Proceedings of 14th Annual IS Conference

UNIVERSITY OF ZULULAND

Theme

"Information Ethics in Africa"

Editors
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Welcome and Opening Remarks 14th IS Annual Conference 2013 on information ethics in Africa

Distinguished guests, staff and students. It is my pleasure to welcome you all to this important event in the calendar of the University of Zululand and its Department of Information Studies which is hosting its 14th annual conference this year. Our conferences have enabled knowledge sharing, scholarly research publication, research mentorship and capacity building in Library and Information Sciences/Studies with significant success. As a result, our department, which has 520 students, is ranked among the three top departments (of 48) for research output at the University of Zululand.

This year's conference theme "**Information Ethics in Africa"** is unique because of the importance of ethics in our daily life and the value of Information Ethics in our ethical behaviour in relationship to information generation, access, flow and use. It is also unique because of the magnitude of this event that has attracted some of the prominent Information Ethics scholars from Africa, Europe and USA. I recognise and appreciate the presence of the Deputy Vice Chancellor of Research and Innovation at UNIZULU, Prof. Rob Midgley; the Vice Chancellor and Provost of Academic Affairs at the University of Wisconsin Milwaukee, Prof. Johannes Britz (who is also one of the keynote speakers); other keynote speakers, Prof. Rafael Capurro(Director of ICIE) and Prof. Bosire Onyancha(COD of Information Science at the University of South Africa); Prof. Theo Bothma(HOD of Information Science at the University of Pretoria) and the Director of the CEIE at the University of Pretoria, Mr. Coetzee Bester. At this conference, we have launched a book on *"Information Ethics in Africa"* that will support teaching, learning and research in IE. The book will also support IE research and teaching initiatives of the African Network for Information Ethics (ANIE) http://www.africainfoethics.org/awards_2010.html and The African Centre of Excellence for Information Ethics (http://web.up.ac.za/default.asp?ipkCategoryID=19309) at the University of Pretoria.

The purpose of this conference is to create awareness and popularize Information Ethics as a growing research and teaching domain in Information Studies. The conference is divided into eight sessions that focus on: Crosscutting issues in IE; cyber law, internet ethics and computer ethics; Information Ethics applications and implications; information access, poverty, digital divide, open access and institutional repositories; emerging ethical issues; research in progress; and student workshops on IE. We expect 45 papers to be presented at the conference in the highlighted themes, including: 32 full papers, 4 RIP, 4 posters, and 4 short workshop presentations, as well as 2 panel sessions. We also expect 84 registered participants, largely students, from countries such as: Germany, Kenya, Nigeria, South Africa, Swaziland, Uganda, USA and Zimbabwe.

Among the institutions/universities participating at the conference are: University of KwaZulu Natal, University of Pretoria, University of South Africa, University of Zululand, Moi University, Kenya Technical University, University of Nairobi, University of Lagos, University of Wisconsin Milwaukee, Makarere University, National University of Science and Technology- Zimbabwe, Egerton University and National Archives and Documentation Centre- Kenya.

I hope that our conference will enable constructive discourse and knowledge sharing among students and staff /faculty and foster further exploration and debate in this growing IS field. Please make the best use of this event and visit our conference website:http://www.lis.uzulu.ac.za/conference.

Enjoy and I thank all the contributors to this conference

Dennis N Ocholla

September 2013, University of Zululand

A Consideration of Teaching Information Ethics on Second Year Level at the University of Pretoria: A Case-Study of Integrating Theoretical Information Ethics with Practical Application

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Practising ethics has been an important consideration since Aristotle, with particular reference to his Nicomachean Ethics. He based his entire philosophy on understanding the nature of ethical interaction between people. Conversely, nowadays teaching ethics is a more complicated task when basing one's considerations on Aristotelian ethics, because, according to Aristotle, ethics cannot be taught. Virtue can only be practised by means of habituation which is similar to stating that one cultivates virtues. Therefore, by means of habituation ethical character can be developed. Reinterpretation of this in the modern day classroom or lecture hall can be challenging. This is experienced first-hand by the authors of this paper, who are involved in the teaching of an undergraduate module in information ethics. The concern encountered was not due to the lack of content, but rested on the inability of students to internalise the information ethical considerations. As a result, the students found it difficult to critically reflect on and practically apply what they have been taught. In response to this the authors endeavoured to implement a practical component to the module to provide an opportunity for the students to engage more with the information ethical issues of an Information Society. The aim of this article is to discuss the implementation of the practical component, considering the overall theoretical information ethical framework. Thereafter recommendations will be made as to the improvement of this dual structure. The module was presented over a period of one semester and consisted of both practical and theoretical components. The themes covered during the theoretical component ranged from the foundational concepts related to information ethics; ethical issues of an information society such as privacy, access and intellectual property; intercultural information ethics; social justice and social responsibility. Through the use of a practical portfolio to support the practical component, the students were encouraged to select one topic from any of the themes, on which they had to do research for various objectives: 1) writing a conference abstract; 2) presenting the research in a conference setting; 3) compiling a first draft and final conference paper; 4) designing a conference poster, and 5) formally reviewing each other's work. The results of combining the theoretical component with the practical outcomes will be the main focus of this conference paper. The authors have found that the students were more able to engage with the theoretical content as a result of the practical components. In turn, the practical component also enriched the students' understanding of the theoretical content, informing their class discussions and overall quality of work. The authors will recommend a similar approach to any other applied ethics course, but still highlight the extensive resources required.

Keywords: Information ethics, information ethics teaching, University of Pretoria

1. Introduction

Since the days of Aristotle, the ability to practice ethics has been an important consideration. His philosophy of Nicomachean ethics was based on understanding the nature of ethical interaction between people (Anagnostopoulos, 1994). However even Aristotle was adamant that ethics could not be taught, but rather practiced by means of cultivating virtues through habituation (Anagnostopoulos, 1994). This realisation that ethics cannot easily be taught can be seen in modern day teaching of ethics. To create an environment where ethics can be practiced in the classroom can be extremely challenging. In many situations, students refer to their pre-existing understanding of morals and virtues, drawn from their culture, religion, upbringing and community environment to describe an ethical action (Emerson & Conroy, 2004). This reference to personal experiences often conflicts with what a lecturer teaches about ethical behaviour in society, creating a disconnect between lecturer and student. With no ability to apply practically what is being taught and opening up the dialogue to discuss viewpoints and understanding of ethics, students may find themselves alienated and withdrawing from the discussion all together.

This challenge was experienced first-hand by the authors of this paper, who are involved in the teaching applied ethics in an undergraduate module in information ethics. The concern encountered was not due to the lack of content or the ability of student to understand the context of the work, as the majority of the students are studying information technology, computer science and information science. Rather, as experienced in previous years, the concern was a result of the inability of students to internalise the content they learnt during the theory component of the lectures and apply it to real life situations. The goal of the authors therefore was to restructure the course to promote critical thinking in the students to assist them in internalising the content they learnt, and taking it with them into the workplace one day to help apply ethical judgement to daily situations.

This paper explains how the authors went about restructuring the course to achieve the above mentioned goal, what inspired the change and what the observed results were after one semester.

2. Background

"Information ethics is a descriptive and emancipatory discipline dealing with the study of the changes in the relationship between people and the world due to information and communication technologies. Information ethics in Africa provides a unique platform to build an Information and Knowledge Society driven by critical reflection on ethos and values within the African Context. It addresses opportunities and challenges unique to the development of African societies" (2011 ANIE Workshop on Information Ethics in Africa cited on ACEIE, 2013).

While information ethics has been a point of research and discussion in developed nations for a number of years, in Africa it is still a very young field (Capurro, 2007). As a result, many universities and institutions find themselves searching for new ways to teach information ethics in an effective manner. The authors of this paper were no exception to this.

At the 3rd African Network for Information Ethics (ANIE) International Conference offered a platform to assist in filling the gaps felt by educators. During the conference the following two themes were the focal points:

1. The Development of a curriculum to teach Information Ethics at universities in Africa; and
2. The Cheetah Generation's Fast Track towards Social Media and Information Ethics in Africa.

The pre-conference workshop, focusing on an Information Ethics curriculum, took place on 3 and 4 September 2012, whereas the conference itself took place 5 to 7 September 2012. During the workshop, participants from different African countries were given the opportunity to give feedback on their status, progress and/or plans of implementing an Information Ethics curriculum at their institution. Nearly every institution was at a different implementation stage due to the unique student demographics and administrative procedures of their institution. However, a few common issues between these institutions were identified:

2.1. There is a clear need for an Information Ethics curriculum on both under-graduate and post-graduate levels;
2.2. A linear content approach (foundations to current issues) is also important in order to give a broad overview of Information Ethics, depending on the allotted timeframe (quarter/semester/year module);
2.3. An integrative approach (theoretical and practical components) is necessary to teach Information Ethics holistically [perhaps a better word here];
2.4. Interactive methods need to be employed such that interaction between the students and lecturers are encouraged; and
2.5. More research, on both Information Ethics and the implementation of an Information Ethics curriculum, is needed.

Based on these common issues, the authors decided a pro-active approach, on undergraduate level, is of utmost importance. Pro-active in the sense of a) actively endeavouring to constantly improve the curriculum structure and content and b) actively encouraging students on an undergraduate level (as opposed to the predominant focus on post-graduate students) to understand the information ethical considerations of their study fields. This attitude links to the theme of the 3rd ANIE Conference: *The Cheetah Generation's Fast Track towards Social Media and*

Information Ethics in Africa, because, success in this relatively new academic field (Capurro, 2007) will only be achieved when innovative methods are aligned with the fast paced lifestyle, technological advancements and instant access to information of this day and age.

3. Approach

The authors are both based at the Department of Information Science at the University of Pretoria. The first author is a junior lecturer in Information Ethics and the second is a researcher (and assistant lecturer) at the African Centre of Excellence for Information Ethics. Taking the common identified issues into consideration, they embarked on a novel project as part of the implementation of a practical component in the current undergraduate Information Ethics curriculum. Applying each lecturer's strong points (experience in lecturing information ethics and background in philosophical foundations, respectively), the needs of the second year information ethics module were re-assessed. One of the main issues with the second year undergraduate module was that it carries the highest credit weight of all second year core modules in Information Science and Computer Science degrees. It was a concern that not enough practical application of the module was offered to warrant the credit weighting. The first obstacle was encapsulated by the following question: "How do you make Information Ethics a practical issue?" Practical Information Ethical considerations are easy to identify, such as plagiarism, intellectual property issues, privacy issues in social networking environments and even whistle blowing. The problem is how one introduces and teaches these practical issues as part of a practical component of a theoretical module? To solve this problem, the authors analysed their own personal experiences within the academia to find a gap. They had both observed how each had their first conference and article experiences only during their postgraduate Masters studies, and did not feel wholly prepared for this. If they had an opportunity prior to their Masters to present research in a conference setting, then they would have approached these academic events in a more informed and prepared manner. Through this, the researchers were able to identify a gap in academic training, namely the inexperience of students in conducting and handling research.

The second obstacle was to prove how fulfilling this gap, namely that of teaching students how to present research in a conference setting, would also assist students to practically internalise information ethical issues. When undergraduate students conduct research, the learning experience is enhanced further than what is gained during coursework classes (ACU, 2013; OSU, 2013). Knowledge that is developed in the classroom is strengthened and internalised when students are able to apply it to their research, therefore leading to better understanding and appreciation for the discipline (ACU, 2013; OSU, 2013). The importance of this is further demonstrated the definition of Information Ethics. Giving students the opportunity to prepare and present a conference paper on research based on their choice of any information ethical issue allowed them to critically analyse the ethos and values surrounding the issue and study the relationship between people and ICTs. The project also helps them grow as critical, analytical and independent thinkers and promote lifelong learning, teaches students effective information evaluation, and the importance of avoiding plagiarism (OSU, 2013).

The steps in guiding the students through the research and conference paper will be discussed further in the rest of this paper.

4. Delimitations of the study

The authors do not have any professional background in curriculum development and did not partake in any other activities providing them with the expertise of such an endeavour. However, together with the experience gained in previous years through course development and teaching, they did consult the following individuals, who, without their support and guidance, this endeavour would not have been successful:

- Prof. Theo Bothma – Head of Department, Information Science, University of Pretoria;
- Dr Marlene Holmner – Senior Lecturer and Course Coordinator for Information Ethics at Honours level, Information Science Department, University of Pretoria;

- Dr Cecilia Penzhorn – Senior Lecturer in Information Ethics, Information Science Department, University of Pretoria; and
- Mr Coetzee Bester – Director, African Centre of Excellence for Information Ethics (ACEIE).

Furthermore, it should be noted that the aim of this endeavour, and subsequently the aim of this conference paper, is not to prove the basis of any particular departure point towards teaching Information Ethics. Rather, it is to show that innovative ideas within a curriculum structure can have exciting and constructive outcomes. Steps to conduct more formal assessment on this approach of teaching have been taken for next year.

5. An Information Ethics Curriculum – the Status of the University of Pretoria

The University of Pretoria has a rich history in teaching IE. Originally established in the Information Science Department at undergraduate level in 1990, Information Ethics is now in 2013 taught on two levels: 1) at under-graduate level as a second year semester module and 2) at post-graduate level as a Honours semester module. Hence the University of Pretoria has already acknowledged the need for an Information Ethics curriculum, albeit semester modules. The focus of this conference paper is purely on the further development and re-structuring of the under-graduate Information Ethics module, on second year level.

6. A Linear Approach

The timeframe for the under-graduate module is a semester module and there are approximately 12 weeks during which the entire course must be taught, with three theory classes per week. This translates roughly into 36 contact sessions[1]. As mentioned under common issue 2: 'A linear content approach (foundations to current issues) is also important in order to give a broad overview of Information Ethics, depending on the allotted timeframe (quarter/semester/year module)'; the lecturers agreed that such a linear approach was necessary. Some assumptions were made to guide the lecturers' reasoning and approach to this module: a) the students, being second years, are most probably not acquainted with (Philosophical) prescriptive ethical theories, and hence require an introduction to these theories, and b) the class, being comprised of a mixed group of students – Information Technology, Information Sciences and Computer Sciences – do not necessarily have the same backgrounds, fields of interest and academic focus areas, therefore, the lecturers needed to 'cater' for the entire class. This was not an insurmountable obstacle, but indeed a daunting task when considering that a new approach would be implemented forcing the students to participate even more than usually required.

The above mentioned assumptions led the lecturers to argue that the students needed an 'Information Ethical Toolkit' to support them in their professional (and personal) environments after graduation. Since ethics is about the practising of virtues [Aristotles' reference] and the forming of good habits, so the students must be empowered with this toolkit. The toolkit was created in the form of a house (see figure 1), hoping that students will remember this structure (Hommes & Bothma, 2013). This Information Ethical house provided the basic structure of the syllabus and subsequently the thematic exposition of the semester.

[1] This is not the precise number of contact sessions since there are also public holidays during the first semester.

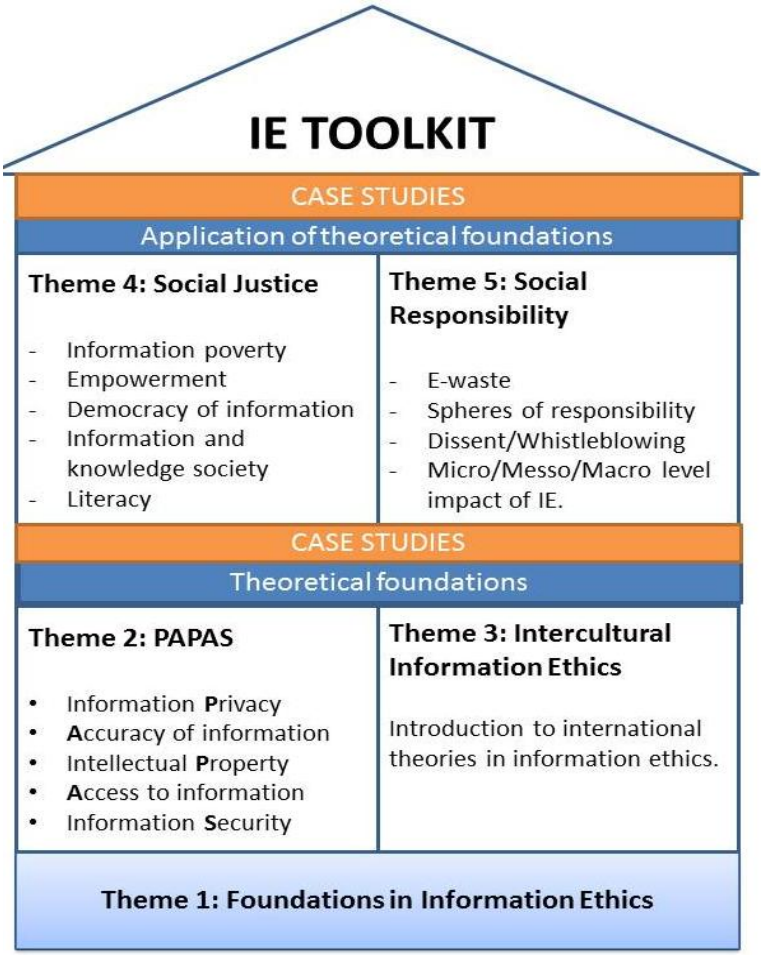

Figure 1: Information Ethics Toolkit (or Information Ethics House):

The toolkit illustrated in figure 1 is still a work in progress as the content, and understanding/perspectives of the content develop. The toolkit aims to illustrate to the students how each theme of work builds on the other, drawing the "golden thread" through the coursework in its entirety. The semester course begins with the philosophical foundations of information ethics – a new concept to most of the students – and then builds on with the information ethical issues as outlined by Mason (1986) and Freeman and Peace (2005). This is followed by a theme on Intercultural Information Ethics, based primarily on works by Capurro (2007, 2008), the ACEIE (African Centre of Excellence for Information Ethics), and Wong (2009). The fourth theme, that of Social Justice, is a new theme introduced in 2013. This theme is still being developed, but is largely based on the works of Britz (2008) regarding social justice and the information and knowledge society. The fifth theme of social responsibility, similar to social justice, is also in developmental stage, and includes current issues such as e-waste, derived from research done by, whistleblowing and open access to information. The importance of this house was not only to demonstrate the relationship between themes in information ethics, but to also give students a starting point in choosing what topic they would like to write their conference paper on.

7. An Integrative Approach

Integrative learning approach involves connecting skills and knowledge from different sources, or applying knowledge to different situations in order to understand context specific issues (Huber, Hutchings & Gale, 2005). It is essentially making connections within a field between academic knowledge and practice (Huber, Hutchings & Gale, 2005). In the second year information ethics module, this approach refers to the introduction of a practical component to the theoretical component. The practical component must not only support the theoretical component, but it must also contribute in its own way to Information Ethical awareness. As mentioned earlier, although there are practical issues concerning Information Ethics, it was not clear how one could convey this into the practical sessions with the second year students. The lecturers had two departure points in their approach to this practical component: 1) the lecturers argued that they would have appreciated conference and article-writing exposure at an earlier stage of their academic careers (i.e. already at under-graduate level) and 2) they had a class of approximately 220 second year students who were going to receive this exposure in less time than one usually gets for conference preparation and participation and article submission.

The 220 students were divided into groups of five to six students per group and were assigned six deliverables to be completed by the end of the semester.

The following outline was provided:

7.1. Aims:

- To develop research and writing skills in the field of Information Ethics;
- To develop presentation skills;
- To develop a conference paper for presentation; and
- To develop a poster for presentation.

7.2. Deliverables:

There are six deliverables in the practical component of the second year Information Ethics module (INL 240) for 2013:

7.2.1. "Call for papers" abstract (300 words)

This deliverable consisted of two parts:

- A five minute presentation by group members on their choice of topic, problem statement and roles and responsibilities of group members. Presentations took place over 2 weeks..
- A 300 word abstract outlining what the conference paper will be about had to be submitted at the end of the presentation weeks.

7.2.2. "First article draft submission" (2000 words)

This deliverable consisted of 3 parts:

- A presentation on the group progress with research, including a literature review of at least 10 sources.
- A draft paper of 2000 words of research completed up to that date.
- Submission of feedback on group presentations attended.

7.2.3. Final conference paper (3000 - 3600 words)

This deliverable consisted of 2 parts:

- A final conference style presentation of the research. Allotted time for each presentation was 5 to 7 minutes.
- Submission of final conference paper of 3000 words (for groups of 5) and 3600 words (for groups of 6).

7.2.4. Conference poster

- A poster showcasing the group's research was to be created for a poster presentation in a conference setting.

7.2.5. Review of another groups' paper

- A full conference paper review of another groups' work must have been done by each group.
- A review rubric was provided for this deliverable for this. It was emphasised to the students that all reviews must be professional and fair.

7.2.6. Portfolio of work

A portfolio/research handbook was compiled by the lecturers to support the students in the practical component. The portfolio consisted of six sections, correlating with each of the six deliverables. Since no such format was previously compiled, the lecturers compiled it with the help of other lecturers in the department and other useful sources. The portfolio/research handbook had to be utilised by each student throughout the semester and should have been completed in full, to be handed in at the end of the semester. This portfolio was individual work, and would also include a peer review of the individual's fellow group members.

7.3. Research Topics

The research topics were based on the theory themes that were covered throughout the semester. Therefore, these topics also correlated with the Information Ethics Toolkit. The research topics could be any of the following:

7.3.1. Foundational information ethical principles and legislation
7.3.2. Privacy; Accurary; Intellectual Property; Access and Security (PAPAS)
7.3.3. Intercultural Information Ethics
7.3.4. Social Justice
7.3.5. Social Responsibility

The topic chosen by a group could be any topic of their choice based on any of the above themes. They were reminded to keep the topics specific and not to pick to broad a topic such as PAPAS – rather they could pick one of the PAPAS principles like Privacy and apply it in a specific context. Examples of topics included:

- Need or Greed: Piracy in an academic context
- The "Secrecy" Bill: a veil for political inner-workings
- Implications of software piracy for Microsoft in South Africa
- Information access for the disabled in South African Universities
- Access to information across rural and urban areas of South Africa: Johannesburg vs. Nkandla

These topics, and the subsequent papers, demonstrated the students' ability to connect the academic theory taught in class and the research conducted in their own time, with real life practices. In so doing, they were able to critically evaluate these real life practices and scenarios for their information ethicality and provide an academic conclusion thereof.

8. Interactive Methods

In the initial planning stages, the lecturers discussed why students in previous years had voiced concerns over their lack of understanding of the significance of the undergraduate information ethics module. As previously stated, students seemed to not engage with or internalise the content, and this lead to a lack of crucial understanding, and ultimately motivation for many students. It was therefore determined that a more interactive model had to be followed in the new program, particularly with the new practical component. To the lecturers involved, it was important that the practical component remained interactive for two reasons: 1) The students had no prior experience in research and conference paper writing, and would therefore need guidance, and 2) The lecturers themselves had not conducted a practical like this before, and would require feedback from the students at all times to ensure there was an understanding of expectations.

Abrahamson (n.d) lists three reasons for following an interactive teaching model. His reasons include the summative aspect, the formative aspect, and the motivational aspect. Applying these three aspects to the new structure of the second year information ethics curriculum, one can see the potential success in such an approach.

The summative part is determining what the students are actually thinking. This was done through regular practical sessions where the work was presented and students were able to interact and receive feedback on progress, open class discussions and an open door policy during office hours for any queries. The second formative part was assigning the project to students from the beginning of the semester for them to conduct their own research throughout, allowing them to think through the issues as the semester theory work progressed. The third aspect, the motivational aspect, was promoted through academic reward. As the semester progressed and the level of work exceeded expectations, students were informed that the group with the best conference paper and presentation in the simulated student conference would be selected to present at another student conference in their professional capacity. This proved to be a hugely successful motivational factor, and the majority of students performed beyond expectations.

