar view is held by Nasser Weddady, a Civil Rights Outreach Director for the American Islamic Congress who was closely monitoring events in Tunisia. According to Weddady, while social media didn’t cause the popular uprising, its most important role was to inform the outside world of the protests [and] the number killed in clashes with police (Hosein 2011).

Marc Lynch (Hosein 2011), an Associate Professor of Political Science and International Affairs at George Washington University and a Middle East scholar and expert on the media in the Middle East, offers a more balanced view. He argues that while there is clear evidence of the potent role of both old and new media in the developments, not only in Tunisia but across the entire region, it was too soon and too simplistic to designate or brand the Tunisian uprisings as a “Twitter Revolution”. Lynch argues that instead of thinking about the role of new media as either/or, researchers and analysts should rather focus on the combined role that these media sources played in undermining the regimes’ ability to control the flow of information to their citizens.

“For now”, he wrote, “I would just argue that it would be more productive to focus more broadly on the evolution of the Arab media over the last decade, in which new media such as Twitter, Facebook, YouTube, forums and blogs work together with satellite television stations such as Al Jazeera to collectively transform the Arab information environment and shatter the ability of authoritarian regimes to control the flow of information, images, ideas and opinions” (Hosein 2011).

Hosein (2011) also approached Dr. Phil Howard of the “Project on Information Technology and Political Islam” at Washington University. Howard is quoted as saying: “Tunisia is interesting because it is a country where the opposition is only online. ...Mubarak made some confined spaces for the Muslim Brotherhood, and tolerated some blogger-organized protests [but] Ben Ali never did that and the things that have been most embarrassing to his regime have involved tech savvy activists exposing serious corruption.” According to Howard, the state media never acknowledged dissent in Tunisia; “There has been a month of protests, and Tunisians went to the internet to learn about what was going on” (Hosein 2011).

A more utopian view, according to Hosein, was offered by Firas Al-Atraqchi (Hosein 2011) of the American University of Cairo, who quoted Bechir Blagui of the Free Tunisia website as saying: “People have tossed around different names for this revolution. They called it the Jasmine revolt, Sidi Bouzid revolt, Tunisian revolt... but there is only one name that does justice to what is happening in the homeland: Social Media Revolution, or back home, better called the Facebook Revolution”.

328
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

Al-Atraqchi went on to state that “...in the absence of traditional media – government bans on reporting and the jailing of independent journalists like Fahem Boukaddous – Tunisians resorted to their cell phones and going online to document the history of their nation in the past four weeks. Combined with Twitter, this helped on the ground organization of massive crowds from around small towns in remote areas [which] was crucial for the organizing effort” (Hosein 2011).

Finally, what was the Tunisian authorities’ view on the role of the internet? In an interview in January 2011 with Mike Elkin of Wired.com, Kamel Saadaoui, the Director of Tunisia’s Internet Agency (ATI), had the following to say about developments in Tunisia: “I think Ben Ali did not realize where the situation was going or that he could be taken down.... Maybe if he had known that, he would have cut the internet. But the number of blocked sites did grow drastically when the revolution started. They were trying desperately to block any site that spoke about Sidi Bouzid. In a few weeks the number doubled” (Elkin 2011).

Egypt: The role of the Internet, social media and cell phone technology in the fall of the Egyptian government.

Egypt was the second domino to fall in the ‘Arab Spring’. In sharp contrast to developments in Tunisia where it took 28 days to topple the government of Ben Ali, the government of President Hosni Mubarak collapsed on February 11 — a mere 15 days after the start of mass uprisings and civil disobedience on January 25. Like Tunisia, the roots of the mass Egyptian protest and civil disobedience were planted in growing socio-economic and political issues such as corruption, police brutality, nepotism, censorship, unemployment, rising food prices, inflation, and declining wages.

In June 2010, six months prior to the self-emulation of Mohammed Bouazizi, a young Egyptian businessman in Alexandria by the name of Khaled Said was publicly beaten by the police, apparently in retaliation to a video Khaled had made and posted on his personal blog claiming to show the policemen sharing the spoils of a drug bust. Said subsequently died of his injuries, and the way his death was largely ignored by the Egyptian police became an important rallying point for the Egyptian uprising after the collapse of the Tunisian government in January 2011 (Logan 2011).

When the police refused to investigate Khaled’s death, claiming instead that he died of a drug overdose, many Egyptians began to protest and call for an investigation. As the protest in reaction to Khaled’s death began to spread, the European Union representatives in Egypt requested an impartial investigation. This prompted the Egyptian authorities to act. The two policemen were arrested and charged with “using excessive force” and “unjustified arrest”. None was charged with murder (Background Story 2011).

Like Tunisia, the internet, social media, and cell phone technology have been credited with the planning, organisation and success of the Egyptian ‘spring’. As indicated in Table 1, Egypt had the second highest internet user base in North Africa in 2010/11; approximately 24 percent of its population had access to the internet. An estimated
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

5.49% of those with internet access had Facebook accounts. At 66.69% of the population, Egypt also had the fourth highest cell phone user base in North Africa.