9. Recommendations and conclusion

Information ethics is an invaluable discipline in the current information and knowledge society. However teaching information ethics can be challenging, particularly amongst diverse groups of students from various disciplines. The authors were faced with the challenge of implementing a new practical component to complement the theory in their undergraduate information ethics module. To help determine how to practically apply the theory content, they looked at their own experiences. They argued that there was a gap in research training at undergraduate level that prepares students for writing and presenting conference style papers. Thus they implemented an interactive practical curriculum that took students step by step through the research process. The authors recommend that this project be implemented again in 2014. This is supported by a general positive response from students after an informal course feedback session was held, as well as several letters received by students over email stating how much they valued the practical component of the course.

However, some important lessons were learnt in 2013. Primarily, time became a challenge with such a big group of students. Certain aspects in the course must be streamlined, for example:

- more defined rubrics for quicker marking and feedback;
- earlier deadlines to allow lecturers more time for feedback;
- More options for peer review need to be investigated;
- More industry involvements, possible at mentorship level.

Overall, the authors believe that this model for practical application in an information ethics undergraduate course could be very successful, and look forward to repeating the program again next year, in conjunction with more formal research to measure the success.

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Does Open Access Prevent Plagiarism in Higher Education?

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Although plagiarism is still a dilemma in higher education, it is no longer obscure and has grown easier to expose, largely due to the web-based e-publication environment where access to, and the scrutiny and use of information content is escalating. We use our experential knowledge, observations, content analysis, and extant literature to argue that open access increases the detection of plagiarism and discourages it in higher education if the stakeholders roles are known and fulfilled. This presentation is divided into four parts : i) Conceptualizing and contextualizing plagiarism; ii) An overview of the open access concept, which we link to this paper; iii) Our main argument: does open access avert plagiarism? and iv) The role of stakeholders.

Keywords: Plagiarism, open access, higher education, South Africa

1. Introduction

The advantages of ease of access to and use of web-based information resources in the scholarly environment can be levelled by its disadvantages, in particular the ease with which these same tools can be used to plagiarized. However, while this scholarly challenge could be concealed in the 'print only' publishing environment for centuries, largely without noticing, the detection of plagiarism is becoming easier in the e-publishing environment. Yet even in the electronic publishing environment, such detection can be time consuming and costly if e-records are not placed in an open access (OA) environment where they rapidly appear in the public domain upon publication. In this paper, we argue that although plagiarism is still a dilemma in higher education, it is no longer obscure and has grown easier to expose, largely due to the web-based e-publication environment where access to, and the scrutiny and use of information content is escalating. We use our experential knowledge as both authors, intructors/faculty/lecturers and information users, as well as observations, content analysis and extant literature, to argue that open access increases the detection of plagiarism and discourages it in higher education if the stakeholders' (e.g. librarians, faculty/teaching staff, higher education management, and students) roles are known and fulfilled. This presentation is divided into four parts: i) Conceptualizing and contextualizing plagiarism; ii) An overview of the open access concept, which we link to this paper; iii) Our main argument: does open access avert plagiarism? and iv) The role of stakeholders.

2. Plagiarism

Plagiarism is widely understood to be the unethical use of other people's publications, by claiming the content or parts thereof as one's own, without paying tribute to or recognising the sources from which the information was obtained, either at all or properly. However the definition extends beyond publications; it describes unethical behaviour that involves "the act of taking another person's writing, conversation, song, or even idea, and passing it off as your own. This includes information from web pages, books, songs, television shows, email messages, interviews, articles, artworks or any other medium" (http://www.lib.usm.edu/legacy/plag/whatisplag.php).

Understandably, there are hardly any positive references to plagiarism in literature. Based on several definitions of plagiarism by Roger Clarke (2006) and others (Lukashenko, Anohina and Grundpenkis 2007; Purdy 2005), plagiarism is associated with stealing, purloin, appropriation, imitation, copying, cheating, fraud, kidnapping,

abduction, derivatives, re-using, paraphrasing, manipulation, allusioning, etc. Clarke's (2006:97) analysis of the definitions and their usage groups them into the following categories:

(1) **"publication:** the presentation of another person's material, work, or idea. A precondition for plagiarism is that the new work is made available to others; personal notes are not at an issue;
(2) **Content:** the presentation of another person's material, work, or idea. A precondition for plagiarism is that some part of the new work is derived from someone else's prior or contemporaneous work;
(3) **Appropriation:** the presentation of another person's material, work, or idea as one's own. A pre-condition for plagiarism is that the claim of originality of contribution is either explicit or implied by the manner of presentation; or the presentation may be such that the reader is reasonably likely to infer the work to be an original contribution; and
(4) **Lack of credit given:** the presentation of another person's material, work, or idea as his or her own, without appropriate attribution. A pre-condition for plagiarism is that the reader is not made aware of the identity of the originator, nor of the location of the original contribution".

Plagiarism may be viewed from a deontological perspective. Emmanuel Kant's principle of categorical imperative argues against treating other people, in this case authors of published works whose moral rights are undermined by plagiarism, as a means for achieving one's end, but as an end to itself. But even here we must be conscious of the complexities of plagiarism (see Clarke, 2006; Purdy, 2005), which can be 'competitive plagiarism or 'institutionalised plagiarism' (Purdy, 2005:286-287) that are not always well understood. Clarke's (2006:97-103) representation of arguments against plagiarism, based on ethical, instrumentalist, legal, copyright and counter arguments, focused on practicality to authors and readers, the role of imitation in learning and innovation, and alternative cultural interpretations of plagiarism provide solid arguments for a better understanding of the complexities of plagiarism, and cannot be ignored. Plagiarism in higher education largely occurs unknowingly due to negligence, carelessness, ignorance, arrogance, and apathy among members of the academic community with respect to how to use information resources or other people's information for teaching, learning and research, correctly or properly. Lukashenko, Anohina and Grundspenkis (2007:55) provide three reasons highlighting why plagiarism in higher education is forbidden:

"*Firstly, this phenomenon is in contradiction to the process of learning which demands from a learner to take certain intellectual and physical efforts in order to acquire knowledge and skills necessary for the further social and professional activity. Secondly, plagiarism reduces the value of a qualification conferred by the educational institution. Thirdly, it demotivates other students to work independently and to put efforts to learning in case of impunity of plagiarism".*

The absence of a plagiarism policy can be a major drawback in the fight against plagiarism in universities. We recently (May 2013, see appended policies) conducted a content analysis for this paper based on the policies posted on the Internet by 23 South African universities, and concluded that the majority of the universities have a plagiarism policy. Institutional responsibility for the policies vary, but all the universities underline that plagiarism is the responsibility of all the stakeholders. All the policies target students and teaching staff, and nearly all the policies include infringement penalties, detection software, marketing and publicity, declaration of compliance, and guidelines, including library guides. However, only a few policies articulated the library's role clearly.

3. Open Access (OA)

We use the Budapest Open Access Initiative's (BOAI) definition of OA, as "free availability on the public Internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the Internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited" (BOAI, 2002. See also IFLA ,2003). Open Access initiatives have evolved rapidly in recent years, as outlined in the "Timeline of the Open Access Movement" that was initiated by Peter Suber and taken over in 2009 by the Open Access Directory (see http://oad.simmons.edu/oadwiki/Timeline), which captures and shows the enormous growth of the OA movement from past to present. There is significant contribution to the timeline by libraries, universities, journal publishers, and professional organisations and societies. The most comprehensive report on OA content on the web is by Directory of Open Access Repositories DOAR) (http://www.opendoar.org/find.php) and the Open Access Directory (OAD). The figures and table below provide some relevant insights.

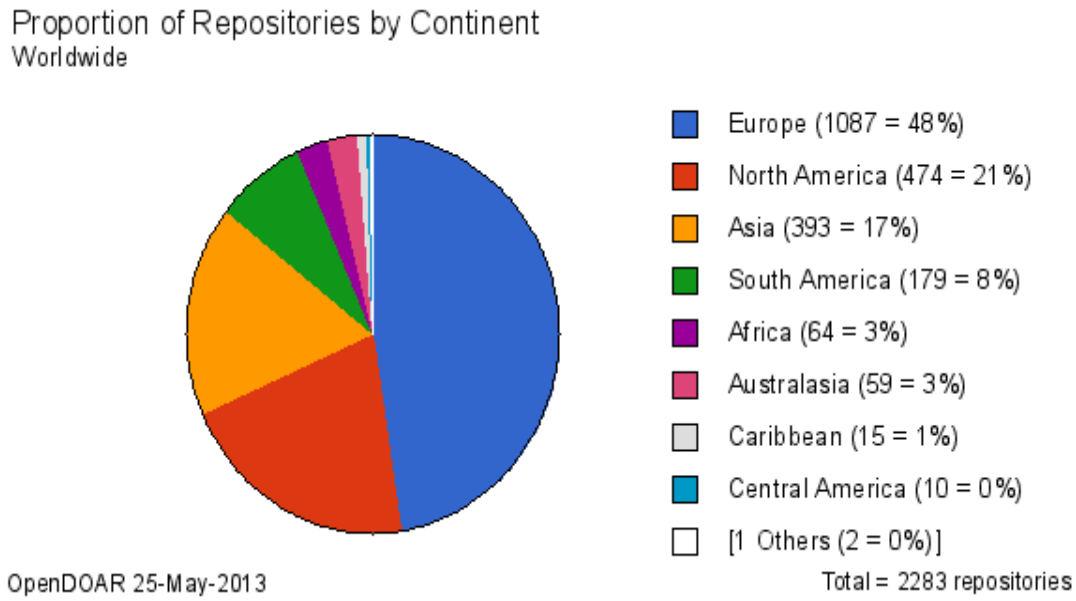

Fig 1: Proportion of Repositories by Continent Worldwide

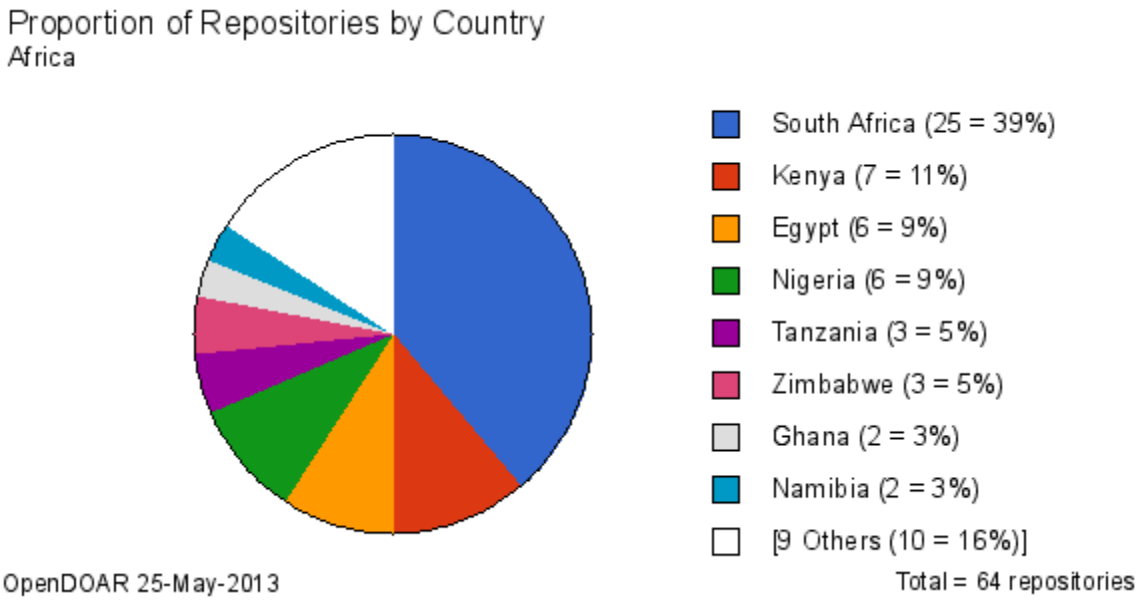

Figure 2: Proportion of Open Access Directories by Country in Africa

Table 1: Open Access Directories in South Africa

Repository name	Country	Num. Recs.	Pubs	Confs	Theses	Unpub	Other	Base URL	Software
African Higher Education Research Online	South Africa	868	+	+	+	+	+	OAI	[Unknown]
CSIR Research Space	South Africa	5689		+				OAI	DSpace
Digital Innovation South Africa	South Africa		+	+	+	+	+		[Unknown]
DSpace at Cape Peninsula University of Technology	South Africa	700			+	+		OAI	DSpace
DUT IR	South Africa	740			+				DSpace
North-West University Institutional Repository	South Africa	8092			+			OAI	DSpace
OpenSALDRU	South Africa	503		+		+		OAI	DSpace
Rhodes eResearch Repository	South Africa	4100		+	+			OAI	EPrints
Scientific Electronic Library Online - South Africa	South Africa	332							SciELO
Stellenbosch University SUNScholar Repository	South Africa	51197		+	+		+	OAI	DSpace
UCT Computer Science Research Document Archive	South Africa	578	+	+	+	+		OAI	EPrints
UCT Lawspace	South Africa	197		+	+	+	+		DSpace
UJDigispace	South Africa	7758			+			OAI	DSpace
UKZN ResearchSpace	South Africa	7476			+		+	OAI	DSpace
Unisa Institutional Repository	South Africa	8543			+	+	+	OAI	DSpace
University of Fort Hare Institutional Repository	South Africa	445			+				DSpace
University of Limpopo	South Africa	637			+				DSpace
University of Pretoria Electronic Theses and Dissertations	South Africa	8365			+			OAI	ETD-db
University of the Free State ETD	South Africa	818			+				ETD-db
University of the Western Cape Research Repository	South Africa	354		+		+		OAI	DSpace
University of Zululand Repository	South Africa	1071			+				DSpace

UPSpace at the University of Pretoria	South Africa	17932		+	+		+	OAI	DSpace
UWC Theses and Dissertations	South Africa	1807			+			OAI	[Unknown]
VUT DigiResearch	South Africa	29			+				DSpace
Wits Unstitutional Repository on DSPACE	South Africa	7524			+	+		OAI	DSpace

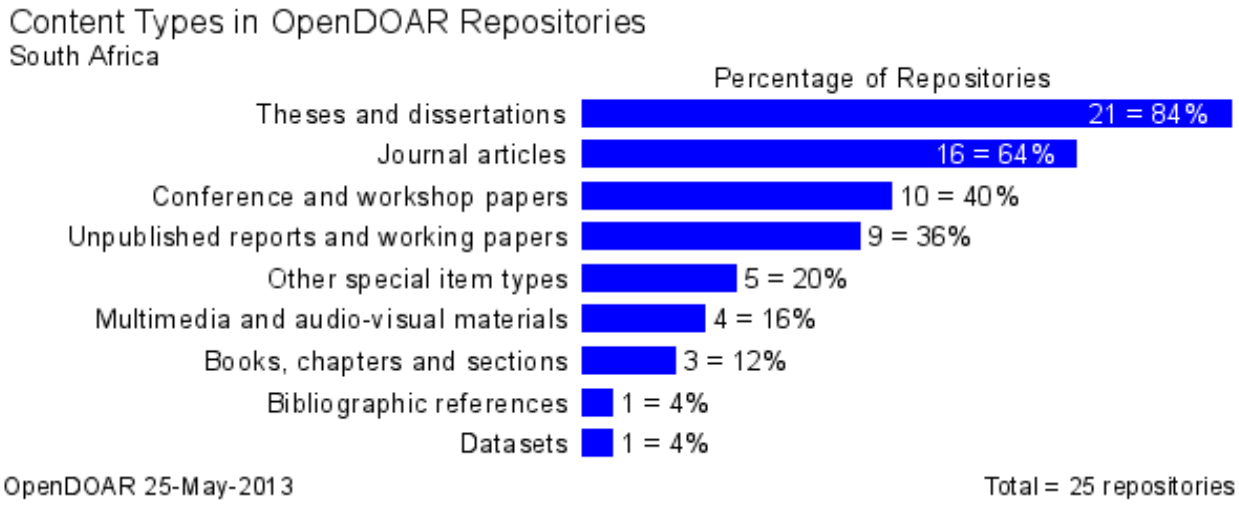

Figure 3: Content Types in Open DOAR Repositories in South Africa

Search engines such as Google, Yahoo and others provide the largest repository of OA content that is accessible to most people in the world, free of charge, on the Internet. Plagiarized information in such content can easily be detected. But, as Brandt et al. (n.d.) rightly observe, "OA documents are typically hidden from traditional web crawlers in so called OA repositories", meaning that access is restricted. Citing McCown et al.'s they note that "generic search engines like Google, Yahoo or Bing do not cover all documents that are available from OA repositories on the Internet [and that] about 21% of the documents provided by OA repositories are not covered by major Internet search engines". Brandt et al. further note that, "The usage of existing OA repositories is beneficial for any plagiarism detection process."

4. Does open access avert plagiarism?

This question can be answered with both a 'yes' and a 'no'. The escalating presence of e-resources on the web, while enjoyed by knowledge and information communities worldwide, is also condemned for enabling plagiarism to occur more easily, mainly because full records or parts of records can be transferred rapidly from one document to another. In higher education institutions, students can easily copy and paste entire papers or parts of documents that do not belong to them into their essays without proper attribution of authorship, leading to plagiarism. However, while it is difficult and laborious to detect such plagiarism in print-only information environments where most documents are not exposed to public scrutiny (as happens with e-resources), we argue that open access increases chances of detecting and averting plagiarism. Open access e-resources, such as those retrieved from search engines, are available and accessible to the public worldwide, therefore any person can read them and detect plagiarism. Authors take more precautions when publishing research output or posting their publications in an open access platform. It is also increasingly easy to detect plagiarism by using document resemblance detecting software programs (see Chew and Blackey, 2010) such as Turnitin, Docoloc, EduTie, Eve2, CopyCatch, Glatt, Moss, JPlag, wordCHECK, etc., when full text records are available in an open access environment such as those represented in DOAR's burgeoning Institutional Repositories (IRs).

Arguments that link open access to plagiarism can be divided into three. The first category suggests that OA makes it easier for plagiarism to occur (e.g. Abrizah, 2009; Brandt *et al*. , n.d). Brandt *et al*. (n.d) report that: "In nearly all recent examples of copyright violations in scientific, academic and scholarly areas the original source of the plagiarized passages can be found on the Internet." However, detecting such cases has also become much easier to do precisely because of the internet.

The second category argues that OA averts or prevents plagiarism, or makes the detection of plagiarism much easier. Such studies (Brandt et al., n.d.) recognise that: "Freely available documents, however, bear the risk that they may easily be used by third persons without paying attention to the copyright of the original authors…. Nevertheless, the unrestricted accessibility of OA publications is their main advantage, especially with regard to copyright protection. Due to their free availability, OA documents are also well-suited for automatic plagiarism search services." Increasingly, studies related to plagiarism detection software tools, development and usage (Brandt et al., n.d; Purdy, 2005; Lukashenko, Anohina and Grundspenkis, 2007; Chew and Blackey, 2010) show that internet-based resources, such as OA based-resources, make the detection of plagiarism much easier. Purdy (2005:276) explains that: "Plagiarism detection services that rely on the Internet allow instructors to search for this visual proof, to test their students' papers to determine if they include language copied directly from other sources." But he is also concerned about the legality of remote server-based Plagiarism Detection Software(PDS) such as Turnitin and EduTie, keeping records of submitted documents in their servers without author consent, and the infallibility and reliability (see also Lukashenko, Anohina and Grundspenkis, 2007) of the PDS tools.

The burgeoning number of institutional repositories of theses and dissertations in open access spaces can deter plagiarism, as both authors and affiliate institutions take more precautions to avoid embarrassment. In the past, theses and dissertations were not easily accessible to the public unless one could visit libraries or repositories where they were kept or stored, 'gathering dust'. If a researcher from one part of the world or another country, region or institution, copied parts of a thesis/dissertation outside their area of jurisdiction, detection of plagiarism would be difficult. This would require persons who are familiar with the publications, such as theses/dissertations, and who can access and scrutinise the publications to establish their originality. It is also reasonable to argue that only a few people who read documents pay close attention to their details, as often occurs when authors read for publication or for research, when examiners examine theses and dissertations, or reviewers review publications, or when students read for examinations to secure good grades. Open access to e-theses and e-dissertations in IRs makes detection of plagiarism much easier, as more people would read them and are likely to sound the alarm if the/their work has been plagiarised.

The third argument belongs to those who feel that OA both increases and thwarts plagiarism. This is the compromising argument: "If plagiarism is easier to commit because of the Internet, it is also easier to catch because of the Internet" (Purdy, 2005:276).

5. The role of stakeholders in enabling Open Access and averting plagiarism

Stakeholders are the individuals or organisations involved with or affected by an activity or an occurance. In this case, stakeholders include libraries, HEIs' administration, students, and staff, in particular academic/teaching/research staff. Librarians understand "that detection is not the main objective in a campaign against plagiarism. Rather, universities should concentrate on educating students as to what constitutes plagiarism and how to avoid it" (Burke, 2004). This view is supported by Wiebe (2006) "It is more in-tune with the overall vocation of librarianship to educate students and advocate awareness of why plagiarism is wrong and how they can avoid it. ……Ignorance and lack of education are enemies of academic integrity – both of which can be greatly diminished with the help of proactive librarians and other faculty working together towards a common goal".

Most SA academic libraries are taking the lead in educating the academic community about the learning/research process by providing different services, including user education/information literacy courses; workshops on e-Resources, Referencing, Plagiarism, PDS such as Turnitin, etc.; online library guides and tutorials; and library displays, referencing and reference management software (e.g. Endnote, Refworks, etc.). Librarians, "need to examine how people interact with information more carefully and have them reflect on their interactions meaningfully – if we want them to resist the temptation to just copy and paste" (Hornreich, n.d.).

According to Schopfel (2013), "Part of the grey literature, electronic theses and dissertations (ETDs) represent a growing segment of open, available content in institutional repositories (IR) where they contribute to the impact and ranking of their institution." It is noted that most of the IRs listed in DOAR contain ETDs. Libraries have a major role to play in enabling open access (Mutula, 2011) and averting plagiarism. Mutula (2011) suggests that libraries should: provide access and support, digitize print collections and develop collections for Open Access; provide enabling infrastructure; offer digital and Open Access literacy; develop institutional repositories; network with stakeholders; provide copyright and intellectual property literacy; and provide leadership for OA. While libraries can initiate and provide leadership for OA and plagiarism, full cooperation and collaboration with relevant stakeholders is vital if they are to succeed.

The major roles of Higher Education Institutions according to Suber include: installing an OAI-compliant EPrint Archive; encouraging staff to deposit their scholarly work, both pre-print and post-print, in departmental or institutional repositories; training digital librarians who may assist as 'proxies' in self-archiving; and developing self-archiving, copyright /plagiarism and Open Access policies (see Suber, 2007). For example, at Walter Sisulu, a draft Senate Plagiarism Policy under 'Joint responsibilities of Supervisors, Co-supervisors and postgraduate students' states that: "Postgraduate students and their respective supervisors need to take note that the electronic versions of the final research outputs will be posted on the intra and internet, facilitating access by a wide audience, and any proved challenge or allegation of plagiarism or unprofessional referencing will pose a challenge on their qualifications, including withdrawal of the qualification in cases where such qualification is already awarded, and simultenously cause disrepute to the supervisor, co-supervisor, department, school, faculty and postgraduate studies in particular and WSU in general."(http://www.wsu.ac.za/academic/images/resources/Part%20II.pdf)

Authors publish to be read, and are important for Open Access and averting plagiarism. They should sound the alarm whenever they detect plagiarism of their work, or in the works of others. They should also conform to copyright conventions, launch and support OA and plagiarism initiatives and publications, and deposit publications in Open Access spaces.

Lecturers/Faculty/Academics interact with publications on a regular basis in their capacity as educators/instructors, authors, and assessors/examiners/moderators of students and colleagues' academic and research output. They can detect, prevent, condemn and discourage plagiarism.

Students are vital as well. They need to develop critical thinking and their own/original views about what they learn. They also need to learn how to avoid plagiarism by participating in plagiarism workshops, which are available to them at their respective universities/colleges, and comply with institutional plagiarism policies.

6. Conclusions

At the beginning of this paper, we argued that OA can avert, prevent or decrease plagiarism and validated this with some examples (e.g. Brandt et al., n.d. Purdy, 2007), and are of the view that many more studies and observations in our work spaces would support this. We note more studies supporting this view or argument from PDS developers and providers whose work is made considerably easier and more effective when records are accessible in full text on the Internet in OA space. We also recognise the compromising third argument - alluded to earlier - succinctly summarized by Purdy (2006:276), that: "If plagiarism is easier to commit because of the Internet, it is also easier to catch because of the Internet." Fundamentally, Higher Education Institutions (HEIs) need to develop comprehensive plagiarism and OA (IRs, etc.) policies that embrace the rights and responsibilities of all the stakeholders. Secondly, OA documents hidden from traditional search engine crawlers on the Internet and only accessible through institutions' intranet cyberspace, sometimes with additional password restrictions, do not fully qualify as OA documents in the way that OA is defined. Such restricted access limits the detection of plagiarism. Thirdly, Internet based OA documents (such as ETDs, including retrospectively digitized print theses, online conference proceedings, etc.) provide growing opportunities for plagiarism awareness, detection, and prevention if documents are accessible in full text format. Stakeholders should also work together and rather focus more on awareness, education and training to prevent plagiarism, as in our view most plagiarism in HEIs occurs because of ignorance and apathy, largely among students. Lastly, plagiarism detection software tools are highly useful and helpful in OA document environments. They play a major role in the detection of plagiarism if used wisely. But the wisdom of using them is curtailed if full text records are only scrutinized by one or a few individuals, and not made available to the greater public.

Acknowledgement

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- http://ixion.cput.ac.za/library_2/library_pdf/plagiarism_policy_2012.pdf
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Electronic Waste: The Dumping Site of the Information Age

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Electronic waste (e-waste) is becoming one of the leading global concerns in the information age. This article establishes e-waste as an informational ethical issue impacting the environment as well as the health and well-being of citizens. Furthermore it elaborates on the consequences of the e-waste problem nationally and globally. The current solutions to the e-waste problem as implemented in other countries are considered with specific reference to the feasibility of such solutions in South Africa with mind to the suitability of such solutions in the rest of the African continent. The authors gained insight into the awareness about the e-waste issue as well as the willingness and ability of future information professionals to contribute to the recycling of e-waste in the long term, through the implementation of a survey of the views of undergraduate students within the School of Information Technology. The School of IT (SIT) at the University of Pretoria is a unique institution for tertiary education in the field of information technology and a significant contributor to future leaders in the IT industry. Through the incorporation of primary and secondary research the authors hope to contribute to the field of information ethical research on e-waste as well as to present viable and effective methods to combat the problem of e-waste in the third world through collaboration with manufacturers and end-users.2

Keywords: Information ethics, E-waste, information age, WEEE

Introduction

Electronic waste also known as e-waste or WEEE (Waste from Electronic or Electrical Equipment) is a primary concern in the information age where the development and evolution of technology in terms of functionality, design and environmental soundness and performance is an ever-evolving industry. According to Lee et al. (2007: 381) it is this increase in this design and functionality of products that stimulate consumers' desire to buy equipment and decreases the sales of used electronic equipment. This phenomenon leads directly to an increase in e-waste generated by consumers. E-waste needs to be the consideration of third-world countries, such as South Africa, as they inadvertently become the dumping grounds for e-waste from the developed world. This is mainly due to the lack of developed policies regulating the handling, discarding and importation of hazardous waste in these developing countries (Pavan et al., 2010:11). Nationally e-waste is increasing in South Africa and technology experts state that further advances in the technological industry may have a direct effect on the creation of e-waste in South Africa in the near future (von Maltitz, 2012). This problem will further be exacerbated by the South African carbon taxation initiative of 2013/14. Although this initiative will improve organisational effectiveness in terms of low-energy hardware usage, it will inevitably leave organisations with "replaceable" hardware that needs to be effectively recycled, placing greater demands on the recycling infrastructure of South Africa (James, 2012). The growth of cloud computing will have a similar effect on the prevalence of e-waste. As more providers offer a stable cloud solution, more organisations will demand the cloud infrastructure (von Maltitz, 2012) resulting in obsolete company hardware. Rapid technology changes such as these, while improving commerce, is listed as one of the primary drivers behind the generation of e-waste (Li et al., 2006: 13).

[2] This article has been accepted for publication. Holmner, M.A & Marais, L. 2013. Electronic waste: the leading information ethical concern of the information age. Innovation, June, 2013.

Globally the problem of e-waste is increasing. India experienced a reported 50 thousand tons of illegally imported e-waste from the developed world in 2009 (Pavan et al., 2010:11) while Nigeria reported 500 thousand tons of the same in 2010 (Osuagwu and Ikerionwu, 2010:142). With the total amount of e-waste in Europe is set to increase to 45% by 2020 (Banndyopadhyay, 2010:793) the global generation of e-waste is predicted to increase between 16% and 28% every year (Nnorom et al., 2009:1629). Aside from this imported e-waste the countries themselves produce e-waste as participants in the global information economy which requires users to communicate with cell phones, computers and other information communication technologies (ICT) that are discarded within their own countries. India produced a reported 3.3 hundred thousand tons of e-waste in 2007 (Pavan et al., 2010:11). By 2010 China had established 81 e-waste treatment plants to deal with the e-waste produced by China itself (Song et al., 2012:223). The continued increase in e-waste generated by the populace described earlier will however require the continued increase in e-waste recycling plants and the recycling capacity of a country (Lee et al., 2007:394) .This amount of e-waste has devastating effects on their environments and their people. Case studies conducted in China concluded that the dust generated by the recycling plantations affected schoolyards and food markets 8 and 30km's away. The dust absorbed by the average adult could amount to as much as 100mg (Leung et al., 2008:2674). Exposure to the heavy metals contained in the dust generated from the e-waste recycling plants affects not only the physical health of those exposed to it (in terms of damage to the central nervous system decay and organ damage) but the lead contained in e-waste has been associated with a decline in the IQ of children (Leung et al., 2008:2674). The dust that is not directly ingested by humans becomes absorbed in groundwater and surface soil and due to its non-biodegradable nature is absorbed by humans indirectly through consuming contaminated food and water sources (Saphores et al., 2011:50).

South Africa, as a leader among the regional developing countries (Schoeman, 2000:47) has a responsibility to itself and the other countries experiencing the consequences of e-waste to develop sustainable solutions and set an example for action against e-waste. The first step in the development of an industry Waste Management Plan according to the Industry Waste Management Plan guidelines set by the Drug Enforcement Agency (DEA) in June 2010 is the setting of targets for re-use, recycling and recovery (Anderson, 2012). The development of a Waste Management Plan is however impossible without accurate figures about the current e-waste levels and generation. South Africa, similar to many other developing countries, has no accurate measurements of the e-waste imported, generated or recycled within their borders because e-waste is not considered a priority waste. This results in the lack of legislation for enforcing the submission of an e-Waste Management Plan. Without the proper enforcement of documentation regarding the generation and recycling of e-waste South Africa has no accurate measurement of the extent of e-waste pollution within its borders (Anderson, 2012). This article will attempt to explore the approach to and possible solutions of the e-waste issue from an ethical point of view and with special consideration to the South African economical, technological and social environment.

E-waste as an information ethical issue

E-waste can be seen as an information ethical issue for two primary reasons: the origin of the problem and the effects of it, both of which will be discussed further. Firstly, it is primarily an information ethical issue due to the direct relation of ICT to the evolution of the information and knowledge society. According to Lor and Britz (2007) the progress of countries towards becoming an information and knowledge society has taken on the characteristics of a race. To win this race countries are investing heavily in ICTs as ICTs have proved to be the key to economic prosperity in many developed countries. Furthermore a sophisticated ICT infrastructure has been hailed as one of the main criteria of the information and knowledge society (Martin, 1995; 2000; Webster, 2002; Lor & Britz, 2007; Holmner, 2008) stimulating this investment in ICTs. This investment together with the rapid pace at which ICTs become obsolete has contributed to the increase in e-waste as mentioned earlier (Lee et al., 2007:394). With mobile phones and computers being upgraded continually, it is estimated that this number will continue to grow. According to Lee et al. (2007) in 2000-2002 about 80% of new cell phone sales volume in Korea was attributed to obsolescence indicating a frequent replacement rate resulting in approximately 13.2 million discarded cell phones.

Secondly, the effects of the e-waste problem also render this a uniquely information ethical issue. The degeneration and informal recycling of e-waste has consequences that affect a large population of both those directly and indirectly involved with e-waste, which relates to the social responsibility of humans. Smith and Kelly (2003:321-322) examine the manner in which science and technological expertise has become intrinsically bound with policy making and development in a global environment with changing economic, political and social issues that affect various industries. The information scientists of South Africa will be required to be involved in the establishment and enforcement of 'best practice' guidelines as e-waste is not an issue that can be solved with current political or cultural guidelines. Smith and Kelly (2003:324) go on to state that in terms of the integration of science and technological expertise and policy making it is crucial to set guidelines created in an ethical, social and political context. South Africa has a lack of policies regarding e-waste as discussed above. Information technology education must have grounding in the ethical considerations of the e-waste issue – specifically regarding the possible harm to the environment and population of a country – in order to ensure the development of socially conscious and ethically sound practices from future information scientists (Zazzau, 2006:99-100). As previously mentioned, the current lack of policy and legislation leads to the majority of informal recycling of e-waste and e-waste dumping taking place outside of controlled and protected environments. Thus it can be seen that e-waste is an informational ethical issue as we are the direct cause of it as citizens of the global information society and ICT professionals. Furthermore it is our social ethical responsibility primarily due to the fact that it is irredeemably destroying our environments and populations despite the fact that it is preventable.

Methodology

The primary research paradigm followed for this article is a qualitative approach. As qualitative research is about "exploring issues, understanding phenomena and answering questions" (Ereaut, 2007) the authors explored the issues pertaining to e-waste as an information ethical issue, the current status thereof as well as the environmental and health impact of e-waste. The literature study was furthermore supplemented with a pilot study that made use of a questionnaire as data collection instrument. The questionnaire containing closed-ended as well as open-ended questions was distributed to obtain data on the participants' awareness of the issue of e-waste, their willingness to participate in the initiatives available to them, and their perspectives on the parties who should be held responsible for the recycling of e-waste. The pilot study made use of a group of first year students at the University of Pretoria, studying IT within the School of IT. These students were study one of the following degrees: BIS Multimedia, BIS Information Science, BIS Publishing, B Information Technology, BCom Informatics, BSc Information Technology and BSc Computer Science. From the 420 students within the School of IT, 207 completed the questionnaire, resulting in a favourable 49.2% completion rate.

These students were selected as part of the pilot study in order to test the questionnaire for future use in further research. As a convenience sample the students are not representative of the entire industry, or the entire university, they do however represent a significant selection of future industry leaders. By identifying the students in the School of IT the authors were able to gauge the opinions and awareness of future policy makers in industry and in the country. This is particularly significant as the discussion that follows on the importance of ethical guidelines shows that 94% of polled IT professionals have not created or implemented an e-waste disposal guideline (Pavan et al., 2010:11). As future participators and leaders of industry the surveyed students and the findings presented hold significance for the future of e-waste disposal in South Africa.

The simple rules that govern a prolific and accurate research design include the selection of the population, a group, usually consisting of people with a common set of characteristics one wishes to study and draw conclusions about (Leedy, 1997:203; Zikmund, 2003; Babbie, 2008:121). As discussed above, IT professionals and students play a big part in the e-waste problem and therefore have a common set of characteristics as users of IT. Nevertheless, it is virtually impossible to study all the members of a population or target group of interest and therefore a sample is needed.

The sampling technique used in this research is a non-probability research technique called convenience sampling. This form of sampling was selected due to the convenience of access to the participants as well as their proximity to the researchers (Castillo, 2009). The respondents were then invited to participate, the respondents were thus self-selecting. The survey consisted of open ended and multiple choice answers in the form of dichotomous questions and cumulative questions which were analysed according to response weight and cross-referenced with identified filter questions in order to create a complete understanding of the sample frame. In this cross referencing the qualitative data (in the form of open-ended questions) was used in order to support and elaborate on the quantitative data. This enabled the researchers to probe the respondents in more detail than a purely quantitative data set would have allowed.

The questions were selected firstly to identify per-department awareness of e-waste as an issue as well as the terms for e-waste that the respondents are familiar with. This enabled the researchers to cross-reference the course material, technical experience and interests of the students in order to create a more complete picture of e-waste awareness. The understanding of and opinions on the significance of the e-waste problem was examined through a combination of open and closed-ended questions as was the respondents' perception of his/her personal responsibility and willingness to help with the issue. Multiple choice questions were then used to identify the perceived responsible parties on institutional and government level as well as the method of awareness among students. The questionnaire is attached for consideration in Appendix A.

Results and discussion

Awareness of the e-waste issue

The majority (61%) of respondents said that they were aware of what e-waste is, with only 39% saying that they have never heard the term before and do not know what it entails. The break-down of the awareness of e-waste per degree is, however, very informative, indicating that the very hardware orientated degrees, such as Computer Science and Information Technology have the highest awareness of the issue. This is opposed to the more content-orientated degrees such as Publishing, Multimedia and Information Science that show less awareness

Of the 39% of respondents who said that they were not aware of the e-waste issue, 89% state that they would still be interested in learning about it in their IT studies in the School of IT (SIT) and/or would participate in drives lead by the SIT. Overall 96.5% of all the respondents stated that they would include e-waste as a component in their studies primarily to increase awareness of the issue and to extend their own knowledge as e-waste is a growing issue with a large, detrimental effect on the environment and mankind. The 3.5% of respondents that did not want to include components of e-waste in their studies thought that it would not benefit them in their career choice or that it should have been included in secondary education; these respondents mainly belong to the BSc Information Technology degree (4 Year).

How were students educated about e-waste?

Of the 61% of respondents who knew what e-waste was, 52% were educated about the issues from a high-school teacher. However only 44% of these respondents stated that the issue of e-waste was addressed in the formal high-school curriculum (within IT, Computer Aided Design (CAD) Geography, Life Orientation). This indicates that high-school teachers also informed students outside of these subject areas indicating awareness in the educational system of the growing importance of e-waste despite the fact that it is not really addressed by the current curriculum. The second largest group of respondents that knew about e-waste were informed about the e-waste issue by the media (35%), which corresponds to the proportion of respondents who were made aware of the various e-waste drives through the media (33%) showing the effectiveness of media campaigns driven by vendors in educating the audience about e-waste. Only 2% of respondents heard about e-waste from their parents, showing a concerning pattern of lack of older generation involvement with the e-waste issue. The same amount of students (2%) indicated that they learned about e-waste from other sources, such as their own research and online, while 9% responded that

they heard about e-waste from a university lecturer, probably from previous studies or awareness drives (see figure 1 below).

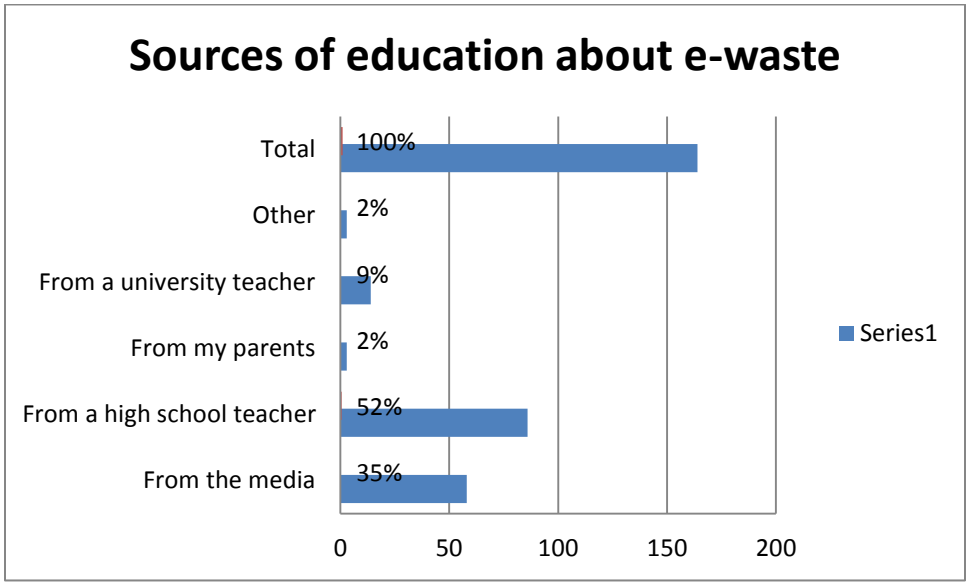

Figure 1: Sources of education about e-waste

Overall, 84.5% students were aware of e-waste drives lead by organisations, with the leading organisation being Incredible Connection (31%) followed by Spar (27%) Woolworths (23%) and other organisations (including Pick 'n Pay and private computer stores) at 4%. The chain store Makro had only a 15% awareness likely due to their specialised clientele (as an outlet store) not including students. In terms of drive awareness the largest group of respondents became aware of organisational drives through in-store advertising and promotion (37%), followed by the awareness spread by the media mentioned earlier (33%). The spread of awareness of the drives hosted by the retailers through word-of-mouth amounted to 20%, with a mere 10% doing their own research to discover locations for e-waste recycling.

Perspectives on responsibility

Traditionally the original equipment manufacturers (OEM) had very little legal responsibilities towards the manufactured products they produced, beyond shipping and involved service plans. However during the past two decades the global climate towards equipment manufacturers has changed. In 1999 Norway implemented a 'take-back' policy that holds manufacturers responsible for environmentally sound recycling of their products (Pavan *et al.*, 2010:11). This principle of extended producer responsibility (EPR) is effectively the principle of all of the 'take-back' policies, extending the responsibilities of the manufacturers to a post-consumer stage of product existence, as implemented in most first-world countries (Bandyopadhyay, 2010:794). The EU, South Korea, Japan and Taiwan already demand that OEM be responsible for 75% of their manufactured products' recycling (Osuagwu and Ikerionwu, 2010:143). In terms of the Basel Conventions' restrictions on the transportation of hazardous waste (which prohibits in many instances the transportation of e-waste to the OEM) non-manufacturing countries such as Norway holds the importer responsible in place of the OEM (Pavan *et al.*, 2010::11). In Africa, the Nigerian solution to their growing e-waste issue is the Mobile Phone Partnership (MPP) which creates an agreement between the Basil Convention, curbing export restrictions on e-waste, and OEMs such as Nokia and Motorolla to dispose of the involved cell phones in a responsible manner extending the effectiveness of the convention to non-manufacturing countries.

These examples all illustrate the responsibilities of the OEMs in the post-production process. Nevertheless the responsibilities of the OEMs actually already begin before the product hits the market in the pre-production process. During the pre-production and production process, the OEM carries the ethical responsibility of material selection to determine the least harmful substances that could be used and the design of sustainable products (thus eliminating the planned obsolesce of products) to effectively reduce the e-waste output from the products (Osuagwu and Ikerionwu, 2010:147). Narayanan and Kumar (2010:217) also stress the importance of volume control to lower wastage and over-production of products as well as the responsibilities of OEMs of recovery and re-use of product elements. This re-use of product elements will furthermore ease the dismantling, re-use and recycling of product elements. This consideration carries weight for both the OEM that dismantles it and the user who will likely be more capable of upgrading and re-using their own e-waste (Davis and Wolski, 2009:27).

When the respondents were asked what the responsibilities of the OEMs were regarding e-waste, the following came to light.

In terms of the respondent group 13.4% of respondents stated that they would pay an additional deposit on purchase to have their equipment recycled by the original equipment manufacturers. This is similar to the recycling initiative in Norway and other first world countries. The responsibility of recycling according to 28% of respondents falls to the OEMs rather than being the national and provincial governments' responsibility as discussed below.

What are the responsibilities of governments and industries?

Governments carry the responsibility of enforcing the 'take-back' policies, as well as the current structures in place for the responsible recycling of e-waste such as the Basel convention. The regulation of the taxes, laws and levies associated with the implementation of responsible e-waste solutions are also of primary concern for governments (Osuagwu and Ikerionwu, 2010:148). Several industries have also taken it upon themselves to regulate the destruction and recycling of e-waste with the help of government institutions. Through the implementation and regulation of such initiatives an advanced recycling fee (ARF) is charged to the consumer that is calculated and intended to cover the cost of the recycling of the purchased product. Countries such as Switzerland use the ARF to fund the recycling of electronic products with the help of NGO's and industry leaders (Sinha-Khetriwal *et al.*, 2005:495). This serves as a highly effective method of management of e-waste without additional pressures on the governments involved, and specifically penalises those consumers who replace products that are not at their end-of-life. The implementation of ARF in South Africa would also avoid placing a crippling tax on the poorest technology consumers who receive technological donations. In this way the illegal dumping of computers and other e-waste will not become a necessary alternative. This will be due to the recycling fees already being paid when the product is purchased, rendering the lowest-income users free to responsibly recycle (Pavan *et al.*, 2010:11; Bandyopadhyay, 2010:797).

According to Osuagwu and Ikerionwu (2010:148) governments should also take responsibility in terms of encouraging the research and implementation of solutions for e-waste, as well as encouraging support of NGO's and recycling initiatives.

In terms of responsibility of government for recycling e-waste in South Africa 24% of respondents felt that the National Government should be responsible for e-waste recycling, with 12% feeling that Provincial government should be responsible for recycling e-waste. Only 6% of respondents felt that non-governmental organisation should be responsible for e-waste recycling. In terms of ARF charged on the purchase of equipment 6.5% of respondents state that they would pay additional recycling taxes on purchase. Considering the limitations of the manufacturing industry the deposits paid on purchase to have equipment recycled by the OEM could also be considered as part of ARF funding. In terms of organisational responsibility to recycle e-waste 26% of respondents stated that organisations partially or completely run by the South African Government should hold responsibility for recycling e-waste on corporate level. Furthermore 32% of respondents stated that organisational heads and governing bodies

of organisations should be responsible for e-waste management within their organisation (see figure 2 below). Considering the preferences of the respondents to drop off their e-waste at a recycling centre (60.7% prefer this), the views that the private citizens should be responsible for e-waste recycling (31%) this model might be a better option for South African e-waste recycling. National government should be held responsible according to 24% of respondents, while 12% consider it to be a provincial matter – as waste is disposed of in the USA, on state level (Fredriksson & Millimet, 2002), the problem with this model is the equal distribution of resources in the nine provinces.

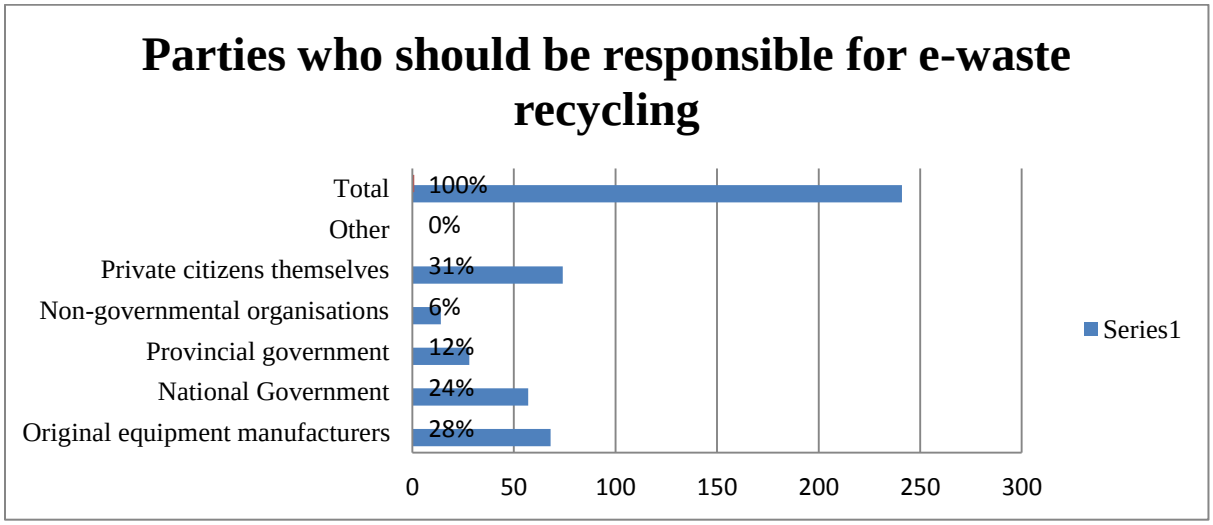

Figure 2: Parties responsible for e-waste recycling

What are the responsibilities of information scientists, academics and professionals?