A Facebook page created under the name, “We are all Khaled Said”, became a major rallying point for Egypt’s outraged youth and the activists who took to the streets in Cairo and Alexandria demanding justice for police brutality and corruption. The Facebook page “…became a clearing house for information, posting often-graphic photos and videos, and publishing the names of allegedly abusive cops” (Logan 2011).

By mid-January 2011, following the fall of the Tunisian government, the Facebook group began to set their sights on what they felt was the root of the problem – President Mubarak’s authoritarian regime. According to Wael Ghonim, the Google executive who anonymously administered the Facebook group “We are all Khaled Said” under the nom de guerre, “ElShaheeed”, within days of the ousting of Ben Ali’s government in Tunisia on January 14, the Facebook page began “sounding the call for a large-scale demonstration in Cairo on January 25, to coincide with the National Police Day demanding protection from police abuse, resignation of the minister of the interior, the restoration of a fair minimum wage, an end to Egyptian emergency laws and the dissolution of parliament. Tunisia has made people in Egypt take note” (Giglio 2011).

By January 21, 2011, nearly 69,000 people had signed up in support of the planned day of protest on the 25th. If the rulers in Egypt were caught off guard by the speed and intensity of the largely non-violent protest against them in Cairo and elsewhere on January 25, they were quick to react to what they considered were fuelling the events – the internet, social media and cell phones. On January 27, two days after the Tahrir Square protest and in the face of mounting political unrest, the Egyptian government cut all internet connections and shut down the country’s cell phone services (Rhoads & Fowler 2011). Wael Ghonim, the “We are all Khaled Said” administrator, was arrested the following day.

The only service that was not shut down on January 27 was satellite phones and Telecom, Egypt’s fixed line service which, ironically, the government needed more than the protesters for communication. According to Rhoads and Fowler (2011), the country’s crackdown on the internet and cell phones appears to be “unique in both scale and synchronisation, particularly for a country with such an advanced infrastructure with so many providers. What is shocking is that they didn’t just take down a certain domain name or block a website - they took the whole internet down.”

As in Tunisia, the Egyptian government’s draconian measures were imposed too late. By the time the internet was shut down, it had largely served its purpose in helping to organise, motivate and execute the uprising. The online activists were all too aware that they had a limited window of opportunity to use the internet before it was shut down. The mass turnout of protesters at Tahrir Square on January 25 appeared to have caught both the activists who planned the protest and the Egyptian authorities by surprise. According to Faris (Jensen 2011), a member of the Revolutionary Youth Council who played a key role in the planning of the January 25 protest, the event exceeded their wildest dreams with “tens of thousands of protesters spontaneously
From a revolution in communication to communicating a revolution:
The role that the internet, social media and mobile technology played in the popular
uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011
taking to the streets of Cairo. None of this could have happened even in our wildest
dreams. Our maximum objective was to move with 5,000 people around Cairo. We
never even thought we would reach Tahrir” (Jensen 2011).

According to the same source (Jensen, 2011), the group (Revolutionary Youth Council)
used a “combination of coordinated tactics — including the use of Facebook and
Twitter — to deceive state security forces regarding their intentions”. Twitter and
Facebook were used to direct larger crowds, but only once protesters were actually in
place, marching on the streets. Strategy sessions were conducted in different locations
while an ‘intelligence unit’ was used to conduct reconnaissance of the specified
meeting places an hour in advance to ensure that police were not lying in wait for
them. Mobile phones, which members believed to be under surveillance, were turned
off during meetings and the batteries removed to prevent the police from locating the
phones.

Attuned to security tactics following years of small-scale street protests, the Egyptian
youth activists devised a “cat and mouse” strategy to conceal their launching points
and surprise the police. Facebook groups, widely believed to have been under
surveillance by the security, police were used as a diversion or decoy in the planning of
the protest (Jensen 2011).

After the networks were shut down, the organisers turned to traditional face-to-face
communication and landline services to organise their protests and maintain the
momentum of the uprising. The authorities could not shut these services down as they
needed them themselves for communication.

Conclusion
It would seem that at least in the case of Tunisia and Egypt, there is sufficient evidence
to support the view that the internet, social media and cell phone technology played an
important, albeit facilitating role in the initial stages of the uprisings. The development
and final outcome of the uprisings and demonstrations, which caught even the
organisers of the protests by surprise, were the result of two important factors: good
old fashioned, face-to-face, feet-on-the-ground activism that involved serious risk-
taking on the part of all the Tunisians and Egyptians who took to the streets, and the
crucial fact that the army in both countries refused to fire on the protesters. The latter
effectively undermined the authority and power base of Presidents Ben Ali and
Mubarak.

Unlike Tunisia where the authorities first tried to control the uprising by instituting a
media blackout and hacking into and disrupting activists’ sites, before finally
announcing measures to open the internet, the Egyptian authorities, in response to
what happened in Tunisia, cut all communication three days after the start of the
protest, with the exception of fixed line communication. These measures came too late
as the planning and momentum of the uprising – which was strongly influenced by the
success of the Tunisian revolt - was well underway.
From a revolution in communication to communicating a revolution:
The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

While it is true that the internet and its social media platforms can serve as a double edged sword in uprisings and anti-government protests, in the case of both Tunisia and Egypt, the regimes were largely unsuccessful in their attempts to use it as such. In both countries, modern communication technology that was available to the average citizen was effectively used by the protesters, activists and organisers to outfox the regimes of Presidents Ben Ali and Mubarak.