As mentioned above, information scientists and academics as professionals have the responsibility to research the effects, and most importantly the possible solutions to the e-waste problem. As the party that is most likely to be aware of the possible implications of the e-waste problem it is also the responsibility of the information scientists and academics to educate the average citizen (Zazzau, 2006:99). Saphores *et al.* (2011:50) conclude this is the most important step in creating a sustainable e-waste solution in a community as most of the citizens that are responsible for the majority of e-waste are not aware of the true effects and destruction it causes. Schultz *et al.* (1995:107) echoes this statement when they state that the generalised view on recycling improves and motivates people to recycle if that person is aware of the effects, materials and locations for recycling, and if recycled products and recycling services are well known to them. Education should also extend to the promotion of awareness of recycling points and methods. Veers *et al.* (2009:17) found that while 80% of surveyed vendors were aware of the possible effects of e-waste 50% of them buried their electronics that were unusable in the soil, while 13% burnt it, which they attributed to a lack of knowledge about methods and points of recycling.

Professionals also hold certain responsibilities outside of those of OEMs. According to Davis and Wolski (2009:27) the consumer as professional holds responsibilities in the areas of product purchasers as drivers of the manufacturing industry. Consumers as professionals should insist on products that comply with environmental standards held by that country, such as IEEE 1680 in terms of the reduction of toxics in the content of products, the selection of biodegradable materials, end-of-life designs, life-cycle extensions and energy conservation (Davis & Wolski, 2009:27). The aforementioned Carbon Tax initiative of 2013/14 attempts to address this issue in South Africa. In order to deliver the most adequate leadership in the field of recycling and re-use it is the primary task of

professionals to institute a strict and strictly followed policy for the replacement of electronic equipment, as was done in a study by Davis and Wolski (2009). According to Pavan *et al.* (2010:11) 94% of the polled IT professionals did not have a disposal policy on e-waste, this not only sets a bad example for the industry leaders and employees but also disregards the power that the industry leaders could exercise over product manufacturers as discussed earlier.

What are the responsibilities of the consumers themselves?

As future information scientists, academics and IT professionals the respondents as individuals have a responsibility concerning the correct disposal of e-waste. This would be in addition to the considerations that IT professionals and academics implement on the large-scale. Due to the limited nature of the individuals' control over the actions of others the responsibilities of an individual as consumer exist within the framework created by IT professionals and academics, as discussed above. Osuagwu and Ikerionwu (2010:149) clearly create a framework for the behaviour of individuals who want to be part of the environmentally conscious disposal of e-waste. Among others they propose reuse as a primary method of environmentally conscious use of electronic products, as prevention of electronic waste is better than the recycling of it. In the same vein they also suggest that care be taken when donating items, as donated items often become e-waste through mismanagement of technology and technological disposal through less educated users.

It is the responsibility of each individual to consider what constitutes electronic waste and to understand that stockpiling e-waste does not offer a legitimate solution and diminishes the resale or possibly recycling value of these appliances (Davis & Wolski, 2009:22). It is the responsibility of the individual to manage his/her own electronic waste and recycling despite the perceived inconvenience that is the primary cause of lack of recycling among consumers (Saphores *et al.*, 2012:51). This is supported by 31% of respondents who believed that private citizens themselves should be responsible for recycling (see figure 3).

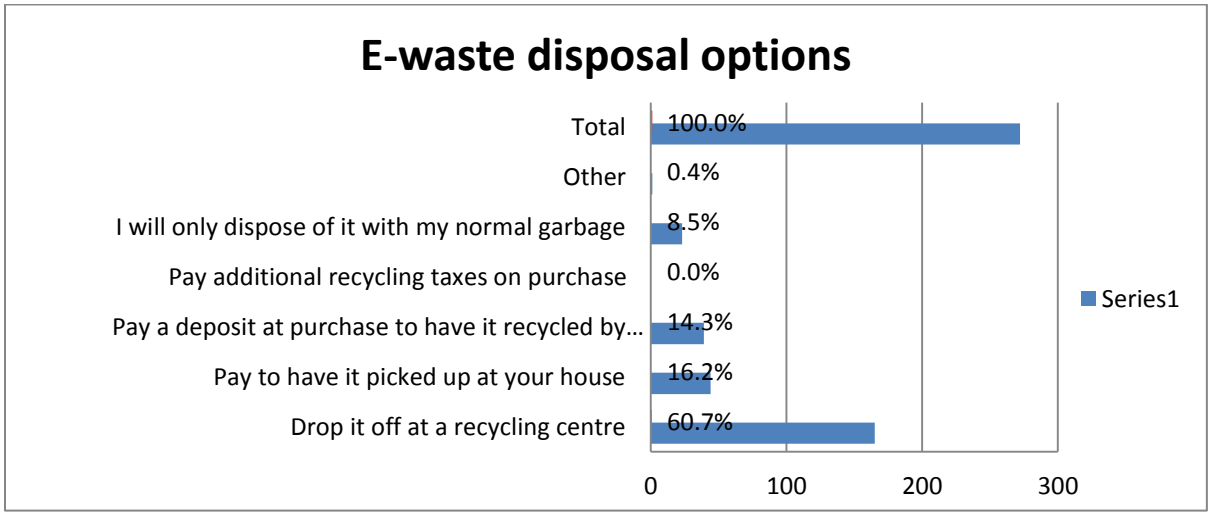

Figure 3: E-waste disposal options

Respondents to the questionnaire were also asked if they would personally partake in a drive to reduce e-waste and 86% of students responded positively. Primary motivators for partaking in an e-waste drive were to save the environment, to prevent waste and to make the world a better place. From these responses it can be seen that environmental concerns were the primary motivator for respondents, as is the idea of personal responsibility. Of the 14% of respondents who would not want to partake in such an e-waste drive, the major hindrance was the time a time constraint. The personal responsibility that the respondents would take towards their own e-waste would contribute greatly to the creation and implementation of sustainable e-waste initiatives in South Africa. As future industry leaders the respondents would not only contribute themselves to effective recycling but could also

potentially lead to the implementation of policies and guidelines that could affect industry disposal of e-waste on a large scale. It thus carries great promise for the future of e-waste recycling in South Africa that only 8.5% of respondents stated they would only dispose of e-waste with their normal garbage implying that there is a measure of awareness of personal responsibility regarding among the vast majority of respondents.

Conclusion

The ARF model used by other non-manufacturing countries such as Switzerland where NGO's and government organisations are held responsible for the recycling of e-waste is currently being supported by the e-Waste Association of South Africa (eWASA) (Botes, 2012). In this model a small fee is paid on purchase. However only 6.5% of respondents in this survey would partake of such an initiative. The 'take-back' policy instituted by Norway and the Eastern countries mentioned above would not work in South Africa as we do not have the infrastructure to transport the e-waste to manufacturing countries, nor do we have the manufacturing resources to facilitate the 75% recycling demands on OEM's that the 'take-back' countries demand. While the respondents preferred to have the OEM's involved in the recycling process in many non-manufacturing countries such as Norway the importers are held responsible for the recycling of the electronic products that they import.

Through the incorporation of primary and secondary research the authors hoped to contribute to the field of information ethical research on e-waste as well as to present viable and effective methods to combat the problem of e-waste in the third world through collaboration with manufacturers and end-users. This was done through the survey and study of the opinions and awareness of future policy makers and industry leaders represented by the students in the School of IT of the University of Pretoria. The significance of the pilot study is that it represents opportunities for further research into the gaps and inconsistencies in the education about e-waste on tertiary level as well as the current methods of creating awareness among youth entering the technological and information industries.

The biggest concern in South Africa is the lack of awareness and knowledge about the e-waste issue and how it affects South African citizens, as stated by Botes (2012). Based on the inclusion of questions about awareness and the methods of awareness creation the following recommendations can be made. The researchers established that in order to raise awareness in future workers in the technological and information industries there should be increased advertising on media channels and in store promotions, that National government should be more involved and that there needs to be increased awareness in the school system. The most popular recycling scheme was that of Incredible Connection, who offer a cash of purchase incentive on their e-waste donations and advertise heavily in store and through media. This model of recycling will serve highly effective in South Africa if we follow the model that importers are held responsible for their e-waste recycling. Advertising and promotions should include the terms 'e-waste' and 'hazardous waste' as these are the terms that respondents are most aware of at 36% and 28% respectively. These methods of advertising will raise awareness and educate the end user, vitally important in South Africa, specifically with regard to the education of the future policy makers, industry leaders and technological workers, as represented by the sample frame.

Further attempts to raise awareness in organisations should be attempted from the top down; respondents indicated that organisational heads and governing bodies should be responsible for establishing e-waste policies (32%), followed by governmental organisations (26%) and special divisions within an organisation (21%). It is vital that citizens and information specialists become aware of the e-waste issue, specifically its impact on South Africa, the environment and mankind. In order to consider the implications and effectiveness of the above discussed methods of e-waste recycling in an educated manner, as well as the consequences of not implementing e-waste recycling methods.

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Ethical Dimensions of Theoretical Framework in Qualitative and Quantitative Research - An Analysis of Modernisation Theory as Applying to Informal Sector Women Entrepreneurs

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This paper aims at discussing ethical complexities in the application of Modernisation theory among informal sector women entrepreneurs by using qualitative critical analysis approach. While the discussion is based on literature review of the theory's application, it is strengthened by findings of this authors recently completed doctoral thesis in information and knowledge society and its impact on poverty alleviation and economic empowerment among informal sector women entrepreneurs. Ethics is a field of study that deals with bad and good human behaviour in relationship to self, others and the environment. The purpose of this study was to discuss ethical dimensions of modernisation theory with reference to informal sector women entrepreneurs. Modernisation theory is a social progress in which development is regarded as a movement from traditional to modern societies. The theory's premise is the movement of societies from relatively poor, rural, agrarian conditions to relatively affluent, urban, industrial conditions. Although modernisation theory provides a good tool to observe a process for social, economic, intellectual, political and cultural change, it limitedly consider the poor as the centrepiece in poverty fighting and addressing. It does not clearly provide guidance to the poor, who aspire to be modern in order to 'fit' in the modern societies. Modernisation theory's elements, development and modernisation, are specific to the Western culture from where it was derived, that is Europe, in the 18th century's age of Enlightenment, and thus doubtful if it sets basis for poor countries and individuals who strive to improve to better-resourced conditions. Nevertheless, the broad framework of Modernisation theory provides a platform for establishing ethical dimensions in its applications with regards to informal sector women entrepreneurs. The paper concludes with several unanswered questions such as, how much do we need to abandon in order to be modern? Can we live without modernisation? Who is in-charge of the modernisation ethics to ensure that issues like digital divide, privacy, censorship are accounted for? Can we trust them?

Keywords: Ethical dimension, modernisation theory, theoretical frameworks, qualitative and quantitative research, informal sector women entrepreneurs

1. Introduction

The purpose of this paper is to discuss ethical complexities of modernisation theory in qualitative and quantitative research. Modernisation theory was used in a recent study (Jiyane 2012). The purpose of the study was to examine information and knowledge society and its impact on poverty alleviation and the economic empowerment of informal sector women entrepreneurs (ISWEs) in South Africa. Particularly, the study focused on the role of the information and knowledge society in the empowerment of informal sector women entrepreneurs in South Africa. It determined women entrepreneurs' information needs in the informal sector and explain their information behaviour. It sought to identify and document the types, sources and channels of information used by informal sector women entrepreneurs in the informal sector. It explored factors affecting information flow in the informal sector and its exploitation by informal sector women entrepreneurs. It assessed South Africa using criteria and indicators to determine the extent to which it is an information and knowledge society.

Emergence of modernity can be traced back to 17th Century and the dawn of the revolutionary age of Enlightenment (Cohen and Kennedy, 2000). According to Giddens (2002) modernity is the expression that encapsulates the progress of societies, from primitive civilizations which evolved steadily through distinct stages, arriving at a modern age characterised by industrialisation and capitalism, culminating on the current, post-modern state of

globalisation which shapes contemporary society with ever-increasing momentum. Browning, Halcli and Webster (2000:166) explain a defining feature of modernity as the realisation of democracy, demanded by a free-thinking people, originating from the industrial Revolution in Western Europe through the mid-eighteenth century, and the French Revolution of 1789.

Theories are important in research. In quantitative studies, a theory is used to provide an explanation or prediction about a relationship between variables in a study. It is deductively used at the beginning of the study to test or verify a theory rather than to develop it. A researcher can advance theory by collecting data to test it and reflecting on the confirmation or disconfirmation of the theory in the results (Creswell 2003:125).

In qualitative studies, the theories used are much more varied and guide broader explanations than in quantitative research. According to Creswell (2003:121-140), in qualitative research, a theory can be used to provide broad explanations that inform the study. They are also used as a theoretical lens or perspective to guide the study and raise questions that the study would like to address. Furthermore, a theory can appear at the end of the study that emerges inductively from data collection and analysis (Creswell, 2003:140). This study has predominantly used qualitative approach. Ethics is being emphasised strongly with how things are done, even in research. According to Mutula (2013:28) ethics refers to well-founded standards of right and wrong that prescribe what humans ought to do, usually in forms of rights obligations, benefits to society, fairness or specific virtues. Subsequently, an ethical dimension of modernisation theory is looked at in this study.

2. Modernisation theory

Modernisation theory regards development as a movement from traditional to modern societies (Park, 1998:81). The modernisation theory is one of three dominant frameworks of international communication. The other two are the dependency and post dependency theories. According to Park (1998:81), these three approaches share the modern historiography of uni-linear historical progress (be it development, modernisation or liberation) in contrast to the postmodern focus on the multiplicity of historical discourse.

In the modernisation theory, there are two terms that have been used interchangeably to refer to a wide variety of social, political, economic and cultural changes, and these are development and modernisation (Park, 1998:81). Development and modernisation have not been distinguished by Huntington and Nelson (as cited by Park, 1998) because they are associated with the movement of societies from relatively poor, rural, agrarian conditions to relatively affluent, urban, industrial conditions, as a process of social, economic, intellectual, political and cultural change.

The concepts ‘poor’ ‘poverty’, although they are used in different contexts (Britz, 2013: 67), display lack or limited state of something. According to Britz (2013:67) poverty is used to indicate the economic and social status of people. The person who is referred to as ‘poor’ is portrayed as pitiful or subservient (Adcock, 1997: 208) and the term itself is a direct opposite of wealth (Britz, 2013:67). Britz (2013) further gives the most common and generally accepted description for poverty used internationally as that condition of life where the majority of people lack sufficient resources to supply their basic needs for survival. This applies to informal sector women entrepreneurs who run informal businesses in not-so-favorable conditions, which can be termed ‘poor’. They have limited business knowledge and skills and they lack resources to run their businesses, however they have the desire to improve to more affluent, better-resourced conditions and to apply newly attained business skills and knowledge and technologies which can lead to economic change and growth, especially in this technological era.

Marquis de Condorcet was involved in the origins of the theory with the concept that technological advancements and economical changes can enable changes in moral and cultural values. Condorcet was the first to make the economic-social development connection and to come to the conclusion that there can be continuous progress and improvement in human affairs.

He emphasized that new advancements and improvements would need to keep pace with a constantly changing world, and further encouraged technological processes to help give people further control over their environments, arguing that technological progress would eventually spur social progress. Modernisations theories look at the internal factors of a country while assuming that, for assistance, 'traditional' countries can develop in the same manner that more developed countries have.

According to Wikipedia the Free Encyclopaedia (2010), the idea of modernisation is relatively new, and its basic principles can be derived from the idea of progress that emerged in the 18th century's Age of Enlightenment - the idea that people themselves could develop and change their society. According to Sorensen (2001), modernisation is the transition from the traditional society of the past to modern society as it is epitomized today in the West. Accordingly, to Giddens (1991) modernisation means the appearance of 'modes' of social life or organization that emerged in Europe from about the seventeen century onwards and which subsequently became more or less global in their influence. Modernisation theories explain the changing ways of communication and media use in traditional and (post)modern societies. It explains the process of modernisation within societies.

The modernisation theory attempts to identify the social variables that contribute to social progress and the development of societies, and seeks to explain the process of social evolution (Wikipedia the Free Encyclopaedia 2010). Modernisation or the development theory presents the idea that by introducing modern methods in "technology, agricultural production for trade, and industrialization dependent on a mobile labour force, the underdeveloped countries will experience a strengthening in their economies" (Bonvillain, 2001:191).

The modernisation theory has evolved in three waves (Lerner, 1958). The first wave appeared in the 1950s and 1960s. This wave explains the diffusion of Western styles of living, technological innovations and individualist types of communication which are highly selective, addressing only particular persons, as the superiority of secular, materialist, Western, individualist culture and of individual motivation and achievement (Lerner and Schramm, as cited by Giddens, 1991).According to McQuail (2000:84), the first wave of the modernisation theory produced three variants, namely economic development, literacy and cultural development, and national identity development. The economic development variant is based on Rogers and Svenning's (1969) Diffusion of Innovations theory because this variant perceives mass media as a tool to promote the global diffusion of many technical and social innovations that are essential to modernisation. In this vein, social progress or the evolution of informal sector women entrepreneurs could be identified and monitored by applying variables that contribute to it, such as mass media, technological tools such as ICTs, and other relevant variables to keep pace with the constantly changing world.

Mass media can teach literacy and other essential skills and techniques in the literacy and cultural development variant. These skills and techniques encourage a 'state of mind' favourable to modernity, such as the imagination of an alternative way of life beyond the traditional fare. In the context of informal sector women entrepreneurs, the skills and techniques they attain could widen their insight into the management of their informal businesses in a modern way by employing modern tools and technologies.

The third variant, national identity development looks at mass media as a tool which could support national identities in new nations and support attention to democratic policies.

The second wave of the modernisation theory is a part of the critical theory that was popular in the 1970s and 1980s. This wave does not support but rather criticizes the influence of Western modernisation (Schiller as cited by Giddens, 1991). This second wave concerns the media dependency theory. This theory is of the view that peripheral (developing) countries are assumed to be dependent on mass media in the core (the Western World). This wave is true in the context of informal sector women entrepreneurs. They are developing and adapting through the application of modern technology which has been employed in the western world and proved to be successful, hence they are dependent on the mass media or these new technologies for their progress as they are living in the 21st

century. They need to be innovators if they are to survive in this modern century and realize the importance of economic and market dynamics and thus leapfrog to the application of tools that could economically empower them to do that.

The third wave of the modernisation theory, rising in the 1990s, is the theory of late-, high- or post-modernity. This theory tries to be neutral because it does not favour or criticize Western modernisation; however, it attempts to unearth the contradictions in the modernisation process and to explain the consequences of modernity for individuals in contemporary society (Giddens, 1991).In this third wave, Giddens (1991) indicates that the modern society is characterized by time-space distantiation and disembodying mechanisms, while traditional society is based on direct interaction between people living close to each other. Giddens further shows that modern societies stretch further and further across space and time because of mass media and interactive media such as money, symbolic means, and English as the Lingua Franca.

Similarly, Meyrowitz and Maguire (1993) talks about the combination of unification and fragmentation in society and in the media. This also relates to the work of Van Dijk (2005) where he explains the rise of the new media, such as computer networks and mobile telephony, as important tools for modern life because they enable scale reduction and scale extension (Van Dijk, 2005).

When explaining the theoretical assumption of the modernisation theory, Park (1998) indicates that the main focus of this theory has been the internal process of development, that is, the process whereby traditional values are replaced by modern values. This focus rests on the basic assumption that so called 'backward' societies can achieve development by substituting modern values for traditional value systems that have served as obstacles to economic and political development (Park, 1998:82). When simplifying this perspective, Park (1998:82) indicates that the development of non-Western countries is exogenous in the sense that the adoption of Western values is a necessary precondition for development.

Another important theoretical assumption of the modernisation theory is that economic growth would 'trickle down' to other sectors of the social system and lead to socio-political modernity in the form of Western-style democracy (Park 1998:82).According to Park, for the effective diffusion of Western values to developing countries, the mass media was understood to be crucially important because of its ability to disseminate modern values on a broad scale. The success of the development program was thought to depend on the ability of traditional societies to mobilize Western ideas by implementing successful mass communication plans (Park, 1998:82).

In light of this, Lerner (1958) introduced the communication version of the modernisation theory. The author emphasized the role of mass media as the 'magic multiplier' of social mobilization, which, according to him, is essential to the developmental process in developing countries. Lerner (1958) hypothesized that increased media exposure as a result of increased industrialization and urbanization would increase individual participation in economic and political life and eventually lead to political democracy. This exposure to the media would make traditional societies less bound by tradition and lead them to aspire to a new and modern way of life (Park, 1998:82).

As mentioned in section 2, these two frames are amongst the three dominant ones of international communication.

Radical interpretation of economic growth was important in the development of the dependency theory (Barak as cited by Ojo, 2004:143). It borrows from the imperialist school of thought which reinforces the state of backwardness of the Third World by reproducing the structure of economic stagnancy through monopoly over the appropriation of economic surplus. Interpreting this statement, Frank (as cited by Ojo, 2004:144) contends that the capitalist system creates backwardness and underdevelopment which is not an original state, but a negative consequence of capitalist expansion with various forms of dependency of Third World countries on advanced capitalist countries.

The dependency theory predicated on the notion that resources flow from a 'periphery' of poor and underdeveloped states to a 'core' of wealthy states, enriching the latter at the expense of the former; poor states are impoverished and rich ones are enriched by the way poor states are integrated into the 'world system'.

The dependency theory outlines a framework for the consideration of external factors as well as internal factors that influence economy (Velenzuela and Velenzuela as cited by Park, 1998:83).

The post-dependency theory is an extension of the dependency theory (Park, 1998:86). Its main aim was to correct the general explanation of perpetuating dependency by providing more empirically convincing explorations of the allegedly autonomous development in some industrial sectors of developing countries (Park,1998:86). This model addresses the economic aspect of development. It also looks at cultural aspects of society because its belief is that transformation in cultural practices results from economic transformation.

In conclusion, both the modernisation and dependency theories represent a single super paradigm of development as their assumption is that the development of a society requires modern economic and social organizations to replace traditional structures.

3 Problem statement and Methodology

The aim of the study was to discuss ethical complexities in the application of Modernisation theory among informal sector women entrepreneurs by using qualitative critical analysis approach. With the significant advancement in communication technologies over the last two decades (Ojo, 2004:144), there has been renewed interest in ICTs as 'an icon' for modern development (Heeks, 2002:15), a notion driven by corporate ICT vendors such as Microsoft and international organizations such as the World Bank and the International Monetary Fund (IMF) (Ojo, 2004:144). In most reports of these institutions, there is a strong belief in the potential of ICTs to instigate social and economic development in developing countries (2004:144), and also change to individuals. However, progress, development and modernisation, have come with compromisation of some standards and ethics.

4 Relevance of modernisation theory

The relevance of the theory in the paper lies in its political implications. It shows that there are different interests that accompany development and growth be they ethical or un ethical. The benefits of growth do not spread throughout the economy, as implied by the modernisation theory, but most importantly there are conflicting interests in society where it is evident that there are those in power who use the expansion of poor communities to serve their own agenda and interests. It is also evident in the economic arena, where terms of trade, choices about what to produce, what to sell and where to sell, and the patterns of investments, show the interest of certain groups in society at the expense of others, especially those who are poor.

5. Application of modernisation theory and its ethical complexities

5.1 General profile of informal sector women entrepreneurs

According to Naik (2009:2), the term 'informal sector' was first introduced by Keith Hart while making a presentation on "Informal income opportunities and urban employment" at the Ghana Institute of Development Studies in September 1971 in a conference co-organized by Rita Cruise O'Brien and Richard Jolly. Hart distinguished between formal and informal (both legitimate and illegitimate) income opportunities on the basis of whether the activity entailed wages or self-employment. The term 'informal sector' was used in the broader sense in academic literature only after the visit of an ILO employment mission to Kenya, entitled "Employment incomes and equality", in 1972. The ILO thereafter evolved a conceptual framework and guidelines for the collection of statistics on the informal sector and presented these in the form of a resolution at the 15th International Conference of Labor Statisticians (ICLS) held in February 1993. That resolution was then endorsed by the United Nations Statistical Commission (UNSC).

According to ILO (1976), the informal sector refers to the sector of the economy that employs a handful of workers who earn a low income, utilize rudimentary or subsistence technology, and operate largely outside the boundaries of government laws and regulations governing business in general, such as listed standards of quality, minimum pay and safety. More often than not, they do not pay tax. There are many authors (Muller, 2002:15; Management of Social Transformation (MOST) in Nkinyangi, 1995; Hemmer and Mannel ,1989; WIEGO, 2001; Ligthelm and van Wyk, 2004) who have similar views on the definition of the informal sector.

In trying to develop a framework that would assist with the management of informal trading activities, the Department of Local Economic Development (2004:4) in the Sol Plaatje Municipality, South Africa, proposed the following working definition: "The economic activity undertaken by entrepreneurs who sell legal goods and services within a space deemed to be public property, within the informal sector." This department does, however, clarify that the definition implies that informal trading management requires a focus on public space management. Thus this specifically excludes any activity that is defined as illegal by any national and/or provincial law.

Globally the informal sector is that which consists of units engaged in the production of goods and services with the primary objective of generating employment and income to the persons concerned (System of National Accounts (SNA) 1993). These units typically operate on a small scale and at a low level of organization, with little or no division between labor and capital as factors of production. The SNA further indicates that labor relations, where they exist, are based mostly on casual employment, kinship, or personal and social relations rather than contractual arrangements with formal guarantees (SNA, 1993). This definition clearly does not include the agricultural sector.

According to the (SNA, 1993), the first characteristic of the informal sector is that enterprises are owned by individuals or households and are not constituted as separate legal entities that are independent of their owner.

This relates to the ILO definition of the informal sector in Kenya, which views the informal sector as any family-owned small-scale economic activity in a very competitive market that is very labor intensive, uses skills acquired outside the formal school system, and relies on indigenous resources. It is further characterized by ease of entry and falls under no governmental regulations such as minimum wage or tax laws (ILO, 1972). An important characteristic is that the employment size has to be below a specific threshold that is determined by national circumstances (SNA, 1993).

5.2 Modernisation theory and informal sector women entrepreneurs

This section tries to examine the key elements of the modernisation theory within the context of this paper. Firstly, Lerner and Schramm (as cited in Huesca, 2003:52) believed that mass media would bring development to developing countries if people in these countries were exposed to the 'modernized' world and culture of the West, and in turn learn new lifestyles and behaviour.

According to Ojo (2004:140), the modernisation theory presumes that the transfer of capital, goods, technologies, industries and Western norms to developing countries would bring about rapid economic productivity and social development in those developing countries, which for a long time were considered to be ancient and primitive. Subsequently, Lerner (1958), in his book "The passing of the traditional society", argues that through exposure to Western values, people in traditional societies would become civilized and active participants (like people in the modern Western society), and would also develop a psychological pattern which he calls 'empathy' (as cited by Ojo, 2004:140).

Empathy is defined by Fjes (1976) as that which allows the individual to internalize the process of modernisation by not only being able to cope with change, but expecting and demanding it; in other words it is the psychic nexus of all the attitudes and behaviour necessary in a modern society (as cited in Melkote and Steeves , 2001:115). Melkote and Steeves (2001) further clarify that with the highest empathy, people would be able to move out of their traditional setting and expand their horizons. They would be able to adapt to Western ways of life and culture faster, especially

with the continuous spread of ideas of social mobility and changes such as urbanization, literacy and other Western belief systems perpetuated in the mass media (Melkote and Steeves, 2001:115). Accordingly, Lerner believes that these institutional developments, which had already occurred in Western nations, would lead to a take-off toward modernisation (as cited in Melkote and Steeves, 2001:115).

Based on this, Ojo (2004:140) is of the opinion that modernisation is westernization; a nation is developed and modernized when it perfectly resembles industrialized Western countries in economic structures, socio-political institutions, cultural behaviour and social attitudes to science and technology.

According to Ojo (2004:141), it is after the United Nations' (UN) expectations placed on the mass media to be able to incite social and economic development that the need to consider the situation in developing countries was intensified. Through its agency, the United Nations Educational Scientific and Cultural Organization (UNESCO) initiated a program aimed at building communication facilities in developing countries. After their subsequent meetings with various stakeholders, the resolution was that information media generally has an important role to play in education and in economic and social progress (UNESCO as cited by Ojo, 2004:140). Therefore every country, especially African countries, was urged to include communication development plans in their development policy agenda. It is as a result of this view that UNESCO expected each country to have a minimum of 10 copies of newspapers, 5 radio receivers, 2 cinema seats and 2 television receivers for every 100 people (Ojo 2004:141). This minimum requirement aimed to measure national development, and these media types were available, accessed and used in the 1950s, 1960s, 1970s and1980s. However they had relatively little significant impact on the social and economic well-being of users (Ojo, 2004:141).

In this respect, the World Bank clearly states in its report that, "If African countries cannot take advantage of the information revolution and surf this great wave of technological change, they may be crushed by it, in that case, they are likely to be even more marginalized and economically stagnant."

Although Marker, McNamara and Wallace (2002) observe that within populations of poor people, disadvantaged and marginalized sections of society usually face impediments to using ICTs, it has been found that ICT penetration, especially mobile telephony, is increasing (CIA World Factbook, 2010).

To reiterate, the modernisation theory holds the assumption that economic growth will not only be catered for, but economic growth will 'trickle down' to other sectors of the social system and lead to socio-political modernisation (Park, 1998:82).

This is also supported by Valenzuela and Valenzuela (1978:552, as cited by Park, 1998) that "It is already known that in backward areas the modernity-inhibiting characteristics play a dominant role; otherwise the areas would not be backward."

Giddens (1991) indicates that modern society stretches further and further across space and time using ICTs. This indicates that through ICTs, there is no space, and no time. This view also supports the necessity of well harnessed infrastructure, spatial and technological criteria.

Moles (1999:5) commend the modernisation theory in that it provides data for analysing the specific situations prevailing in developing countries.

5.3 Possible benefits of modernisation among informal sector women entrepreneurs

Informal sector women entrepreneurs (ISWEs) are expected to cope with the change as indicated in the term 'empathy'. Their attitudes and behaviours should change to be in par with those in modern society. Change is resistent however, they cannot resist this change if they were to succeed in the business arena. Growth in their informal business may rise with limited speed as they are 'nursing' the fact that they should change and adapt to those Wetern ways of conducting business, which they are not familiar with.

ISWEs are expected to adapt to Western ways and culture faster. This means that even though the culture of conducting business is totally different, they have to be prepared to leapfrog in order to be like the Western world. That will mean compromising other things.

ISWEs mobility is limited and they are used to that. Fast and accurate transport system is not what constitutes their day. However, they have to get used to and conform to social mobility and changes caused by urbanization, literacy and other Western belief system perpetuated in the mass media (Mekote and Steeves, 2001: 115). Fast transportation to town and big cities for their products is good for their businesses but they are not familiar with that fast life.

5.3.1 Participating in global digital world trade

According to the World Trade Organization, developing countries are becoming more important in the global economy and are increasingly looking to trade as a vital tool in their development efforts. Through ICTs developing countries can access trade opportunities in their countries and thus improve their economic situations. In this way, they can become partners in global digital world trade (Holmner, 2008:85).

5.3.2 Accessing affordable scientific knowledge and other forms of information necessary for development

Affordability is a very important and limiting factor in developing countries and communities (Holmner, 2008:86). Britz et al. (2006:32) list the initiatives and programmes launched to make access to content affordable to African institutions. The authors single out the Health Internetworks Access to Research Initiative (HIN ARI), Access to Global Online Research in Agriculture (AGORA), and Programme for the Enhancement of Research Information (PERI).

HIN ARI is an initiative of the World Health Organization (WHO) and it provides free or very low-cost online access to major journals in the bio-medical and related social sciences for WHO-approved academic institutions in the developing world (Britz et al. , 2008:87).

AGORA is an initiative of the United Nations Food and Agriculture Organization (UNIFAO). It provides free or low-cost access to major scientific journals in agriculture and related biological, environmental and social sciences to public institutions in developing countries. Its main purpose is to increase the quality and effectiveness of agricultural research, education and training in low-income countries in order to improve food security.

The International Network for the Availability of Scientific Publication (INASP) PERU was created to support capacity building in the research sector in developing and transitional countries by strengthening the production and dissemination of, and access to, information and knowledge through new ICTs.

5.3.3 Becoming experts of local knowledge via ICTs

Developing countries and communities, through the use of modern ICTs, can export knowledge of agriculture, local flora and fauna, local history and weather, local languages and dialects, social interaction, conflict resolution, child rearing, old age care, etc., to the global knowledge system (Panyarachun, 2001).

Holmner (2008:88) notes that for countries and communities to become exporters of local knowledge, knowledge interaction and exchange needs to take place, and this can be achieved by providing them with access to digital information from the internet and combining this with their local knowledge experiences to create contextualized knowledge.

5.3.4 Job creation

In 1980, Toffler (1980) predicted that the low skilled, interchangeable muscle work of the industrial era would be replaced by high skilled, non-changeable ‘brain work’ in the information era, and therefore the level of skills

required for work would be different from the skills required for the industrial society. Reding (2005) notes that today, ICTs play a crucial role in growth and job creation within the information and knowledge society. Subsequently, Lor and Britz (2007:119) observe that skilled people are a precondition for progress towards an information and knowledge society. Holmner's (2008:89) conclusion is that the dynamics of work will change with the support of advanced technological infrastructure because it will support new wireless and display technologies that will change office equipment and design, and the nature of work itself.

5.3.5 Leapfrogging into new information and communication technologies and gaining the benefits thereof

Alex Steffen of World changing defines leapfrogging as the notion that areas with poorly-developed technology or economic bases can rapidly propel themselves forward through the adoption of modern systems without going through intermediary steps (Steffen, 2006). According to Wikipedia (2007), leapfrogging is a theory of development where developing countries skip inferior, less efficient, more expensive or more polluting technologies and industries and move directly to more advanced ones.

However, the author stresses that technological leapfrogging can only be successful if the country or community has the required application of implied knowledge and skills with respect to the technology, and additionally the development of appropriate human resource skills such as the extensive training of the people who are going to use (and train others to use) the technology (Holmner, 2008:90).

5.3.6 Bringing information closer to the resource

Being modernized, and adopt modern technology, there is an advantage of closing the gap between the information and resources by bringing information closer to the resource (Holmner, 2008:91). Holmner makes a case of farmers and rural communities in developing countries where there are extension agents, traders, input suppliers and other farmers, who disseminate information and act as an interface between information and the farmers or traders. Holmner (2008) states that by using modern information and communication technologies, information regarding resources for the community can be made available electronically to all the parties. For example, farmers can place the price of their vegetables on the internet, giving the traders direct access to this information (Holmner, 2008:91). All other traders and suppliers who are not farmers could do the same for their produce, products and sales.

Other communication technologies, such as the radio, could be used to air programs that announce products, negotiate prices, and discuss other related matters. In this way information is easily 'brought' to the resources, and the problems of space and time are overcome.

6 Shortcomings and strengths of Modernisation Theory

A theory is not a complete entity; every theory has its strengths and weaknesses. The same applies to the modernisation theory.

6.1 Shortcomings

The modernisation theory is criticized for failing to consider the poor as the centrepiece in poverty reduction initiatives (Matunhu, 2011:67). Since the modernisation theory is adopted from the development of the modern world, the participation and involvement of the individual is ignored. It therefore comes as an imposed strategy to modernize traditional or poor people by implying that adopting a modern way of life improves lives in general.

This is true because the modernisation theory paints modernisation as a process of change for the better, thus bringing to the fore the transition and drastic transformation that a traditional or a poor person has to undergo in order to 'fit' in the modern world, otherwise they will be left in inferiority and underdevelopment.

The modernisation theory has an oversimplified view of social change (Coetzee, Graaf, Hendrieks and Wood , 2007:101). By nature, humans resist change and prefer the status quo as change brings uncertainty, and it is unlikely that the modernisation theory can change that.

Again, the modernisation theory implies that only externally initiated changes bring about development and progress in a socio-economic situation (Matunhu, 2011:67). It does not give any opportunity and space for a reciprocal relationship from within and from without. This implies that only developed, modern societies can bring development and modernity to developing societies, and there is nothing that they could learn from them. In this way, the theory depicts a linear process of socio-economic development.

The modernisation theory also portrays the assumption that all countries can follow only a single path of evolutionary development, thus disregarding global-historical development and transnational structures that constrain local and national development (Martinez-Vela, 2001:2).

6.2 Strengths

The strengths of the modernisation theory are based on Moles' (1999:7) observation that international factors are becoming popular. The technological era calls for people to adapt to its waves and thus consider what is befitting now for their progress.

The modernisation theory focuses on the social, political and cultural consequences of economic growth and on the conditions that are important for industrialization and economic growth to occur. In this way, it allows the integration of the cultural dimension in development studies and research (Henry-lee n.d.,:25).

The growing embrace of the modernisation concept by global communities fulfils a wide variety of needs and fills gaps in socio-economic areas (Buttel, 2000:60). According to Rice (2001), the modernisation theory presents the following opportunities:

The ability to borrow initial expertise in planning, capital, accumulation, skills and patterns of organization without the costs of invention

The ability to skip some of the non-essential stages associated with the process [of development and advancement]

Countries in the information era have to consider those factors and criteria that will make them globally accepted as information and knowledge societies so that they may interact, share and disseminate information and knowledge.

7. Conclusions

We have discussed the modernisation theory of Daniel Lerner and presented the dependency and post-dependency theories. Although modernisation theory was found to be suitable for development analysis its manifestation does come with ethical complexities. For example, how much do we need to abandon in order to be modern? Can we live without modernisation? Who is in-charge of the modernisation ethics to ensure that issues like digital divide, privacy, censorship are accounted for? Can we trust them?

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Ethical Issues and Challenges in the Access and Use of Information Services in Public Libraries in Nigeria: A PAPA Model Analysis

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Ethics is a field of study addressing the principles of morality based on the right and wrong actions and decisions that occur within a society. Access and use of information services in public libraries are examined with a view to determine ethical issues bordering on copyright, social media, ICT or Web CT by using the PAPA (Privacy, Accuracy, Property and Accessibility) model for which are germane to activities concerning information access and use. This paper seeks to determine ethical issues in the access and the use of information services in public libraries in Nigeria. Besides literature review, a survey research method was used and questionnaires responses were received from professional librarians in Nigeria. The findings of this study reveal that, ethical issues in the access and use of information services in public libraries in Nigeria show recognition of the importance and challenges of privacy and accuracy of information services. We recommend that ethical issues that borders on public library information access and use should be addressed by a way of legal intervention in Nigeria. Public Librarians and service providers must be conscious of ownership rights and that of the users of the information services. Further, we recommend further interrogation of PAPA model for analyzing information services ethics in the country.

Key words: Ethical issues; information ethics; information access; information use; Public libraries; Nigeria; PAPA model.

1.Introduction

Most definitions of ethics concur that, it is a field of study dealing with the principles of morality, right and wrong behavior in relationship self, others and the environment. For example, Britz (2013:1) defines ethics to be' branch of philosophy that studies human behaviour in terms of what is good or bad regarding relationship with themselves, others and their environment'. Net. STANDS4 LLC (2013) posits ethics as the science which distinguishes between right and wrong doings and the moral sense by which they are discriminated. Thus, it is the philosophy or code of conduct pertaining to what is ideal in human character and conduct, a situation where general activities of human beings are guided by what is perceived as best practices. Viewed from prescriptive ethics viewpoint, ethics provides a standard which governs the conduct of a person especially a member of a particular profession. Invariably, one can argue that, it is the philosophical study of moral values and rules, and about what is morally right and wrong. The role or purpose of ethics in the society is to promote the ideals and eliminate irregularities by providing norms and standards of behaviour based on human morals and values that are inclusive as opposed to exclusive by creating better moral agents (Ocholla,2009:80).Ethics is multidisciplinary and therefore applicable in virtually all the disciplines of human endeavor including information science/studies.

Information ethics according to the Institute for Information Ethics and Policy (2013) are the totality of issues that involves an individual's privacy and the public's "right to know". Broadly, information ethics (IE) is defined as a field of applied ethics that 'provides a critical framework for considering moral issues concerning informational privacy, moral agency (e.g. whether artificial agents may be moral), new environmental issues (especially how agents should behave in the infosphere), problems arising from the life-cycle (creation, collection, recording, distribution, processing, etc.) of information (especially ownership and copyright, digital divide)' (Information Ethics, nd: np).Capurro view information ethics from a narrow sense and broader sense but also largely from technocentric viewpoint. From a narrower sense he defines information ethics as dealing with the impact of digital

ICTs on society and the environment, as well as with ethical questions dealing with the Internet digital information and communication media (media ethics) in particular(Capurro, 2013:9). Broadly, he considers information ethics to be dealing with information and communication, including, but not limited to, digital media (Capurro, 2013; 9). Citing Ess, Himma and Tavani, Capurro categorise the main topics of information ethics to include: intellectual property, privacy, security and information overload, digital divide, gender discrimination and censorship.Information ethics also involve the access and use of the documented employee's information, email, personnel files, and other confidential information. This could also explain issues surrounding the protection and security of general information content against terrorist attacks. It makes a lot of sense to evaluate dilemma or the sensitive and sometimes vulnerable position that information professionals find themselves in the life cycle of information; from its creation to generation; through its organisation, management, and preservation; to its evaluation, dissemination and use. The users of these information on the other hand, also faces the challenges of continual struggles in a society in which the capacities of the technological revolution often outpace full comprehensiveness of its moral implications. This study aimed at identifying the issues and challenges in association with access and use of public library information services, with the view to positing them using the PAPA (Privacy, Accuracy, Property, and Accessibility) model as applicable to the services. Nigeria share a lot with the world in relationship to information ethics issues such as dealing with copyright, plagiarism, usage, social media, ownership, digital divide, privacy, accuracy, property and accessibility (PAPA).

2. Problem and Purpose of the Study.

Fairbairn (2012) posits that, with more than two hundred and thirty thousand public libraries in the developing countries of the world, the services are largely untapped to reach people with vital information in areas such as agriculture, health, employment, education and poverty reduction. This shows that, access and use of public library information services in the developing countries are under-utilised. It is the intention of this study to find out whether ethical issues and challenges in information services are part of the reasons for under-utilisation of the services. Aina (2012) observes that countries that have well developed public libraries perform better in all areas of human development, while the reverse is the case where public libraries are neglected. It is recognized that, access and use of information services require strengthening of the core values of the libraries as espoused by IFLA even as the digital world and free access to information services continue to evolve. A lot of studies have been conducted on the ethical issues and challenges in information access and use (ALA, 2009; ALA, 2010; IFLA, 2012; Britz, n.d; NBCActionNews, 2010; Parrish, 2010; Mason, 1986; Focht, 1994; Taherdoost, 2011), but are limited in scope, not addressing ethical issues and challenges in public libraries. Furthermore, the bulk of the studies in this area dwells on issues and challenges in the advanced countries of the world. It is against this backdrop that, this study seeks to investigate ethical issues and challenges in the access and use of information services in public libraries in Nigeria, adopting the PAPA model analysis. The following research questions are considered: What are ethical issues in the access and use of information services in the public libraries? How do PAPA model explain the access and use of information services in the public libraries? What are ethical challenges in the access and use of information services in the public libraries? What are the ethical opportunities in the access and use of information services in public libraries in Nigeria?

3. Ethical Issues in the Access and Use of Information Services in Public Libraries in Nigeria

Two major challenges were identified in the access and use of information services (Waller and Mcshare, 2008), the lack of obtaining a thorough understanding of the nature of the environment in which the library operates and the negligence in the development of a policy framework that clarifies the institutional goals and brings coherence to diverse and sometimes conflicting policy demands. This, according to Waller and Mcshare is somewhat surrounded by certain factors such as the right of users, equity of access and information resources, among others. ALA (2009) posits that, it is pertinent for each library to consider intellectual freedom principles in making decisions on how to offer access to digital information services.

In Nigeria, the public library system functions majorly on three levels of operations, which are: Federal, State, and Local. On the Federal level the National Library of Nigeria is categorized as a public library because it is serving all categories of users at the national level (Ogbonna, 2010). The allocation of funds is derived directly from the federal government budget, while selection and acquisition of materials, service delivery, and all other administrative responsibilities are discharged by senior librarians and the executives of the National Library of Nigeria (NLN) through the Federal Ministry of Education. At the State level, all public libraries are under the umbrella of either the State Ministry of Education or Information and are administrated by Library Boards. The Library Board is responsible for the budgetary and all administrative responsibilities, while selection and acquisition of information materials are the responsibilities of the professional librarians. However, all these activities must be sanctioned by the Ministry of Education or -Information which is the parent body and overseeing ministry. The majority of community and local government public libraries are either affiliated or supervised by the state public libraries. Provision of information, service delivery and all administrative activities are channeled through the State Library Board.

A number of ethical issues can be examined in relation to the Nigeria scenario. Firstly, one may be faced with such ethical issues in respect of whether a user has the right to verify another person's personal or private information in the custody of an information professional and on the other hand, does the original owner of the information has the right to know who is using his/her personal information? Also, what classification of personal information type does information professionals has the right to gather? Can anybody use gathered information, especially for referenced interview or questionnaire for any other purpose other than the specified purposes? The above asked questions that borders on privacy, accessibility and property. Issues such as accuracy also pose a big question, especially private and personal information such as medical history of individuals. Basically, certain factors such as the policies, lack of awareness, education and information in some cases are somewhat responsible for misuse and abuse of information services in public libraries in Nigeria.

4. Theoretical Background

Ethical issues relating to access to information in general and in public libraries in particular could be informed by at least three pillars. First, is the United Nations declaration of human rights which is informed by deontological or duty based ethical theories that also views information access from human rights perspective. As noted by Ocholla (2009:80), **r**ights-based theories work according to the premise that ''the right thing to do is determined by the rights that human beings have'', for example, the rights agreed on in 1948's United Nations Universal Declaration of Human Rights (UNUDHR). UDHR provides common standards for understanding the rights of all nations and information workers from all corners of the world. Article 19 from the declaration stipulates that: ''everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions free from interference and to seek and receive information and ideas through any media and regardless of frontiers'' (United Nations, 1948). Second is the UNESCO/IFLA Public Library Manifesto (1994) which proclaimed that "Freedom, prosperity and the development of the society and everyone are fundamental human values. Constructive participation and the development of democracy depend on satisfactory education as well as on free and unlimited access to knowledge, thought, culture and information". Further, "The public library, the local gateway to knowledge, provides a basic condition for lifelong learning, independent decision-making and cultural development of the individual and social groups". "This Manifesto proclaims UNESCO's justification on the public library as a living force for education, culture and information, and as an essential agent for the fostering peace and spiritual welfare through the minds of men and women". Thus, "The public library is the local center of information, making all kinds of knowledge and information readily available to its users. The services of the public library are made available on the basis of equal access for all, regardless of age, race, sex, religion, nationality, language and social status. Particularized services and materials must be provided for those users who cannot, for whatever reason, use the regular services and materials, for example, consideration should be given to linguistic minorities, people with disabilities or people in hospital or prison"(UNESCO Public Library Manifesto, 1994). The third pillar is viewed from prescriptive ethics point of view and focuses on professional ethics as expressed in IFLA code of ethics for librarians and other information workers (2012).