Finally, while the internet, social media platforms, and cell phones clearly played a significant role in planning and propagating the uprisings, they remain mere facilitating tools and cannot be singularly credited with the success of the collapse of the Tunisian and Egyptian regimes. For this, full credit is due to the people of Tunisia and Egypt and those who risked and lost their lives. To claim otherwise would grossly oversimplify and undermine the conditions and complex socio-economic and political factors that laid the foundation for the successful outcome of the uprisings.

Bibliography

- Arab Spring 2011. The Daily Bell.  
  http://thedailybell.com/floatWindow.cfm?id=2932


- Background Story 2011. Khaled... A story of many Egyptians. We are all Khaled Said.  

  http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html

- Bullas J 2011. 30 Terrific Twitter Facts And Figures.  
  http://www.jeffbullas.com/2011/05/02/30-terrific-twitter-facts-and-figures/

- Carson N 2011. How many users does Facebook really have?  
  http://www.businessinsider.com/chart-of-the-day-how-many-users-does-twitter-really-have-2011-3;


  http://www.guardian.co.uk/books/2011/jan/09/net-delusion-morozov-review
From a revolution in communication to communicating a revolution: The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

  http://www.state.gov/secretary/rm/2010/01/135519.htm


- Clay Shirky’s Writings About the Internet. http://shirky.com/writings


  http://www.elsevier.com/wps/find/journaldescription.cws_home/505740/description#description

  http://wikileaks.foreignpolicy.com/posts/2011/01/13/wikileaks_and_the_tunisian_revolution

- Did a Google manager spark the Egypt revolt with a Facebook page? 2011. 

  http://blogs.state.gov/index.php/archive/entry/secretary_aym_summit

  http://www.guardian.co.uk/news/blog/2011/jan/31/egypt-protests-live-updates#block-58


From a revolution in communication to communicating a revolution:
The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011

- Evans T 2010. Social networking sites have transformed the political landscape. http://networkconference.netstudies.org/2010/04/social-networking-sites-have-transformed-the-political-landscape/


- Internet Filtering in Tunisia 2009. http://opennet.net/research/profiles/tunisia


&pagewanted=print#

From a revolution in communication to communicating a revolution:
The role that the internet, social media and mobile technology played in the popular uprisings that led to the overthrow of the Tunisian and Egyptian governments in 2011


- Pavel K B 2010. Re-examining the ‘colour revolutions’: The turn of the tide from Belgrade to Ulan Bator in Harpviken K B (ed.) Troubled Regions and
- **Failing States: The Clustering and Contagion of Armed Conflicts. Comparative Social Research 27: 249-276.**


- Rubel S 2009. Twitter users are now younger on average than Facebook's. October 2009. [http://thinkbelievedo.com/twitter-users-are-now-younger-on-average-than-3](http://thinkbelievedo.com/twitter-users-are-now-younger-on-average-than-3)


The intelligent number plate system: An investigation into the privacy and digital identity challenges of motorists on the N1 highway.

Erin Hommes  
Department of Information Science  
School of Information Technology  
University of Pretoria  
Tel: 012 420 2230  
Email: erin.hommes@up.ac.za

Marlene Holmner  
Department of Information Science  
School of Information Technology  
University of Pretoria  
Tel: 012 420 5215  
Email: marlene.holmner@up.ac.za

Abstract:

The ethical issues regarding privacy and digital identity have come under the spotlight with the increased international implementation of Intelligent Transport Systems (ITS). This paper focuses on the privacy and digital identity challenges associated with the proposed implementation of an ITS System in Gauteng known as the Intelligent Number Plate System (INPS). The planned development and intended use of this new ITS was published in the General Notice 333 of 2010 of the Gauteng Provincial Government Gazette Extraordinary Number 13. This paper considers the ethical issues surrounding the surveillance that motorists will find themselves under each time they utilise the impacted roads. This surveillance will be made possible through the use of technologies including CCTV and RFID chips. The importance of making citizens aware of their digital identity and the ethical and legal rights to privacy and protection of this identity is discussed. These rights will be illustrated through the analyses of South African legislation and its relation to the INPS. International examples of intelligent transport systems are investigated to determine the possible benefits and challenges, with regards to privacy, that may be faced in the implementation of the INPS. In order to supply additional support to the research findings, a pilot study was conducted to illustrate the public perception of the privacy and digital identity challenges associated with the INPS. This study was utilised to draw conclusions regarding the ethical issues that will surround the implementation of such a system in a South African context.
1. **Introduction**

According to Britz (1996: online), the main ethical impacts of technology are the accessibility/inaccessibility of information and the ability of the user to manipulate it. This implies that unauthorised access to an individual’s personal information or “digital identity” becomes an ethical challenge when care is not taken to apply security measures to maintain confidentiality.