The code of ethics focuses on six issues: Access to information. Thus, "the core mission of librarians and other information workers is to ensure access to information for all for personal development, education, cultural enrichment, leisure, economic activity and informed participation in and enhancement of democracy". 2. Responsibilities towards individuals and society. Thus, "In order to promote inclusion and eradicate discrimination, librarians and other information workers ensure that the right of accessing information is not denied and that equitable services are provided for everyone whatever their age, citizenship, political belief, physical or mental ability, gender identity, heritage, education, income, immigration and asylum-seeking status, marital status, origin, race, religion or sexual orientation". 3. Privacy, secrecy and transparency. Thus, "Librarians and other information workers respect personal privacy and the protection of personal data, necessarily shared between individuals and institutions". 4. Open access and intellectual property. Thus, "Librarians and other information workers' interest is to provide the best possible access for library users to information and ideas in any media or format. This includes support for the principles of open access, open source, and open licenses". 5. Neutrality, personal integrity and professional skills. This means "Librarians and other information workers are strictly committed to neutrality and an unbiased stance regarding collection, access and service. Neutrality results in the most balanced collection and the most balanced access to information achievable" and lastly is Colleague and employer/employee relationship which advises that "Librarians and other information workers treat each other with fairness and respect". The Privacy, Accuracy, Property, and Accessibility (PAPA) model is echoed by these three princiles in several ways. Manson (1986), the founder of PAPA model, note that the model is designed to explain the four variables as they affect the access and use of information. In his view, privacy explains the nature and type of information that people can keep to themselves and may not be forced to reveal to others except otherwise directed by the court of law. Accuracy, he notes, explains the person(s) to be held responsible for errors, authenticity and fidelity of the information, while property deals with ownership issues, the fair prices for the exchange of information and access to the resource. Accessibility, in his view, describes the right or privilege of individual or organization to obtain information and under what conditions. Parrish (2010) posits that, it is imperative to formulate a new social contract that ensures everyone has the right to fulfill his or her own potentials humanly. Parrish acknowledges the challenges faced in this information age and the threats that we are associated with the intellectual capital. Thus, PAPA model conceptualizes what type of information must a person reveal and with what kind of safeguards, the nature and type of information one can keep to himself/herself; who is responsible for errors, authenticity, fidelity and accuracy of information. It also addresses the issue of property ownership in terms of who has the copyright to the channels through which information is transmitted and accessed. Lastly, the type nature and amount of information a person or an organization has the right or privilege to access and use under what safeguards. The model generally suggested guiding mechanism in our decision making, disaster recovery plan such as backups or hot sites, strong passwords and so on, in order to safeguard against Hackers, Viruses, Worms, Trojan Horses and Phishing (identity theft).

4. Contextual Background

4.1. Ethical Challenges in the Access and Use of Information Services in Public Libraries in Nigeria

According to Ogundele, et' al (2010), the general ethical challenge in Nigeria borders on the widespread lack of commitment regarding ethical behavior which ordinarily should bring about self-reliance in the society and her different organisations. Ogundele, et' al shares the position of Akinyemi who identifies the greatest social and economic problems in Nigeria as the breakdown in morals, works ethics, discipline, social responsibilities and general civility that are prominently entrenched among its people. This alarming situation could be seen as for the past various governments in Nigeria since 1976 to practically introduce series of legislation in order to completely eradicate or minimize this unfortunate scenario in the society. The position was clearly explained that, ethical issues have been living with the Nigeria society and several attempts were made by governments to address the issue without any conspicuous positive results. Ezendu (2010) argues that, for society to develop ethical culture, it requires elimination of conflict of interest, equitable action to every stakeholders, the appropriate application of technology for development and accepting full responsibility for actions or in-actions. He argues that, unethical practices are cause by greed, lack of time, lack of experience, and sometimes breakdown of control which was

brought about by circle of influence. Other factors identified are: poor organisational culture, lack of integrity and deficiency in educational acquisition by Nigerian citizen. When there is a decline in the ethical value, there is also a sharp decline in general societal value, benefits and idiosyncrasies of people. Ezendu identifies; email, chat rooms, websites, messages, portals, web technologies as some of the tools that can be used for internet unethical activities. ALA (2010), posits some ethical challenges in the access and use of information services such as: free access to digital information services; the library's role in facilitating freedom of expression in digital environment; reason for extension of access to digital information resources to minors; right of users; users information confidentiality; fear of cooperating partners; parental permission to access digital information; digital policy development; print outs; funding; user's library technologies monopoly; preservation; government information; copyright laws; and so on. Accessing and using information services can pose certain ethical challenges such as fear of all ways being watched which is otherwise known as panoptic on phenomenon (Britz, 2013) Other ethical challenges ranges from, the interception and reading of emails' personal information, merging of databases which contain personal and private information (Frocht and Thomas, 1994). This is much easier when individual personal information is integrated into one central database. Another common challenge also lies in the use of shopper cards where computer chip is buried with a variety of personal information of the buyer. This invariably discloses other information of the owner to the marketing companies.

There could be another challenge raised by the hackers or crackers who break into computer systems and access personal information of individuals. This is common nowadays when you suddenly wake up in the morning and discovered that your email has been hacked by unknown person. Also, a lot of privacy issues and challenges can come up from the upload or email of certain private or personal information. For example, pictures that are emailed or even uploaded from smart phone can leak a lot of information that can threaten the safety of the original owner of the emailed or uploaded picture and even that of the family members (NBCActionNews, 2010). This is because; location of the sender can be traced in that process. All that needed to be done is to disable the GPS tagging before the emailing or uploading, in that case, one can be sure of the safety of the information shared. Taherdoost, et al (2010) in a study, developed a model for smart card acceptance from the ethical perspective in order to identify personal understanding of the ethical circumstances surrounding the use of smart cards. These are some of the challenges faced in the access and use of information services. However, Public libraries in Nigeria are not exempted from these ethical challenges. The information services in the open shelves, trolleys, back-up files, bindery, large prints, photocopying and so on, are somewhat associated with ethical challenges through mutilations, theft, monopoly of access due to insufficient copies of materials, public library access policies, copyright, plagiarism and so on. There are even more specific challenges that borders on the freedom of information bills (FOB) recently approved by the house of representative in Nigeria, copyright issues, internet scam, plagiarism among others. How effective is the implementation of the FOB after it was passed into law by the house of representative?

4.2. Ethical Opportunities in the Access and Use of Information Services in Public Libraries Nigeria

According to Britz (nd), there are quite a number of posited ethical opportunities in the access and use of information services such as electronic monitoring of people in their respective place of work with the use of electronic eyes which has been proved to increase productivity (Stair, 1992). Also, the trouble of carrying large volume of conventional type of information all over is eradicated with digital revolution. Information can be accessed anywhere in the world. This brings about ease of personal, private and general information management. Apart from the electronic information access and use, a lot of ethical opportunities can also be derived from the access and use of conventional information services. This is essential especially in a country like Nigeria where access and use of digital information is crippled by a number of factors ranging from lack of adequate internet facilities, epileptic supply of electricity, policies and so on. Access to, and use of conventional information services in Nigeria public library will avail the users the opportunities of personal development, entertainment, information, recreation and for educational supports. Most academic and school libraries are not normally opened during the holidays and weekends. Public library serves as the only major alternatives for students to carry out assignments, read and organize themselves in order to support their academic activities. Civil servants, artisan, politicians, clergy,

retired persons, business men and women, children in the kindergarten can all benefit from these numerous information opportunities which in most cases should be free of charge. In Nigeria, authors are required to deposit a number of their publications to the public library by law free of charge. This will avail them the opportunity of publicizing the new idea they intend to sell to the public. So, the opportunities are eye-catching on both the idea originator and the users of the idea. Abubakar (2013) posits that, one of the opportunities in the access and use of public library information services in Nigeria is the alleviation of poverty. Public library services in Nigeria can go a long way in poverty alleviation if full access and use of her services is guaranteed. Users can entertain, inform and educate themselves in the public library. They could get employment opportunities, information on management of small scale industries, personal information for development, on-line publishing, social interaction, and any other business opportunities.

5. Research Methodology

Survey research method is deployed using both quantitative and qualitative paradigm with questionnaire administration for data gathering. The population of the study consists of professional public librarians who are in the directorate or senior cadres in Nigeria. They were requested to respond to the questions through survey monkey email mechanism. 12 respondents across the six geo-political zones in Nigeria responded to the emailed questionnaire. Scientific Packages for Social Science (SPSS) research was used to analyse the demographic data, while the other responses were analysed in themes for content analysis of the qualitative aspect of the questionnaire.

5. Data presentation and analysis

The data is highlighted in sections 5.1 to 5.4 below.

5.1. Demographic Characteristics of the Respondents

Table 1: Gender

Name of Library	Gender					
	Female		Male		Total	
	N	%	N	%	N	%
ADSLB	0	0.00	1	100.00	1	100.00
EDSLB	1	100.00	0	0.00	1	100.00
KNSLB	0	0.00	2	100.00	2	100.00
KWSLB	1	50.00	1	50.00	2	100.00
LGSLB	1	50.00	1	50.00	2	100.00
NSLB	0	0.00	1	100.00	1	100.00
ODSLB	0	0.00	1	100.00	1	100.00
OSLB	0	0.00	1	100.00	1	100.00
PLABJ	0	0.00	1	100.00	1	100.00
Total	3	25.00	9	75.00	12	100.00

Twelve respondents out of which three (3) are females and nine (9) are males from nine (9) public libraries across the six geo-political zones in Nigeria responded to the questionnaire. The female respondents are librarians from Edo, Kwara, and Lagos States' library boards as tabulated above.

Table 2: Name of Library and Position held by the Respondents

Name of Library	Position held														Total	
	Asst. Dir.		Circ. Librn		Dep. Dir.		Director		IT. Constnt		Snr. Libr		System Librn			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
ADSLB	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
EDSLB	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
KNSLB	0	0.00	1	50.00	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	2	100.00
KWSLB	1	50.00	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	2	100.00
LGSLB	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	100.00
NSLB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00
ODSLB	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00

OSLB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	1	100.00
PLABJ	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00
Total	4	33.30	1	8.30	1	8.30	2	16.70	1	8.30	2	16.70	1	8.30	12	100.00

The positions of the respondents are Assistant Director, Circulation Librarian, Deputy Director, Director, IT Consultant, Senior Librarian and System Librarian respectively. The spread of these positions across the nine (9) public libraries under study is as shown in the above table.

Table 3: Qualifications of the Respondents

Name of library	Qualifications													
	BLS		BLS,MLS		LLB,MLS		MLIS		MLS		MSc. Compt		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
ADSLB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100	1	100
EDSLB	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00
KNSLB	1	50.00	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	2	100.00
KWSLB	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	100.00
LGSLB	0	0.00	0	0.00	0	0.00	0	0.00	2	100.00	0	0.00	2	100.00
NSLB	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
ODSLB	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
OSLB	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
PLABJ	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
Total	3	25.00	3	25.00	1	8.30	1	8.30	3	25.00	1	8.30	12	100.00

The qualifications of the respondents ranges from a single degree in library and information science (BLS), first and second degrees (BLS, MLIS), Bachelor of law and master degree in library and information science (LLB, MLIS), and Master of Science in computer (Msc, compt. Sci.). Each of the public library under study has a holder of either one or a combination of two degrees as analysed above. It is an indication that, all the respondents are senior cadre professional librarians.

Table 4: Years of Work Experience in the Library

Name of library	Experience																						TOTAL	
	10yrs		11yrs		13yrs		15yrs		16yrs		23yrs		24yrs		25yrs		28yrs		8yrs		9yrs			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
ADSLB	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
EDSLB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
KNSLB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00	0	0.00	2	100.00
KWSLB	0	0.00	0	0.00	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	2	100.00
LGSLB	0	0.00	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	2	100.00
NSLB	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
ODSLB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	1	100.00
OSLB	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00
PLABJ	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00
Total number of people	1	8.30	1	8.30	1	8.30	1	8.30	1	8.30	1	8.30	1	8.30	1	8.30	1	8.30	2	16.70	1	8.30	12	100.00

The least number of years of experience of all the respondents is nine (9), while the highest is twenty eight (28). There is no respondent with less than nine (9) years of experience in the services of public library in Nigeria.

5.2. PAPA model application

Table 5: Dimensions of PAPA application

Lib.	Response (Privacy)	Response (Accuracy)	Response (Property)	Response (Accessibility)
EDSLB	Info. Services are opened to users without exception	Accuracy policy is in place	Ownership is well guided	Users have full rights and privileges to access info. as a public lib.
KWSLB	Privacy issues has regulated the access and use	Accuracy policy is respected	Moderate	Open
NSLB	Adequately protected	Okay	Intellectual property is respected	All our services are accessible
ODSLB	Okay	Okay	Not fully protected	Only to hard books, no online books
KWSLB	Lib. Resources open to everyone	Authors are responsible for accuracy	Copyright law is highly protected	Accessibility is guaranteed
KNSLB	Materials not restricted to anyone	Accuracy is one of the requirements for material acquisition	Information materials are acquired after due permission	All info services are accessible to registered users
LGSLB	Users complain of not accessing info. privately	Accuracy policy is on ground	No problem in the access and use	Well accessible
OSLB	Privacy issue is below average	Available info. Services are accurate	Ownership right is secured	Free
KNSLB	Privacy is managed properly	Accurate	Ownership issue is properly guided	Free
ADSLB	Privacy is regulated	Accurate	Clear enough	Free
KWSLB	Strictly complied with	Authors are responsible for accuracy	Ownership belongs to the library unless	Free

			otherwise stated	
LGSLB	Fair enough	We manage only recommended info. Based on lib. Policy	No problem	Registered users are always guaranteed with accessibility to lib resources.

Privacy- The data reveals that, privacy issue is regulated, protected and respected. Materials are not restricted to the users of the public libraries. Accuracy policy is in place in nearly all the libraries, authors are responsible for any issue that comes up as far as accuracy is concerned. Due permission and copyright law are followed for the acquisition and use of public library information services in order to respect property issue. Accessibility to the library information services is opened to all users. Although, it is observed that, information materials are not allowed to be borrowed out of the library but consulted in-house.

5.3. Challenges

EDSLB	Lack of internet and epileptic supply of electricity
KWSLB	Inadequacies in ICT is a challenge
NSLB	Irregular supply of electricity
ODSLB	Absence of computer and on-line services
PLABJ	Lack of current information services, staff shortage and qualified personnel
KNSLB	Policy hindrances to accessing information
LGSLB	Slow bandwidth, power outage, limited library space, outdated materials
OSLB	Lack of qualified staff, poor funding, irregular supply of power
KNSLB	Lack of adequate facilities to access and use information services.
ADSLB	Inadequate information services, internet and electricity irregularity
KWSLB	Red-tapism, low quality of staff, lack of evaluation of services,
LGSLB	Poor internet services, lack of customized services

An array of challenges was articulated in the access and use of information services in public libraries in Nigeria. Lack of adequate internet facilities and epileptic supply of electricity, lack of up-to-date information services and inadequate number of professional staff, policy hindrances to information access and use such as censorship and insufficient funding are some of the challenges discovered by this study.

5.4. Opportunities

EDSLB	Users are not restricted in accessing and using any of the library information services
KWSLB	The use of printed materials is an added advantage
NSLB	Access and use of our resources educate, inform and entertain our clients
ODSLB	Books are displayed and can be accessed with card system for general opportunities
PLABJ	Information can be accessed at any time
KNSLB	We have adequate space to access our voluminous information services
LGSLB	Access and use of the library information services exposes the patrons in enhancing their capabilities
OSLB	Our library update users by reading newspapers, meeting friends, and discussing relevant issues on their interest
KNSLB	Validation of information services around the globe which may not be accessed in private libraries
ADSLB	Our library provides educational, personal, recreational, mental and physical development
KWSLB	Customized services, avenue to meet colleagues and discuss issues of concern
LGSLB	Encourages users' access and increase confidence to access and use information services.

Access and use of public library information services in Nigeria gives such opportunities as education, information, entertainment and socialisation. General access to the information is a grave opportunity which cannot be provided by any other type of libraries. It is an avenue to meet colleagues, share information and discuss issues of concern.

6. Discussions and conclusion

Ethical issues in accessing and using information services are bedeviled with challenges all over the world. This is applicable in virtually all the field of human endeavors. The findings of this study reveal that, ethical issues in the access and use of information services in public libraries in Nigeria depict that, privacy and accuracy of information services are to a large extent respected. In the same vein, property and accessibility issues were also given prominence. This does not explain the fact that, the scenario is completely free of challenges such as the non-implementation of freedom of information bills (FOB), copyright issues, internet scam, plagiarism, phishing and so on. Access to the conventional information materials on the open shelves is also a big challenge because; it is limited to consultation within the library and never to be borrowed out. This is contrary to the argument that, information is accessible and used in the Nigeria public libraries. Although, the ugly experience of multiple disappearances of the materials on the shelves was a premise for which the policy was made. Challenges such as lack of internet facilities and epileptic supply of electricity, information communication technologies' inadequacies, staff shortage, lack of qualified information professionals, non-current information materials, censorship, slow bandwidth, poor funding, lack of evaluation services and red-tapism are hindrances to adequate access and use of public library information services in Nigeria. Although, one can judge from the results of the findings that, access to information services is not denied to any user of the library and a number of opportunities from such access are bound, but the aforementioned challenges, no doubt, proved that, access to, and use of information services in public libraries in Nigeria cannot be said to be in the acceptable standard position. It is also discovered that, the concept of information ethics is not convincingly understood by

stakeholders judging from the responses gathered in the data. It is on this premise that, this study is recommending the followings:

Recommendations

1. Ethical issues that borders on public library information access and use should be addressed by a way of legal applications in Nigeria.

2. Public Librarians and service providers must be conscious of ownership rights and that of the users of the information services. No one must be deprived of accessing and using all types of information.

3. In the actualization of the ethics of information services in public libraries in Nigeria, PAPA model is recommended for adequate implementation.

4. Information ethics as a course should be included in the academic curriculum of Nigeria library schools.

5. The federal government of Nigeria should as a matter of urgency set up information ethics committee whose members must be information professionals, legal practitioners and IT experts to address issues which concerns with the aims and objectives of the committee.

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Information Literacy Programmes In Selected Nairobi - Based Public And Private Universities In Kenya

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This paper reports the findings of a doctoral study conducted at Moi university from 2006-2012. The study investigated information literacy programmes (ILP) in selected Nairobi - based public and private universities. Questionnaires were distributed to over 2,000 respondents randomly selected and the study was based on Bruner's (1971) theory of discovery learning and Bruce's (1997) Seven Ways or Faces model. The data collection instruments included key informant interview schedules, questionnaires and observation checklists. Data from the questionnaires and observation checklists was analyzed using SPSS (version 18.0). The qualitative data from key informants was analyzed thematically and presented on the basis of the Grounded Theory approach (Miles and Huberman) which is concerned with the refining of ideas. The findings indicated that all the universities which were sampled have various information literacy initiatives which lacked a systematic approach and a policy framework. The study recommends that a four-tier system for undergraduates, post graduates, teaching staff and research fellows, non-teaching staff and visiting scholars in both public and private universities be established.

KEYWORDS: Information literacy, Kenyan universities, Information literacy programmes, Information literacy education, Universities

Introduction and Background

The interest to conduct the study of the public and private universities in Kenyan universities was prompted by the fact that the current orientation and user education programmes are not like the information literacy programmes offered in other world class universities because they lack diversity in terms of content and presentation. The eight universities based in Nairobi were selected because they are among the biggest in terms of enrolment of students and public spending. For example, the University of Nairobi is the oldest and the biggest public university in Kenya. Kenyatta and Jomo Kenyatta University of Agriculture and Technology (JKUAT) hold the third and fourth places in terms of the establishment of the public universities in the country. Private universities in Nairobi are well grounded in terms of student enrolment and establishment. The eight universities are also held in high esteem by both local and international scholars, and the general public. Therefore, any changes of policy in the curriculum or teaching methodologies are likely to be emulated by other universities locally and abroad.

The most popular definition of information literacy (IL) is quoted from the American Library Association (ALA) presidential Committee on Information Literacy Final Report (1989) which states as follows: "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information".Behrens (1994:309) observes that the term information literacy is an abstract concept that might be more appropriately viewed as representing a person's ability to use information. Doyle (1992:5) defines information literacy as "the ability to access, evaluate and use information from a variety of sources". Therefore an information literate person recognizes the different levels, types and formats of information and their appropriate uses. All libraries and librarians have key roles to play in the development of information literate population beyond the walls, corridors and networks of academia.
Regardless of the source of information, the concept of information literacy includes the ability to understand what we see on the page of a book, or the television screen, in posters, pictures and other images as well as what we hear. If we are to teach information literacy, we must teach students how to sort, to discriminate, to

select and to analyze the array of messages that are presented. (Lennox & Walker, 1992:4-5 in: Eisenberg, Lowe and Spitzer 2004:6).

Taylor (2006:3-8) defines information literacy as the ability to recognize a need, then access, find, evaluate, use and communicate information. In all these definitions, there are common themes: accessing, locating, evaluating, and using information. Another common theme is the ability to recognize a need for information. However, it is necessary to note that information literacy is not library skills, computer literacy, digital literacy or media literacy.

UNESCO defines information literacy as the capacity of people to:

- Recognise their information needs;
- Locate and evaluate the quality of information;
- Store and retrieve information;
- Make effective and ethical use of information, and
- Apply information to create and communicate knowledge (UNESCO, 2008:7)

Statement of the Problem and Purpose of the Study

One of the primary functions of a university library is to support the teaching and research needs of both students and staff of the university. In order to achieve this goal, it is necessary to inculcate an information culture through information literacy programmes to enable students to find information independently and use it critically. Although library orientation is offered to all freshmen soon after admission to most of the universities, many of the freshmen are unable to use the information resources effectively. The sheer size of the library buildings in unusual surroundings overwhelms the students. Due to the number of students involved, time taken and the mode of presentation, it is likely that the objectives of the orientation process are not met. According to Kiplang'at (1996), a part of the failure in implementation of user education skills was due to lack of clear guidelines and absence of appropriate teaching tools.

Over the years, it has been observed that many students are admitted into the institutions of higher learning without basic library skills at a time when they are expected to write comprehensive term-papers on various subjects or topics. In order to address this anomaly, it is necessary for students to be information literate. Information literacy skills would not only enable them to acquire a positive and responsive attitude towards university library resources, but also develop good reading habits and research skills.

Research Questions

The aim of the study was to analyze the current status of information literacy (IL) initiatives in selected Nairobi - based public and private universities in Kenya and to suggest ways in which information literacy programmes could be streamlined in line with global best practices. The paper focuses on the following research questions:

- What is the status of information literacy programmes in universities?
- To what extent do the information resources and services offered by universities meet the students' needs and expectations?
- What is the structure of information literacy programmes in universities?
- Which instructional methods are used for delivery of information literacy programmes in universities?
- Which information literacy model reflects global best practices for universities in Kenya?

Research Methodology

According to Ocholla and Le Roux (2011:1) theoretical framework of a study is the structure that holds and supports the theory of a research work. This study was based on a mix of Jerome Seymour Bruner's (1971) Theory of Discovery Learning which allows learners to think, learn and solve problems by themselves, Christine Bruce's (1997) Seven Ways or Faces model and Eisenberg's and Berkowitz's (1988) Big6 Skills for information

problem solving. This was a cross-sectional descriptive study investigating the current status of information literacy programmes in selected Nairobi-based public and private universities in Kenya. This study used quantitative and qualitative research paradigms and methods that were essential for triangulation. According to Bryman (2004:454-5) the idea of triangulation "implies that the results of an investigation employing a method associated with one research strategy are cross-checked against the results of using a method associated with the other research strategy". This was important in yielding rich data necessary to give confidence in the study findings. The methods of data collection included key informant interviews, survey, observation, and documentary sources. Interviews were carried out with University Librarians, Deputy Librarians and Lecturers directly involved in teaching IL related courses in various universities. The survey was carried out amongst the first-year undergraduate students across the eight universities in the study. Observation was carried out to assess teaching facilities, methods, tools, classroom management. The survey enabled the researchers to obtain information on a wide variety of variables including attitudes, opinions, preferences and behaviour. The survey method made it possible for the researchers to discern the kind of information needed by users as well as the sources of information in a given collection.