The Gauteng Provincial Government earmarked December 2010 for the proposed implementation of the Intelligent Number Plate System (INPS), however very little progress has been made up until August 2011. This system was developed by the Gauteng Department of Roads and Transport to prevent fraud and maintain security (AA Mobility Magazine, 2010:63; Gauteng Provincial Government, 2010:31). The INPS is to be one component of an Intelligent Transport System (ITS) that will make use of Radio Frequency Identification (RFID) tags as a means of tracking and surveillance of motorists on the N1.

The subject of ethics forms an important part of the opportunities and challenges related to information use. It is important to understand how to apply ethical and moral considerations to the use and distribution of information. The research conducted for this paper aims to promote the debate of information use, and create an overall awareness of the possible use and misuse of recorded personal information. Thus this paper is part of an investigation done into the possible privacy and digital identity challenges of the INPS in recording identifying information. The value of this research study lies in the currency of the topic. The proposed rollout of the INPS began on 1 December 2010 (Gauteng Provincial Government, 2010:31). It is envisaged that the INPS may cause privacy and digital identity challenges for motorists, and based on this, an investigation into these challenges will examined, limited to the stretch of the N1 highway between Pretoria and Johannesburg.

2. **Research Methodology**

This research followed a primary qualitative and secondary quantitative research paradigm. The primary research paradigm followed in this paper is a qualitative literature review. Through a literature review, the researcher explored the issues pertaining to information ethics, digital identity, privacy and ITS implemented around the world. Furthermore, this literature review enabled the researcher to understand

---

1 The N1 highway referred to throughout this paper is the section of highway between Pretoria and Johannesburg.
phenomena such as the benefits and challenges of ITS and assisted in answering questions pertaining to privacy and digital identity.

The secondary methodological approach was quantitative in nature. A pilot study was conducted to determine how people feel, think and act regarding the privacy issues that may hamper the successful implementation of the INPS. The pilot study questionnaire containing closed-ended questions was distributed to obtain data on the participants’ understanding of the ethical implications of the INPS at the specified research location which will be discussed below.

The sampling technique used in this research study is a non-probability research technique called convenience sampling. This technique was selected due to the convenience of access to the participants as well as their proximity to the researcher (Castillo, 2009: online).

On 16 April 2010 a pilot study was conducted at the University of Pretoria, on a group of second year students studying Information and Computer Ethics. A five page questionnaire containing 20 questions was issued to 156 students registered at the University of Pretoria. The selection of this location was based largely on accessibility to the students and the similarity between the research topic and their semester course/module. Babbie (2008:204) illustrates the reasoning behind why the study conducted could only be a pilot study, explaining that “University researchers frequently conduct surveys among students enrolled in large lecture classes. The ease and frugality of this method explains its popularity, but seldom produces data of any general value.” It may, however, be considered useful in pre-testing a questionnaire, and that was the researcher’s intention for this study. With the insights gained from the pilot study, the researcher would be able to generate a more comprehensive questionnaire together with a more focused evaluation of the involved target group for further study.

3. Intelligent Transport Systems (ITS)

An Intelligent Transport System (ITS) is an umbrella term used to describe new technologies used in transit for security, traffic control and quicker response for emergency services, in an attempt to help save money, time and lives (Casal, 2005:66; Chattaraj, Bansal & Chandra, 2009:40; Deaking, Frick & Skabardonis, 2009:1). In Gauteng, the ITS includes the INPS, Open-Road Tolling (ORT), CCTV cameras and Variable Message Signs (VMS) (SANRAL, 2010: online). While the INPS will take

---

2 At the time, the researcher was an Assistant Lecturer in the Department of Information Science, University of Pretoria
approximately 38 months to implement (Gauteng Provincial Government, 2010:32), the rest of the ITS is expected to be implemented as of April 2011 (SANRAL, 2010: online). Although all these aspects of the ITS are interoperable, only the INPS will be discussed further as the rest fall outside the scope of this paper.

3.1 International applications of ITS

Examples of the international application of ITS include Automatic Number Plate Recognition (ANPR) currently in use in Germany, Hungary, United Kingdom, and United States (Wikipedia, 2010: online). RFID-enabled license plates are also used in United Kingdom, Bermuda, Brazil, China, Dubai, India and Mexico (Bacheldor, 2008: online). These systems are used for vehicle identification, tracking of traffic flow, collection of driver information, automatic tolling, and congestion taxing (Transport for London, 2010: online).

From all these applications of international ITS’s, a number of benefits and challenges of an ITS can be deduced.

3.2 Advantages and limitations of ITS

There are many documented advantages to using ITS, including (Chattaraj, Bansal & Chandra, 2009:40; Deaking, Frick & Skabardonis, 2009:29):

- smooth traffic flow from reduced traffic jams through assigning priority traffic during rush hour;
- more efficient accident response time;
- up-to-the-minute travel information via Variable Message Signs (VMS);
- a reduction in the number of fraudulent license plates on the road; and
- a reduction in crime, such as car and identity theft.

However, with every system come limitations. For ITS, these include (Deaking, Frick & Skabardonis, 2009:28):

- extensive deployment costs and funding restrictions;
- liability concerns with regards to violation of rights; and
- political challenges that come with change of political power.
Pfleeger and Pfleeger (2009:640) discuss additional security and privacy limitations surrounding RFID technology used in ITS, namely:

- The ability to track individuals wherever they are positioned.
- The ability to access sensitive data about individuals.

Another concern of Pfleeger and Pfleeger (2009:640) is that the RFID reader may malfunction in some way; a system failure or glitch may lead to mistaken identification.

As discussed previously, many countries have seen the implementation of ITS in one form or another, many including RFID tracking. On 11 March 2008, the Federal Constitutional Court of Germany ruled that the ITS system utilised in Germany violated motorists’ right to privacy by tracking and recording their daily travelling habits (Das Bundesverfassungsgericht, 2008: online). This demonstrates an already growing dissatisfaction with transportation surveillance and tracking systems, and the challenges faced in protecting privacy.

Due to the similarities in technologies used between these systems and the INPS, many of the benefits and challenges relate directly to a South African context.

4. ITS in a South African Context

4.1 The Intelligent Number Plate System

On 10 February 2010, General Notice 333 of 2010 of the Gauteng Provincial Government Gazette Extraordinary Number 13 was released, detailing the implementation of the Gauteng License Mark System under the National Road Traffic Act (No 93 of 1996). This system is otherwise known as the Intelligent Number Plate System (INPS).

According to the notice, the INPS consists of an embossed aluminium number plate, displaying two letters, two numbers, and two letters following, as depicted in figure 2.3.

![Example of new INPS Plate](image)

Figure 4.1: Example of new INPS Plate (Gauteng provincial Government, 2010:18)
Each plate will have the Gauteng logo, as well as a two dimensional barcode (depicted in figure 2.4) and a unique identification code transmitted by a radio frequency identification (RFID) tag. RFID tags contain small wireless radio transmitters. Each tag has a unique identification number and is tuned to a specific frequency. The tag receives a signal from an interrogating reader; it relays the identification information back to the transmitter (Pfleeger & Pfleeger, 2009:639). South Africa is not the first country to implement the use of RFID tags as part of a transit system.

The tag, with the dimensions of 30mm x 44mm x 1.9mm, will be permanently attached by an authorised service provider by means of a secure process. This technology will be discussed in the following paragraph.

![2D barcode on plates](Gauteng Provincial Government, 2010:19)

**4.2 Privacy and digital identity benefits and challenges of the INPS**

Having discussed the benefits and challenges of ITS, the researcher refers back locally to the planned INPS, and the privacy and digital identity challenges it could potentially bring about.

Alex van Niekerk (personal communication, 2010^3^), the project manager at SANRAL, mentioned that an average of 200 000 motorists are recorded travelling along the N1 highway on a daily basis. The AA Mobility Magazine (2010:63) confirms this statistic, indicating that there were an estimated 180 000 trips on the highway in both directions (north and south) on any given day. The implication is that these 180 000 - 200 000 motorists will have their personal information communicated to a government managed database on a daily basis. This includes information regarding aspects such as location, type of vehicle, daily travelling habits and possible banking details should the ORT system (associated with

---

^3^ This information was received from Alex van Niekerk during a tour of the SANRAL offices in Midrand, Gauteng on 8 April 2010.
INPS) be linked to the motorists’ credit cards. The control of these aspects relates to Durlak’s (cited in Kizza, 2010:90) two categories of privacy rights, namely the control of external influences and the control of personal information. The first category describes factors such as solitude (the right to be let alone), anonymity (the right to have no public personal identity) and intimacy (the right to not be monitored).

At a general privacy level, the implementation of the INPS would affect the motorist in relation to all three of these factors. Motorists would not be let alone on their daily journeys, they would have a public identity on a central database accessible by the SANRAL, and they would be monitored through the use of radio frequency transmitters in their license plates.

Kizza (2010:91) refers to the second category as “the right to control one’s personal information including methods of dissemination of that information”, highlighting the relation between information and the privacy thereof. As information privacy is the right to determine how information relating to a person is communicated, one of the biggest challenges of the INPS is how to deal with the exposure of this personal information, should the INPS be compromised in any way. Motorists could also lose the ability to choose to disclose their personal information, as the government would have access to information related to personal travelling habits.

4.3 The potential benefits of the INPS

As previously mentioned, the implementation of an ITS may result in a range of benefits. These benefits can be applied to the South African context of the INPS and include the following (SANRAL, 2010: online).

- There should be reduced congestion through smart traffic management, correlating directly with international advantages such as assigning priority traffic and the use of VMS.
- There would also be improved incident management, leading to more efficient accident response time.
- There should also be a reduction in crime through the allocation of specific vendors and manufacturing regulations for South African license plates, leading to a decreased number of fraudulent license plates on the road. This benefit could ultimately prevent previously committed
digital identity theft by licensing authorities (Govender, 2010) and will increase the economic and social wellbeing of South African citizens who may have been victims of fraud/crime in the past.