The study population, in the student category, comprised 12, 571 first-year undergraduate students in public and private universities in Nairobi-Kenya. According to the table for determining sample size from a given population by Krejcie and Morgan (1970), the representative sample size required for 12,571 under-graduate students (first year or freshmen) was 2,370. After distributing 2,370 questionnaires, 2,031 were returned duly filled by the respondents for participation in the survey. Student participants in the study were selected proportionately from each of the colleges and schools of the universities because they varied in size and population. In the second category were University staff that involved in IL as key informants through in-depth face-face interviewing .There were 57 respondents selected through purposeful sampling technique from three public universities and five private universities during the academic year 2008/09. The response rate from the purposely selected University Librarians and the Deputy Librarians was 100%, while that of Librarians and Lecturers directly involved in information literacy related programmes was 90% and 85% respectively. The audio-taped interviews were transcribed and analyzed using the grounded theory technique as expounded by Strauss and Corbin (1998). The interview schedule constitutes the major instrument for collecting data for the study.

Quantitative data collected from survey was analyzed using Statistical Package for Social Sciences (SPSS version 18.0) . Qualitative data from key informant interviews was analyzed thematically and presented in descriptive approach where direct quotes from informants that reinforce arguments within the themes were put in verbatim.

Results of Research Findings

Library Orientation to First Year students (Freshmen)

From the findings as shown on Table 1.1, we found that the majority of the respondents (73.8%) had been offered an induction course in the usage of library resources, while 24.5% were not. This therefore, implies that a considerable number of freshmen missed the induction session and were therefore illiterate in the use of library resources. Since the library is crucial in the students' academic success in general, this is alarming and calls for considerable action from the library. Users who are not literate cannot access crucial resources in the library collection, for instance book and non-book materials, e-journals, e-books, and other ICTs related materials.

Table 1: Orientation of freshmen in university libraries (n=2031)

Responses	Frequency	Percent
Non-response	35	1.7
Yes	1499	73.8
No	497	24.5
Total	**2,031**	**100.0**

Source: Fieldwork 2009

Students' Perception on Library Orientation

The researchers also sought to examine the perception and attitude of the first years on the orientation process. Thus, the students were asked whether the tour/induction was useful or not. As shown on Figure 1.1 65.5% of the respondents agreed that it was very useful while 14.9% said it was not useful to them. This shows that after being offered the induction course, the majority of the students were able to use the information resources as required. Although the percentage of those who did not answer the question was high (19.6%) and not likely to affect the reliability of the data, it was of great concern to the researchers. In spite of attending the induction session or orientation as it is commonly known, it appeared that some of the freshmen did not appreciate it. This meant that a substantial number of students were still ignorant and not fully equipped with knowledge and skills of utilizing the library resources effectively.

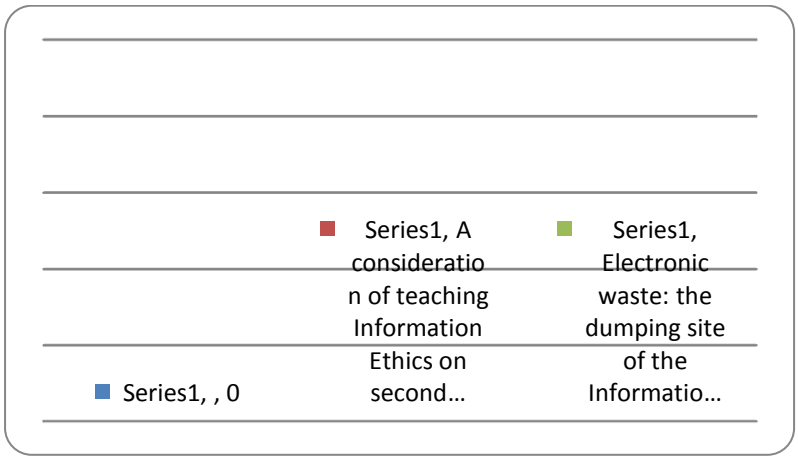

Figure 1: student's perception on library orientation (n=2031)

The Value of Library Orientation

The students were also asked whether they considered the omission of orientation or induction would affect use of the library. This was done purposively to assess the impact of orientation on fresh men. From the findings summarized on Figure 1.2, 57.2% agreed that lack of orientation would affect their ability to use the library while 29.7% of the respondents admitted that the omission of the orientation would not affect the use of the library. 13.1% of the respondents did not respond to this question.

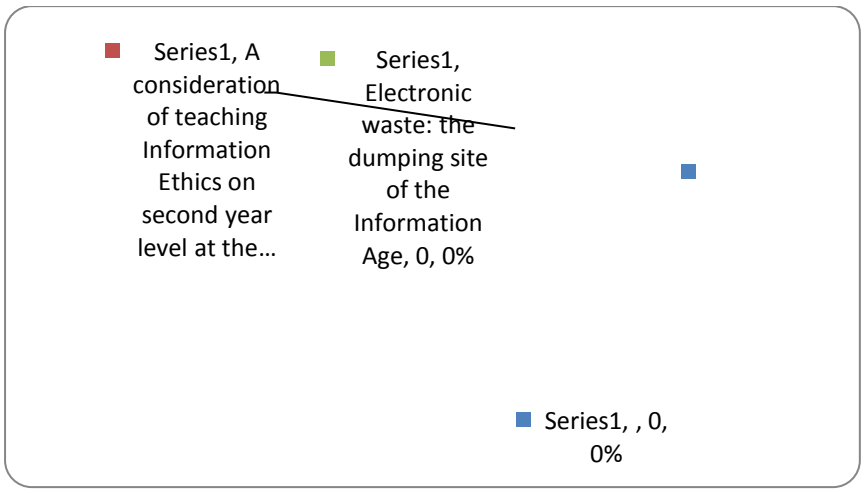

Figure 2: The value of Library Orientation (n=2031)

Students' Perception on the University Library Systems

The study also sought to gauge the feelings and perceptions of the respondents about their respective university libraries as shown below on Table 1.3. The results indicate that only 12.4% regarded the library as outstanding while 44.8% felt that the library is doing well but not thrilling. Among the respondents, only 2.8% dismissed the university libraries as useless. Those who rated their library to be above average comprised 34% of the respondents. The general feeling here is that the library has got a low rate of approval hence there is need of improvement by the library staff as suggested by a significant number of students.

Table 2: First Year Students' overall feelings about the university library (n=2031)

	Frequency	Percent
Non response	123	6.1
Outstanding	251	12.4
Above average	691	34.0
Ok, (but not thrilling)	910	44.8
Useless	56	2.8
Total	2,031	100.0

Status of Information Literacy Initiatives in University Libraries

According to the informants, there is no standardized name or title that had been given to IL related programme found in Kenyan universities. However, the study established that the IL related programme offered by both private and public universities in Kenya had different titles and that the libraries had adequate information resources. All universities held orientation sessions almost in a similar fashion for first years (freshmen) during the first two weeks after admission. After formal introduction of staff, the topics covered during orientation included introduction to online public access catalogue (OPAC) and the available information resources and services. They were also provided with brochures stipulating on library rules and regulations including the code of behavior within the library precincts. This was also the time that formal registration of the freshmen was done to enable them enjoy the privileges of full membership of their respective campus libraries.

Goals and Objectives of IL initiatives

According to Librarians and lecturers, the students needed to be equipped with skills and techniques of identifying, searching, locating, evaluating and using the relevant information resources so as to facilitate the independence of the students. According to the respondents, once the users are educated on library resources, they are able to utilize them effectively. Students should also be empowered to be self-reliant and familiar with the use of ICTs due to the fact that most of the university libraries are automated. In order to survive in the academia, it is necessary to encourage them to possess research skills while at the same time observing ethical issues related to academic writing such as copy right laws. Since poor reading culture is a great impediment to academic excellence among many students, inculcating a reading culture was identified as another important goal that would facilitate lifelong learning. According to one lecturer from the University of Nairobi: "all efforts for establishing a formal information literacy (IL) programme should revolve around empowering the patrons so that they are able to get the information independently and equipping them with lifelong skills that they can use long after their university education".

Information Resources and Services

All libraries studied had both printed and electronic materials that include books, bound and loose periodicals, non- book materials like microforms, CD-ROMS, e-journals and other multi-media resources. A few of the libraries were considering subscription of e-books in the near future. All the libraries had a periodicals section which houses the bound and loose journals. Due to the effect of technology, the role of some library sections for example – Periodicals section is increasingly being diminished. According to the librarians, most users preferred the services provided by e-journals where they can easily get the latest information on any given discipline.
The main access tool for all the university libraries surveyed was the Online Public Access Catalogue (OPAC). A few of the university libraries had retained their manual card catalogue for books and Kardex for periodicals. The manual catalogues were still used by a few conservative users who had a phobia for computers, while other libraries still used them for bibliographic checking. Other access tools included periodical indexes and bibliographies.

Automation of University Libraries

Although all the universities surveyed had automated the major key library operations in their respective libraries, the level and extent of digitization varied greatly. Among the public universities, the University of Nairobi was using VUBIS –SMART while KU and JKUAT were using KOHA software packages. Among the private universities, USIU was using UNICORN software because in their view, it was user friendly and convenient. Daystar University used SIRS MANDARIN due to the fact that it is easy to use and also user friendly. Strathmore University & CUEA were using KOHA software packages while ANU was using SIRS MANDARIN because it was user-friendly. The universities that were using KOHA software stated that that they selected the package because it was free and versatile. They also reported that the software had the capacity for integration with other sections of the parent organization. KOHA was also web based and could be accessed from remote areas.

All the universities surveyed were members of the programme for the enhancement of research information (PERI) through the collaboration of the international network for the availability of scientific publications (INASP) which enabled their users to access e-journals. Due to PERI programme, most of the P&P universities were connected to major databases like MCB/Emerald; Africa journals online (AJOL); Blackwell-synergy; AGORA among others. Due to the membership of PERI programme both public and private universities were also members of other consortia like Kenya Library Information Services Consortium (KLISC), and also benefit from the International Network for the Availability of Scientific Publications (INASP).

Nature and Structure of Information Literacy Initiatives

Although the university librarians and lecturers are in agreement on most of the objectives of this course, the respondents (librarians) indicated that the programme should also inculcate a life-long learning and reading culture. This would enable students to differentiate between the various information resources and formats and also increase the students confidence in using available ICTs (eliminate technophobia) and ability to seek help from library staff without fear.

In most of the universities, it is commonly known as library orientation or user education. This includes library tours, introduction to rules and regulations, practical exercises on how to access library materials through OPAC. In other universities, the IL initiative is known as communication skills or study skills. It was also the feeling of the interviewees that the students were usually overwhelmed by the amount of information during the orientation to freshmen during the first few days after admission. One of the interviewees observed as follows:

> *When students join universities for the first time, they exhibit ignorance of the availability of useful learning resources and facilities in libraries. The available literature explains that this condition emanates from lack of exposure to well managed library facilities while they attend secondary schools. It is, therefore, necessary to have a curriculum that will prepare them as lifelong users.*

According to the librarians and lecturers the course has elements that include information resources, types of information sources and organization of sources of information. Other elements are ICT skills/computer skills and information access and retrieval. The course also engaged students in study and writing skills. These skills include documentation and referencing. Part of the course comprised internet and its use. The internet particularly engages the students in searching skills and techniques as well searching tools. The students were also taught about intellectual property rights, evaluation of information sources, referencing and knowledge organization.

Orientation of First Year Students (Freshmen)

In all the public and private universities surveyed, orientation to freshman took place mainly within the first week after admission. Normally there was an address by the university librarian with a team of senior librarians followed by a tour of the library facilities. At this time, the library guides which includes information on opening hours, borrowing procedures, services points, and the physical layout of the library were issued. Since this is the first time that the freshmen are on campus and probably in the new surroundings, it was realized that they were overwhelmed with information. As a result, a follow up was necessary because information literacy should be a continuous process as most of the interviewees mentioned.

Library skills/Information Skills

The study found that the library skills/information skills taught to freshmen are useful to their needs. Once the new students have been taught searching strategies, they are able to access and use the resources by themselves and there are fewer complaints. It was also realized that the library skills equip students with hands on skills for searching the online public access catalogues (OPACs) without assistance from library staff, doing class assignments and ability to search on particular websites and data bases. Another positive feedback is the ability of some students to locate materials easily without hitches. Although some students were able to do their research independently and without reliance on library staff, a significant number largely remained illiterate. The instructors from communication skills departments acknowledged that students who underwent reading and writing skills were able to present better researched terms papers.

Contents and Scheduling of Information Literacy Initiatives

It was found out that there were a lot of similarities in the contents of the formal IL initiatives. The course outline of most of the universities contained topics as follows: introduction to the library; information resources and services; online public access catalogue (OPAC); search strategies; evaluation of information resources; referencing and citation techniques and ethical issues.

The researcher also wanted to find out about the scheduling and duration of the course. In all the eight universities sampled, the students are given at least two hours per week for practicals and one hour for theory during the whole semester. In some of the universities, the course consisted of 3 hours per week for a trimester of 14 weeks. In all the universities, the course was theory 30% and practical 70%. Nevertheless, the whole course should be similar to a unit (45 hours) for the whole semester.

Information Literacy Curriculum

The IL lessons are mainly held in the lecture halls, computer labs or in the auditorium. Some universities had rooms designed for orientation and instruction. The tools and equipment for demonstration included LCDs for power point presentation, laptops, digital cameras, video and playback machines. Whereas the majority of university librarians suggested a ratio of 60% for practical and 40% for theory, the librarians and lecturers suggested a ratio of 70% for practical and 30% theory.

However there was agreement that there should be a core course for freshmen separate from the communications course that is currently being undertaken. The stand-alone course should be equal to other course units in terms of time allocation and assessment, in order to cater for both theory and practical. It was also suggested that at least 3 hours per week during the semester or trimester would suffice. It was also suggested that the library skills course should be a core course for all freshmen.

Teaching Methods

The researcher found out that most of the universities mainly used the traditional lecture method which was supplemented sometimes by discussions, question and answer sessions, handouts and practical assignments. However discussions were found inappropriate or less effective when the number of students was beyond a hundred students. Some IL classes were known to have more than five hundred students. For example, at the University of Nairobi, the researcher had been involved in IL classes with more than 500 students. In such a situation, there were challenges of delivery and feedback that were obviously associated with teaching large groups. Power-Point presentations were used by some universities while other universities used either the black board or the white board.

Teaching Aids &Facilities (Infrastructure)

Most of the universities had adequate facilities in terms of infrastructure. Most of them held orientation in their library seminar rooms, multi-media sections, computer labs or the lecture halls. During orientation, a guided library (tour) was done after the introductory lecture. A few libraries did not have designated space for orientation and instruction on how to use the library. However if there was need for space, IL programmes were housed by the university just like other university programmes.

Most of the universities said they used power-point presentations and have laptops and LCD projectors. One librarian pointed out that:

> *However due to large numbers during the initial orientation exercises at the beginning of the first semester after admission, laptops and LCD projectors were borrowed from their respective ICT departments. Some universities also used library guides, brochures, pamphlets and charts for demonstration purposes.*

The following challenges were highlighted by the respondents:

- Large classes
- Lack of adequate time for instruction
- Inadequate computers in the laboratories
- Lack of teaching methodology skills

Lack of recognition of librarians as teaching staff by management was a major issue of concern which adversely affected the development of the ongoing programmes. This was the major cause of the decline of the IL related programme at Kenyatta University more than ten years ago.

Impact of Information Literacy programmes in the Learning Process

The purpose of a university library was to encourage academic scholarship by providing current books, non-books and electronic resources. The information literacy related courses offered to students enabled them to utilize information resources effectively. They also develop life- long skills which they utilize in all other university programmes. They were able to study and carry out research in a systematic manner. Both librarians and communication skills lecturers were in agreement that IL positively affected the students' attitude and ability. As a result, the students matured and become responsible and were able to operate independently.

In most of the university libraries, it was realized that there was a remarkable reduction on the number of reference questions at the information/reference desk and there was acceptable behaviour in the library. Most respondents agreed that before orientation, the freshmen overturned books on the shelves aimlessly and recklessly. But after orientation browsing was done in an orderly manner and the books on the shelves remain intact. It was also observed that users gain confidence gradually and did not look lost any more as shown by some of the responses shown below:

- *"Students do not ask too many questions"*
- *"The shelves are left neat"*
- *"Mass registration of users"*
- *"Proper use of library materials"*
- *"Students are able to do their research independently and without reliance on library staff"*
- *"Better researched term papers..."*

Maximum Utilization of Available Information Resources in University Libraries

It was also argued by the respondents that it was the responsibility of the library management to have a user-friendly environment within the library. It is not only necessary to mobilize users by offering diverse information products but also put in place viable training programmes for users so as to make them feel confident while searching for information. If there is proper partnership between the library and the faculty, it would be possible to give assignments that were based on the varied sources of information so as to encourage students to utilize them. In addition, it was observed that lecturers could be requested to go an extra mile by referring students to specific articles in e-journals. According to one of the lecturers if these measures were taken, it would be possible to:

> *Create more awareness campus-wide and acquire relevant sources of information as well as update the sources of information. It is also important to create a more conducive learning atmosphere in the library and improve communication through circulars, brochures, fliers and memos as improve teaching skills of library staff through seminars. We should also encourage users to read peer reviewed journals and act on information received from the suggestion box.*

The majority of the respondents were in agreement that IL should be made a compulsory course and integrated with other programs in universities.

A SWOT Analysis of Resources for IL Initiatives

A SWOT analysis was conducted on the current status of IL initiatives as shown on Table 1. The purpose of the SWOT analysis was to build on the strengths, minimize the negative impact of the weaknesses, seize the opportunities and deal with the threats that were identified. After a critical evaluation of the existing programmes, it was also possible to determine factors that were likely to influence libraries to achieve their

stated missions and goals. Consequently, it was be possible to chart the way forward for the university libraries to re-engineer the current IL programmes as shown on Table 1.

Table 3: A SWOT Analysis of Available Resources for IL Initiatives in Universities in Kenya

STRENGTHS	WEAKNESSES
• Large and diverse collection • Long opening hours • Highly qualified staff • Adequate space for lectures • Existing Infrastructure • Adequate computers • Networking • Recognized as a component of a common course (communication skills) • Support and goodwill from university librarians • Committed and hardworking staff • Exposure to all types of information	• Low level of funding • Lack of administrative support from parent organization • Inadequate Time (preparation & teaching) • Teaching skills (assessment & evaluation) • Inadequate teaching materials • Motivation (lack of interest) • Attitudes of library staff (a few not supportive) • Lack of a formal syllabus • Library organizational structure • Lack of library staff interest • Audience definition (who to teach and what to teach?) • Limited library/faculty collaboration • Insufficient staff • Low morale among library staff • Lack of cooperation among staff • Lack of interest among students

OPPORTUNITIES	THREATS
• Internet connectivity • Cost of software and hardware decreasing by the day. • Promotion of information literacy among students and staff • Enhances visibility of university • Enhances national, regional and international cooperation • Circulation of information resources • Appreciation of the role of the university library in university • Training of both students and staffs	• Fear to those unwilling to adopt new technology • Lack of ICT policy • Fear of unknown to Staff who resist change • Lack of clear guidelines and standards (CHE standards and guidelines very thin) • Low band-width • Unreliable internal connection due to power failure • Lack of National coordination

The Way Forward

In order to improve the current status of both public and private universities, it was realized that the library management should take the following measures:

- Provide more computers for access of information.
- Allocate adequate contact hours for information literacy.
- Design the curriculum that runs for the few years when students are on campus.
- Authorize a formal course of information literacy.
- Ignore the campus politics.
- Include IL programme in the university time calendar.
- Upgrade the course.
- Provide relevant materials, human resources and physical facilities

Challenges Encountered During Implementation of Information Literacy (IL) initiatives

A number of reasons were given as the cause of failure of information literacy initiatives in both public and private universities as summarized below:

- Lack of interest by users
- Non-cooperation or rather lack of interest by teachers in academic libraries
- Lack of time by users as well as teacher librarians
- Lack of systematic approach by reference librarian
- Lack of understanding of psychology of users by reference librarian
- Lack of individual attention due to the large number of users involved (especially in public universities)
- Poor or improper teaching methods
- Lack of support by Administration
- Lack of proper teaching tools for example laptops and LCDs
- Lack of recognition by the management of the parent organization

Recommendations

Development of Information literacy policy framework: There should be an information literacy framework for all public and private universities to provide guidelines on effective and efficient delivery of information literacy programmes.

Organizational Structure and Duration of IL programmes: There should be a library skills course which should be a compulsory course unit for all freshmen. The new updated course should take the same contact hours as other units at the universities in terms of theory, practical sessions and examinations with an acceptable name and course content or descriptions.

Physical resources and establishment of Graduate libraries: Although most of the universities have modern buildings purposely built as libraries, they should also be equipped with comfortable furniture, modern information and communication technologies (ICTs) and adequate connectivity.

Graduate library: A Graduate Library should be introduced in all universities so as to allow libraries to focus their services to under-graduates especially first year students. This includes providing remote access of library resources to enable them access e-journals and e-books.

Promotion of information resources and services: In order to address the underlying problem of non-use, promotion of information services through awareness campaigns should be enhanced.

Other methods of promotion include library bulletins, newsletters, intranet, blogs, both staff and student emails and other social networks.

Periodic customer satisfaction survey: There is need to have periodic customer satisfaction surveys to determine students' needs including their level of satisfaction. A suggestion box which lacked in some libraries would be the first step towards this direction.

Standalone Information literacy programme: All universities should establish a standalone IL programme which should be made a compulsory course taught and administered by the proposed IL department.

Contents and Delivery of IL programmes: It is necessary to:

i) Have an acceptable and standardized name with course description in all P & P universities.

ii) Streamline the contents of the IL programmes

iii) Have a body responsible for IL programmes in all P & P universities.

Mode of Instruction for IL programmes: It is recommended that the following be the preferred mode of instruction: Lectures, demonstrations, library tours, and discussions should also be among.

Standardization of IL programmes; Due to the fact that the Commission for Higher Education (CHE: 2008) is shallow in details on curriculum planning and development in IL, there is need to revise this document so as to enhance its role in university education in Kenya. This can be done by adopting the best practices in the world for example, the American library Association (ALA) standards.

Assessment and Evaluation: As a formal programme, IL should be examined according to Faculty guidelines and a periodic evaluation of the programme should be undertaken.

Training of staff for IL programmes: In order to enhance and maintain sufficient knowledge and skills to the teaching staff, it is necessary to have regular seminars and workshops on current teaching and learning methods and also on best practices.

Learning materials and equipment: Adequate learning materials and equipment should be provided. This includes furniture like desks, tables, computers, white board markers etc.

Collaboration with libraries and colleges/faculties: This study recommends the establishment of good relations and collaboration with other faculties that will enhance implementation, evaluation and assessment of the IL programmes.Staffing of IL Programmes: Only professional library staff with a master's degree and above in library science or members of staff with minimum qualifications for appointment as a lecture in a university should be involved in teaching activities coordinated by the reference librarian.

Local and International Conferences: Staff members should be encouraged to attend both local and international conferences so as to benefit from new experiences and also build their career paths.

Funding of IL Programmes: In order to improve funding, all the activities and tasks regarding information literacy programmes should be reflected in the library annual budget so as to ensure that adequate amount is provided.

Designing a Model of Information Literacy (IL) Programmes

The researchers strongly recommend that there should be a four tier system for undergraduates, post-graduates, teaching staff and research fellows and open short courses on topical issues for administrators, non-teaching staff and visiting scholars in all public and private universities as shown on Figure 1. It is also recommended that the proposed IL model should be implemented in all university libraries in Kenya as suggested below:

i. That a stand-alone information literacy (IL) programme be offered to ALL undergraduate students under the Board of Common Undergraduate Courses (BCUC).
ii. The proposed programme entails upgrading the contents of the current library skills component offered under the auspices of the communication skills department. The contents of the proposed IL programme appears as an appendix in this thesis.
iii. That information literacy (IL) course unit should be incorporated in the post-graduate curriculum in collaboration with both the faculty and the library department.
iv. That information literacy (IL) seminars and workshops for academic staff be held regularly.

Information Literacy Needs

Information literacy is a process which gives students the skills to solve their problems. The model begins with the identification of the needs of students. In order for meaningful research to take place, a problem must be identified. Similarly the students must have an expressed need or a problem to be solved.

The expression of the need for information is the beginning of the search process. Since the student is aware that the needed information is available in the library, the first step is identification of the material needed through the available tools in the library. In this case, the most obvious tool is the online public access catalogue (OPAC).