4.4 The potential challenges of the INPS

The use of an ITS that contains location tracking technology can be a double-edged sword (Laudon & Laudon, 2004:126). It can be a source of many benefits as discussed above, but can also create new ethical challenges with regards to privacy and digital identity protection. Some of these challenges are as follows:

- Extensive deployment costs, with the estimated launch cost of R25 Million being allocated by the Road and Transport Budget Plan for 2010/11 (Nkosi, 2010: online) may be incurred.
- There may be liability concerns with regards to violation of rights outlined by the South African Constitution such as the right to privacy.
- Casal (2005) discusses another challenge, namely that when motorists use an ITS the interests of the motorists (data owner), and SANRAL (data retriever) can differ greatly in terms of the value of the information collected. At this stage, there is not a great deal of literature outlining exactly how motorists’ information will be stored to prevent unauthorized access in the INPS repository, and this can be a potential risk for motorists.
- The use of RFID tags as part of the INPS raises a number of identity protection concerns. RFID technology communicates digital identification information that can be intercepted by unauthorised parties (Dobkin, 2007:398; Jehng, Peng & Huang, 2008:190), this can lead to a breach in privacy and possible identity theft.

The desired avoidance of RFID technologies may also create more opportunities for breaking the law (Laudon & Laudon, 2004:126). Many individuals who do not wish to have their movements tracked may employ several illegal privacy-restoring tools, some of which are listed below (Pfleeger & Pfleeger, 2010:640):

- “blasting” – the process of disabling a RFID tag;
- “reprogramming” – the user alters the tag so that it emits different identification information;
- “encrypting” – the user selectively makes the signal available; and
- “blocking” – the user shields a tag to block access from the reader.
The Pretoria News (Van Schie, 2010:5) reported that the Gauteng MEC of Roads and Transport, Ismail Vadi, stated that research into the RFID tags and formulation of policies on their implementation has not been completed yet, delaying the rollout of the RFID for now. This statement further demonstrates the urgency for research into various measures to protect the privacy and digital identity of motorists.

5. **South African legislation pertaining to privacy**

Kizza (2010:90) addresses the belief that privacy forms the foundation for a society that is “free and democratic”. He also describes how privacy has been defined as “a basic human value that is at the core of human dignity and autonomy”. These two aspects are central to the South African legislation that protects privacy and ethical access to information. This includes the widely respected Constitution of the Republic of South Africa, the Protection of Personal Information Bill and the Electronic Communications and Transactions (ECT) Act. This legislation, and how the INPS will be affected by it, is discussed below.


Privacy as a basic human right is protected by the South African constitution in the following sections:

- **Section 14** states:
  “Everyone has the right to privacy, which includes the right not to have –
  (a) their person or home searched;
  (b) their property searched;
  (c) their possessions seized; or
  (d) the privacy of their communication infringed.”

- **Section 10** states:
  “Human dignity – Everyone has inherent dignity and the right to have their dignity respected and protected.”

Section 10 of the Constitution directly addresses what Kizza (2010:90) believes privacy to be – the core of human dignity. With regards to these two sections of the constitution, the INPS may well be treading a very fine line as it could risk contravening both human dignity and the right to privacy. By tracking a motorist’s movements or monitoring him/ her via surveillance, the motorist’s privacy is at risk, along with his/ her human dignity. According to Kizza (2010:91), an individual’s human dignity is not being
respected and protected when he/she has no control over what information is disseminated. To ensure individuals’ constitutional right to privacy and human dignity, the Protection of Personal Information Bill was introduced. The bill is aimed at protecting South Africans personal information “against the unlawful collection, retention, dissemination and use of personal information”.

5.2 Protection of Personal Information Bill (No 9 Of 2009)

This bill was created in order to “regulate, in harmony with international standards, the processing of personal information by public and private bodies in a manner that gives effect to the right to privacy subject to justifiable limitations that are aimed at protecting other rights and important interests” (South Africa, 2010). Once promulgated as an act, motorists travelling on the N1 highway will benefit from this forthcoming legislation as it demands that personal information captured in the INPS repository be adequately protected against unauthorised access. Furthermore, the legislation provides a mechanism, in the form of a regulator, for resolving disputes arising from automated decision making systems, such as automated tolling and fining.

Although this legislation also makes provision for the necessitation of codes of conduct and protection against unsolicited electronic communication, these aspects are more suitably covered by the Electronic Communication and Transactions Act.

5.3 Electronic Communications and Transactions Act (No 25 of 2002)

The ECT act is a source of law that impacts upon the electronic communication of information, and should not be regarded in isolation from other information protection legislation. A key issue addressed in the act relates to the protection of an individual’s personal information and critical data (Michalsons, 2005:2). Two chapters of the ECT act have direct relevance to this research paper, namely chapter VIII and chapter IX:

- Chapter VIII addresses personal information and privacy protection and establishes a voluntary management of personal information (Michalson, 2005: online). Collectors of personal information, in this case SANRAL\(^4\) and Gauteng Provincial Government, should subscribe to a set of universal data protection principles. Unfortunately, according to this act subscription to these

\(^4\) SANRAL has been appointed as the managing authority of the INPS by the Gauteng Provincial Government.
principles is voluntary, and thus poses a potential risk in terms of violating the privacy of personal information recorded by the INPS.

- Chapter IX embarks on the protection of critical data. This critical data, if compromised, poses a risk to the economic or social well being of South African citizens (Michalson, 2005: online). Through identity theft or the fraudulent activities the economic and social wellbeing of motorists can be affected negatively by the directives of the INPS. In the case of the INPS, the authorities must implement the necessary procedures and technological methods to ensure the integrity and protection of personal information within the INPS repository.

From this discussion, it can be inferred that while travelling on the N1, motorists’ privacy and digital identity is already protected by various aspects of South African legislation. However, ITS such as the INPS should not contradict the rights and responsibilities stipulated in the above-mentioned legislation.

6. **Data Analysis of Pilot Study**

To minimize possible processing errors in future research, a pilot questionnaire was administered to a group of second year students studying information ethics at the University of Pretoria. The questions in the pilot questionnaire were divided into the following five themes to enable the correlated interpretation of concepts:

- Demographics of population.
- Transport status.
- Privacy: perceptions and acceptable risks.
- Digital identity challenges.
- Respondents’ perceptions of the INPS.

---

5 For the purposes of this conference paper, not all questions from the questionnaire were included
6.1 Demographics of population

Age and gender

The majority of the respondents who completed the pilot study are between the ages of 20 and 21. This demonstrates one of the limitations of this study, namely that the age group was not representative of the population using the N1 highway. However, for the purposes of a pilot study, the age group was adequate for testing the perception of privacy and digital identity challenges of the INPS. Furthermore, the pilot study consisted of a good representation of the population, with 49% of participants being male, and 51% female.

6.2 Transport Status

Of the 156 participants in the pilot study, only 38% held a valid driver’s license. Of those 38% who have a valid driver’s license, the majority (80% of participants) made use of a vehicle owned by a parent/guardian.

![Figure 6.1: The vehicle the participants use](image)

6.3 Privacy: Perceptions And Acceptable Risks

Question 8: For what purpose do you believe it is acceptable to locate vehicles via a tracking device? (You may circle more than one answer to this question)

In this question, participants were given the opportunity to provide multiple responses (see figure 6.2). Based on this, 85% of the participants believed that adding a tracking device to a car is only acceptable for police locating stolen vehicles. 71% of the participants believed that automatic locating and calling
of emergency service in the case of a car accident is also an acceptable reason. Only 1% of participants believed that it was never acceptable to track vehicles.

Figure 6.2: Indicator of acceptable reasons for installing tracking devices on vehicles

**Question 12: If you have nothing to hide you don't have to worry about security technologies such as tracking devices that may infringe your privacy**

In answering this question, 40% of the respondents completely agreed and 19% partly agreed that security technologies do not infringe on their privacy if they have nothing to hide (see figure 6.3). Whilst the majority of respondents agreed with the statement, a notable 17% of respondents completely disagreed that a person does not need to worry about security technologies infringing on privacy.

Figure 6.3: Indicator of concern relating to security technologies infringing on privacy
**Question 13: Privacy should not be violated without reasonable suspicion of criminal intent**

Respondents seemed to react strongly to this question, with 69% of respondents strongly agreeing with the statement, and 18% partly agreeing with it (see figure 6.4). Very few respondents had any feeling of disagreement with this statement.

Figure 6.4: Indicator of whether privacy should not be violated without reasonable suspicion of criminal intent

![Figure 6.4: Indicator of whether privacy should not be violated without reasonable suspicion of criminal intent](image)

**Question 14: It is unnerving to be under surveillance, even though you do not have criminal intent**

Similar to question 13, the response to this question was strong, with 41% of respondents completely agreeing that it is unnerving to be under surveillance, and 29% partly agreeing with the statement (see figure 6.5). Once again only a small portion of respondents disagreed with this statement.

Figure 6.5: Indicator of discontent of being under surveillance

![Figure 6.5: Indicator of discontent of being under surveillance](image)
Question 18: The possibility of locating all vehicles is privacy infringing

The response for this question illustrated a slightly different perspective on privacy infringement beliefs of respondents. The majority of respondents, 39%, only partly agreed that the possibility of locating cars is privacy infringing (see figure 6.6). This does coincide with the responses of question 8, where many respondents believed that only some of the reasons for tracking and locating cars were acceptable.

Figure 6.6: Indicator of vehicle location as privacy infringement

6.4 Digital Identity Challenges

Question 16: New security technologies are likely to be abused by criminals

With a history of corruption (see discussion of results) by licensing authorities it is not surprising that the majority of respondents completely agreed (47%) and partly agreed (25%) that security technologies are likely to be abused by criminals (see figure 6.7). This also supports the assumption that interception or alteration of RFID tags is a possible challenge of the INPS, placing motorists’ identification information at risk of theft and exploitation.

Figure 6.7: Perceptual indicator of abuse of security technologies by criminals
6.5 Respondents’ perceptions of the INPS

Question 15: New security technologies are likely to be abused by governmental agencies

For this question, 47% of respondents indicated that they completely agreed with the above statement, whilst 28% partly agreed (see figure 6.8). Very few respondents disagreed with this statement. This once again indicates a perception of the use of information by government agencies (discussed at 2.3.2), and supports the idea of misuse of information by authorities as a challenge of the INPS.

Figure 6.8: Perceptual indicator of abuse by government of security technologies

Question 17: Should the Intelligent Number Plate System automatically be installed in all cars?

In terms of the INPS being automatically installed in all cars, 40% of the respondents replied yes, whilst 31% felt that is should be optional (see figure 6.9). Of the respondents, 17% felt that the installation of such a system should be mandatory, but an option to deactivate the radio signal of the RFID tag should also be available.

Figure 6.9: Automatic installation of INPS
**Question 19: The possibility of locating all vehicles is a good tool for the police in investigating and preventing terror and crime**

The largest segment of the respondents agreed completely (59%) or partly (26%) with the above statement (see figure 6.10). It can be concluded that most respondents have a favourable perception of the INPS, should it be utilised for crime prevention.

![Figure 6.10: Indicator that locating vehicles is a good tool for police](image)

### 6.6 Further discussion of results

While the survey was only a pilot study, some interesting trends appeared in the results. Some of these trends are as follows:

**Question 4 and 5**

When comparing the responses in question five (The vehicle I make use of is:), the 64 respondents who answered “yes” were more than those who replied “yes” (56) to question four (Do you have a valid driver's license?) (56). This may indicate either a lack of understanding of the question, or the possibility that some students were driving vehicles with a learner’s license or without a valid driver’s license. This would be a possible aspect of further study with regards to the fraud prevention aspect of the INPS.

**Question 12 and 14**

With regards to question twelve (12), of those who agreed (either completely or partly) on this question, 52% held a valid driver’s license. In comparison, those who agreed (completely or partly), 64% did not
hold a valid driver’s license (see table 6.1). This can be a basis for reasonable assumption that those who do not have a driver’s license feel less threatened by a system such as the INPS, as it does not directly impact on their daily personal habits.

Table 6.1: Percentage of respondents who agree that security technologies do not infringe on privacy

<table>
<thead>
<tr>
<th></th>
<th>Driver’s license (n=58)</th>
<th>No driver’s license (n=96)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely agree</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td>Partly agree</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>61</td>
</tr>
<tr>
<td>Agree (%)</td>
<td>52%</td>
<td>64%</td>
</tr>
</tbody>
</table>

When doing a cross-question analysis of question 12 and 14, a clear contradiction emerges. The results of question 12 show that 59% of respondents agreed (completely or partly) that you should not be apprehensive about surveillance technologies if you have nothing to hide, whilst in question 14, 70% of respondents agreed (completely or partly) that even though you have nothing to hide, it is unnerving being under surveillance (see table 6.2). These responses contradict one another, indicating either a misinterpretation of the questions, or that some respondents apply a double standard – what may be good for others is not good for the individual.

Table 6.2: Percentage of respondents who agree with question 12 and question 14.

<table>
<thead>
<tr>
<th></th>
<th>Question 12 (n=156)</th>
<th>Question 14 (n=156)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely agree</td>
<td>63</td>
<td>64</td>
</tr>
<tr>
<td>Partly agree</td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>92</td>
<td>109</td>
</tr>
<tr>
<td>Agree (%)</td>
<td>59%</td>
<td>70%</td>
</tr>
</tbody>
</table>

**Question 15 and 16**
The reaction to question 15 can be arguably symptomatic of South Africans’ perception of the corruption of government services. An example of such corruption is the current eNatis system in use. According to Carte Blanche’s Devi Govender (2010), an investigation was conducted by Carte Blanche into the increasing incidents of cloned licenses in South Africa. The eNatis system does not have
adequate digital identity management and security features, and with a history of corruption amongst licensing authorities, it is open to exploitation and fraudulent activity.

When doing a cross-question analysis, it emerged that 28% of the respondents completely agreed to the statement in both question 15 and question 16. This indicates a similarity in perception of potential abuse of security technologies by both criminals and government officials.

7. Conclusion
The INPS is one component of an ITS being implemented by SANRAL and the Gauteng Department of Roads and Transport as a means of tracking and surveillance of motorists on the N1. The system is expected to ease traffic congestion, reduce crime, and improve incident management. These benefits may be hampered by high deployment costs, and, more importantly, possible contravention of privacy and information protection rights. The pilot study confirmed that respondents recognise that the INPS could hold certain benefits, especially in respect to crime reduction, traffic management, and emergency services. However, it is clear that the tracking and security technology components of the INPS may be cause for concern regarding privacy and digital identities.

Although more than half of the respondents of the pilot study indicated that they are willing to accept an invasion of their privacy, it was also strongly emphasised that only some reasons for the tracking and locating of motorists were acceptable. The survey also reveals that the pilot study group’s perspective is that privacy should not be violated without reasonable suspicion of criminal intent.

In the researcher’s opinion, following reviewed literature and the pilot study, the implementation of the INPS has strong potential to violate the basic constitutional rights regarding privacy and human dignity of South African citizens. Further investigations into the vulnerabilities of the system should be conducted before the South African government goes forward with the implementation.

8. Reference List
Bacheldor, B. 2008. Electronic vehicle registration picks up speed. [Online]. Available at: 


Wikipedia. 2010. Automatic number plate recognition. [Online]. Available at: 