The next step in this process is accessing the information needed.

Search Strategy

The next step is the search strategy, the student is aware about the variety of resources available in the library i.e. printed materials like books, periodicals, e-journals and e-books. In order to get specific items, it is necessary to determine the search strategy. The items can be searched through author, title or subject entries.

The search strategy reveals the available resources only to the extent that the student is able to manipulate the OPAC.

If the student is computer literate, there are likely to be fewer problems. But orientation sensitizes the students on basic information and skills.

Intervention

The majority of freshmen are admitted to university from schools without organized libraries. As a result they are ill equipped in the research process. It is therefore the responsibility of universities to initiate IL programmes to enable the freshmen to utilize the available resources effectively. In addition to the physical facilities, both material and human resources are required. For instance, more computers, qualified staff and supportive administration are some of the items on the checklist for a workable curriculum.

In order to create an enabling environment, the librarian should be in a position to lobby for the administrators support. This is includes collaboration with faculty.

Expected outcomes

The expected outcomes are the objectives of the IL programme which includes skills for lifelong learning and must pegged against the standards set by the policy documents. The success of the programme also depends on its implementation. The programme must have benchmarks against which students learning should be measured. This will act as an assessment tool to find out if the objective of the programme were met.

If the model is followed, it will improve the IL skills of the freshmen at the present and also for the future. The learned skills will be used not only at the undergraduate level but will also form a good foundation at the post-graduate level.

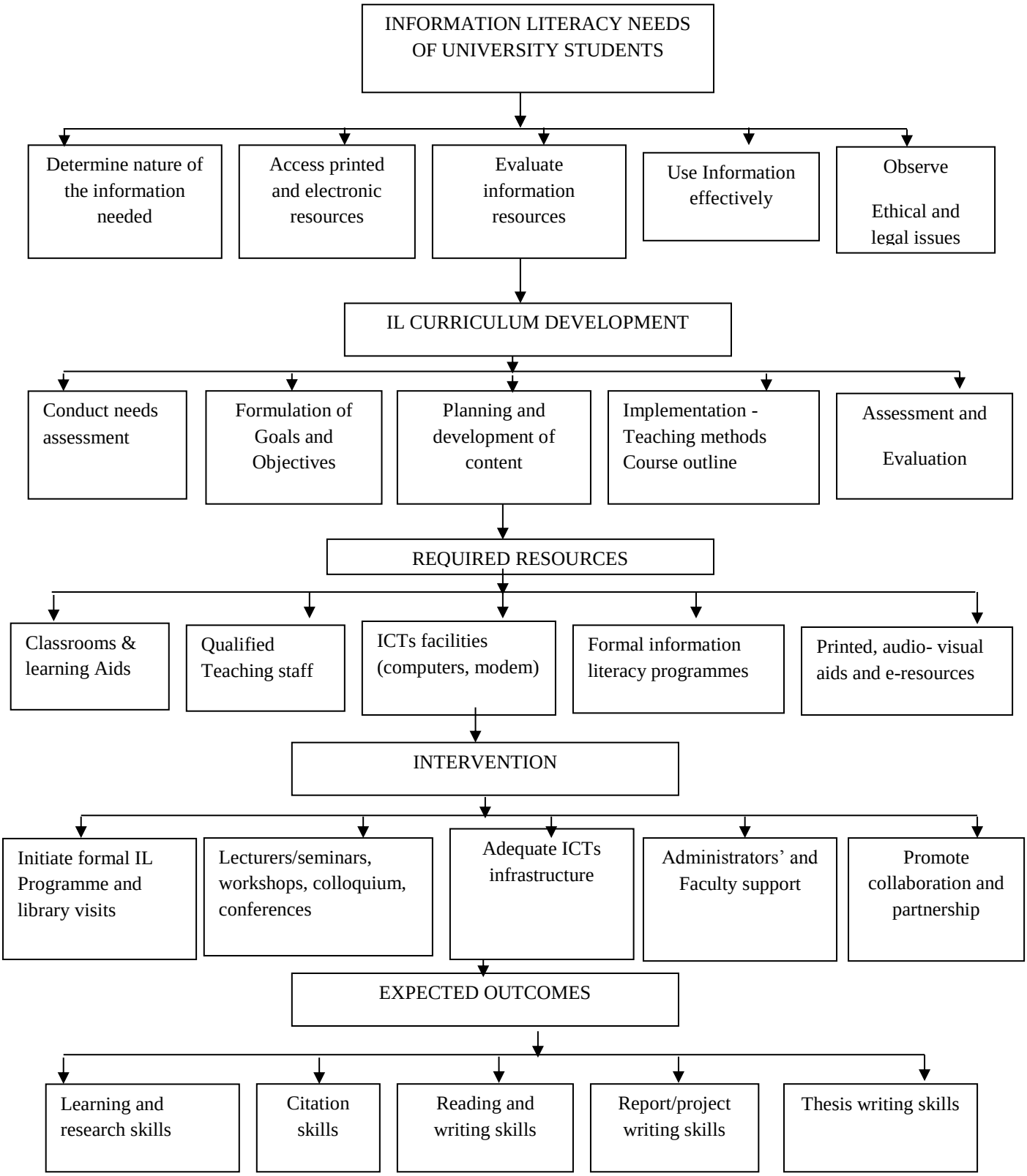
INFORMATION LITERACY NEEDS OF UNIVERSITY STUDENTS
Determine nature of the information needed
Access printed and electronic resources
Evaluate information resources
Use Information effectively
Observe
Ethical and legal issues
IL CURRICULUM DEVELOPMENT
Conduct needs assessment
Formulation of Goals and Objectives
Planning and development of content
Implementation - Teaching methods Course outline
Assessment and
Evaluation
REQUIRED RESOURCES
Classrooms & learning Aids
Qualified Teaching staff
ICTs facilities (computers, modem)
Formal information literacy programmes
Printed, audio- visual aids and e-resources
INTERVENTION
Initiate formal IL Programme and library visits
Lecturers/seminars, workshops, colloquium, conferences
Adequate ICTs infrastructure
Administrators' and Faculty support
Promote collaboration and partnership
EXPECTED OUTCOMES
Learning and research skills
Citation skills
Reading and writing skills
Report/project writing skills
Thesis writing skills

Figure 1.4: Proposed Information Literary (IL) Model for Universities in Kenya

The proposed IL model for university libraries in Kenya

How will the model work?

The purpose of a model is to show a graphic representation of how IL programmes should be structured. The proposed IL model for university libraries in Kenya comprises four tiers as shown in Figure 2:

Tier 1-This will be a common undergraduate (freshmen) information literacy proramme offered to all freshmen so as to enable them to utilize information resources effectively.

Tier 2 -This will be a Post graduate information literacy programme. The information literacy course units will be incorporated in the post graduate curriculum in collaboration with the library department. In this arrangement, a librarian will be invited to deliver a lecture or demonstrate at an appropriate time.

Tier 3- A series of seminars, workshops, colloquiums will be held for teaching staff.

Tier 4- There will be lectures for visiting scholars, administrators and other non-teaching staff on topical issues when need arises.

Values of the model

The institutions of higher learning will learn or benefit from the model. Other institutions may pick ideas of best practices from the model.

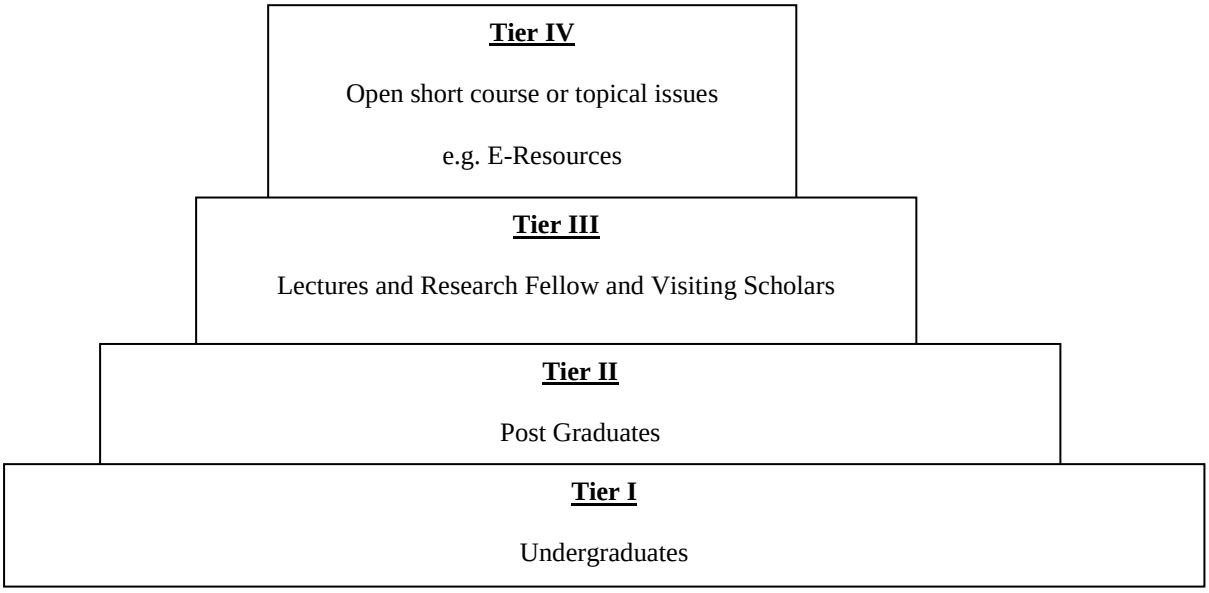

Figure : Proposed Model for Implementation of IL Programmes in Universities in Kenya: Tiered information literacy model for universities

Critical Steps in implementation of IL initiatives

Every university should have an information literacy department which should be responsible for running the programmes within the universities and their constituent colleges. In order to succeed in the implementation of ideal information literacy programmes that reflect best practices, the researcher developed the following proposed model documents:

- Information literacy (IL) policy.
- Information literacy (IL) programme for undergraduate students.
- Information literacy (IL) programme for post-graduate students.
- Information literacy (IL) programme for teaching staff in universities.

Although some universities had wonderful syllabi on information literacy initiatives with clear goals and objectives, it is recommended that universities should plan and develop curricula through a systems approach as follows:

- A needs assessment to identify the client needs should be conducted
- A clear aim and objectives should be established
- Lobby for sustainable support and commitment from both faculty the top management of the university
- Training of library staff in pedagogical skills
- Develop assessment and evaluation criteria

Kenya Library Information Service Consortium (KLISC)

University libraries also face various challenges such as the inability by some to pay membership and subscription in time, and as a result, the services are disrupted. It was also reported that some publishers do not like the subscription by the consortium due to heavy subsidy e.g. engineering journals. At the same time some users felt there was a bias on selection of science and technology literature data bases. In order to keep information flowing to all universities, university librarians should convince the management of their parent organizations to fund e-journals kitty adequately so as to renew subscriptions in good time.

Institute of Information Literacy (IIL)

In order to re-engineer information literacy programmes in our institutions of higher learning, it is necessary to create a body or institution that can initiate, develop and teach information literacy skills according to established standards and best practices. In this regard, the researcher recommends that an institute of information literacy (IIL) be established within our educational system to enhance integration of information literacy (IL) concepts to both individuals and institutions. The aim of the proposed institute would be to coordinate IL programmes at all levels of education in Kenya.

Marketing and publicity of IL initiatives

Marketing and publicity of IL initiatives was a big challenge in all the universities surveyed. To date, very little in terms of promotion had taken place. Therefore there is need for both promotion and publicity of IL programmes to be enhanced.

Libraries are embracing change to respond to the needs of the new work environment. Therefore, libraries should take orientation seriously by allowing only those with adequate knowledge and skills to address the freshmen. Since this is the first contact of freshmen with the library, it should be properly done so as to give a good impression on the students mind.

Collaboration between library and faculty

Partnership

In order for information literacy programmes to be successful, there is need for collaboration. In this regard, it is necessary to have the cooperation and support of all staff from within the department. While it is the responsibility of the library department to spearhead the IL initiatives both in planning and implementation stages, it is strongly recommended that the University management, faculty and library personnel engage in collaborative partnerships for the success of the programme. There should be constant consultation of all the stakeholders especially the librarians, faculty and the administration.

Collaboration with faculty and administration

Collaboration with faculty and administration is critical; Have IL programmes as part of curriculum (examinable) to be taught by libraries; Establish good relation and collaboration with other faculties for the purpose of evaluating and assessment; Motivate the teaching staff; Create facilities required for instruction.

Institute of Information Literacy

1. In order to initiate, develop and teach information literacy skills in our institutions of higher learning effectively, it is important that all stake-holders in information literacy have necessary knowledge and skills both in theory and practice. As a result, this researcher recommends that an institute of information literacy (ILL) be established within our educational system to enhance integration of IL concepts to both individuals and institutions. The aim of the institute would be to coordinate IL programmes in our country and also develop curriculum for the same.
2. One of the key roles would be to work with academics on the ways and means of embedding of information literacy in the curriculum.
3. It has been argued that the national body cannot facilitate provision of information literacy in universities due to the geographical distribution of universities. Therefore, a department or a unit in individual universities and their constituent colleges would be more appropriate. There is need to improve the policy on IL that was published by CHE.

Operational Logistics

This includes the detailed planning of the needed resources for the delivery of the programme; that is human, physical, material and administrative support**.** It is recommended that the total cost of the materials, equipment, human resources and other facilities needed should be included in the library budget for successful implementation of the information literacy programmes.

Promotion of information literacy programmes campus wide

The following promotional methods may be used:

- Information and communication technologies- Intranet, face book, twitters
- Library bulletin- A section should wholly be devoted to promotion in information literacy campus wide
- University newsletter- The officer in charge of information literacy should encourage library staff to write articles related to information literacy
- Institutional radio station- Issues for promotion of information should be enhanced. For example, Radio broadcasts on electronic resources, reading culture and plagiarism should be encouraged.

- **Learning Environment**

Adequate learning materials and equipment should be provided. This includes furniture like desks, tables, computers, white board markers etc.

- **Stand-alone course**

It was also suggested that there should be a library skills course which should be a core course for all freshmen. The updated course should be separated from the communication skills course and take the same contact hours as other units at the universities in terms of theory, practical sessions and examinations. The majority of university librarians suggested a ratio of 60% for practical sessions and 40% for theory.

However there is need to streamline IL courses in both public and private universities. The Commission for Higher Education in Kenya should play a proactive role in this direction.

- **ICT and IL key informants**

They also emphasize holding seminars and workshops for trainers on a regular basis. The trainers are encouraged to read widely and engage in continuous research. In ADU regular trainings are held for the instructors. At the same time, conferences and symposia for the instructors are mandatory.

- **Effectiveness of IL staff**

It was agreed by the respondents that there is need for training of the staff involved in IL initiatives. This is best achieved through regular seminars, workshops, and symposia or what is commonly referred to as academic development programmes (ADU).

Suggestions for Further Research

- This study was conducted principally in universities in Nairobi. Similar studies should be undertaken in universities located outside Nairobi.
- That specific studies addressing provision of IL programmes to different categories of users in universities

Arising from the research findings, it was realized that post graduate students and the teaching staff have problems almost similar to those of the under-graduate students. Therefore there is need to do similar studies to investigate the impact of IL programmes to other stakeholders in the institutions of higher learning. Further research should be undertaken to streamline IL programmes for the following:-

- Post-graduate students
- Teaching staff
- Visiting scholars and non-teaching staff

- **Post-graduate students**

Since post graduate students and the teaching staff face challenges in accessing and using both printed and electronic resources, there is need to spend some energy towards this direction. A similar study should be undertaken to re-engineer IL programmes at the post-graduate level.

- **Teaching Staff**

There is need to focus research on teaching of IL programmes so as to find out their impact on students. It is also necessary to find out the most appropriate teaching methods and how these methods can be improved. Even the teaching programme should be evaluated regularly.

- **Visiting scholars and non-teaching staff**

University libraries have a responsibility of serving not only the key stakeholders but also other users like visiting scholars and other members of the community involved in serious research. Similarly such users should have an opportunity of accessing both printed and electronic resources. This can effectively be done if there is a formal curriculum geared towards meeting the expected needs of visiting scholars and the non-teaching staff.

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Information Seeking Behavior in the Academic Environment: A Study of Informal Sector Entrepreneurship in Lagos State

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Traditionally, the hallmark of academic environment has always been teaching and learning – for knowledge acquisition which is often characterized with information seeking and usage. A typical academic environment consists of researchers, students, non- academics and service providers otherwise known as informal sector. Regardless of career and ambition in life, human beings generally seek information to deal with challenges. Informal sectors as a group of people have information needs especially when they encounter work-related problem that can be resolved through valuable information. To this end, this study looked into the information needs, seeking behaviour, as well as impact of information and influence of academic environment on informal sector entrepreneurs. 3 higher institutions: University of Lagos, Yaba College of Technology and Federal College of Education (Technical), all in Lagos State, Nigeria constituted the study population. Descriptive survey design was adopted for the study. Stratified random sampling technique was used to draw sample across the strata from the 3 campuses. 60% of the total population constituted the sample size. 350 copies of the questionnaire were administered out of which 243 were properly filled and returned. The findings revealed that the informal sector like any other had information needs but depended more on verbal information sources than information repositories. Though respondents enjoyed doing business on campus because of security, there are challenges with sales of goods when students are on vacation. The findings also revealed that library and information centres within academic environments had no impact on information seeking behaviour of the informal sector. Recommendations were made on the way forward.

Keywords: Informal sector, information seeking behaviour, entrepreneurship, academic environment, Lagos State.

Introduction

The concept of information undoutedly appears over-flogged both in the academia and the secular world. The use of the word information has almost assumed a state of anomaly where nearly every innovation/advancement is tagged after information – information age, information explosion, information economy, information society, and so on. Perhaps this is because information has become indispensable in the overall development of the global society. Kemp (1976) cited in Madhusudhan (2008) concurs that information has been rated as the fifth need of man ranking after air, water, food, and shelter. Human beings generally use information in their day to day activities to meet a particular need or the other. What, then, is the meaning of this very popular and world acknowledged word – information?

The word information has been defined by various schools of thought as 'data that has been processed in such a way as to be meaningful to the person who receives it' (Riley, 2012); 'Knowledge derived from study, experience, or instruction' (The Free Dictionary, 2012);'that which can lead to an increase in understanding and decrease in uncertainty'(Business Dictionary, 2012); 'knowledge communicated or received concerning a particular fact or circumstance'(Random House College Dictionary, 1999). This is to mention a few. In the context of this study, information is seen as knowledge communicated verbally or orally to individuals and is used in decision-making.

Today, 'information has become a critical factor for political participation and social inclusion and the basis for competitiveness at the individual, organisational and national levels' (Babalola, Sodipe, Haliso & Odunlade, 2012).The implication of this assertion is that the urge to use a piece of information stems out of the user's need.

It arises as a consequence of a need perceived by the information user, who in order to satisfy it makes demand upon formal or informal sources or services, resulting in success or failure (Wilson, 1999).

Information needs vary (Odunsaya & Amusa 2003), depending on the purpose for which information is sought. In other words, the type of information needed and the purpose for which it is being sought determines the user's pattern of seeking. Information need is a requirement that drives people into information seeking. An information need evolves from an awareness of something missing, which necessitates the seeking of information that might contribute to understanding and meaning (Kuhlthau, 1993).

Three approaches to information seeking have been identified. These are:

1. The user-values [sic] approach which focuses on perception of utility and value of information systems;

2. The sense-making approach which examines the way people make sense of their worlds and how information is used in this process; and

3. The anomalous state-of-knowledge (ASK) which examines how people seek information concerning situation about which their knowledge is incomplete. (Hewins cited in Odusanya & Amusa, 2003).

Information seeking behaviour has been described as the way and manner people gather and seek for information for their personal use, knowledge updating and development (Ajiboye & Tella, 2007). In other words, information seeking behaviour principally encompasses how individuals scout round for information to meet a particular need irrespective of the source or sources of the information.
The concept of information seeking behaviour is not alien to the academic environment. Traditionally, the hallmark of academic environment has always been teaching and learning – for knowledge acquisition which is often characterized with information seeking and usage. A typical academic environment consists of the students, researchers, non- academics and other service providers such as the informal sector entrepreneur.

The informal sector entrepreneur comprises of individuals who engage in private initiative commercial business in a small scale depicted by little income for daily survival, with little or no capital for sustainability. Their jobs are not recognized as normal income services in which taxes are paid, hence they are informal. The concept of informal sector entrepreneurship is a multifarious, dynamic and social human behaviour that is common to human beings. It arises as a consequence of a need perceived by the information user, who in order to satisfy that need makes demand upon formal or informal sources or services, resulting in success or failure (Wilson, 1999). This implies that be it formal or informal sector, academics or non- academics, scholars or students, human beings generally seek information to deal with challenges.

Information plays a positive role in business success (Vaughan, 1997). Informal sector within the academic environment could be described as a business oriented sector whose survival largely depends on access to relevant information. Various kinds of information services can be provided to enhance this sector's activities. This includes a wide range of information, such as rent charges, better access to finance (credit facilities), impending business trainings and conferences, working conditions within the academic environment, and so on. However, study has established that this sector rely more on informal information sources than in their business operation (Vaughan, 1997).

Several theories of information seeking behaviour have been propounded and various models derived. This study is taking a cue from Thomas Wilson's second model of information seeking behaviour propounded in 1981 (Wilson, 1999). Wilson upholds that information need is a secondary need arising from a basic need and attempt to meet this need by information user may attract barriers of different kinds. The basic need as identified by Wilson may be categorised as physiological, cognitive or affective. This theory also holds that the context of any of these needs may the individual himself, his expected role as demanded by his work or life pattern, or his environment within which his life or work resides. This environment may be political, economic, technological and so on. The implication of this to the study is that the informal sector entrepreneurs have basic needs which they desire secondary information to address. In the context of this study, the basic need is perceived to be

economic and survival need especially in the face of the prevailing economic hardship and unemployment in the country. The desire to meet this need drives them into whatever business or service they render within the academic environment. To sustain their various businesses, they require secondary information that borders on issues such as type of business/service required within academic environments, how and where to acquire goods at cheaper rates, how to sell at cheaper prices than their counterparts, where to source for funds (loan), goods storage process, peak period of sales on campus, periods of low sales such as students vacation periods, what and where to sell within academic environments, and so on.

Here, a barrier may set in as a result of information literacy, language, illiteracy, semi-literacy and so on. The environment surely will have influence on the activities of this sector and that is why academic environment came into focus, where information resource centre is already in existence and would be ready to supply information based on users' needs and information seeking behaviour.

Entrepreneurship has been the back bone of most gigantic and growing economies of the 21st century. Any country that refuses to pay attention to enhancing her entrepreneurship sector would be left behind in the global economic development. This is because entrepreneurship is the dynamic process of creating incremental wealth by individuals who assume major risks in terms of equity, time and/or career commitment or provide value for some product or service (Hisrich, Peters & Shepherd, 2005). Sometimes, entrepreneurs are also employers of labour though at a lower level. Traditionally, Nigeria has always had more people employed in the informal sector. Perhaps what is changing is the increasing level of education of people now involved. Apparently, this concept has come to stay with us in Nigeria. Having centre (s) for entrepreneurship adorning our academic environments has become the order of the day, especially in our universities and polytechnics though they may have nothing to do with the category of service providers under study.

The influx of the informal sector entrepreneurs in Nigerian academic environment calls for concern. This may not be unconnected with the economic situation in the society. Though, the statute that sets up an academic environment did not stipulate any rule for this category of people, human sympathy may not allow them to be ejected from their source of livelihood. Lagos as the commercial nerve centre of the nation no doubt attracts more people than any other city in Nigeria. As a result, there is every tendency that campuses in this city may house more of this category of people than other academic environments in the nation.

More so, the informal sector entrepreneurs have been identified as contributing significantly to national economy in terms of output and employment even when their activities are difficult to measure, they are highly dynamic and contribute substantially to the general growth of the economy and personal or household income(Ekpo & Umoh, 2013).

This development is not peculiar to Nigeria. For instance, in Uganda, the Ministry of Planning Economic Development [MPED] cited in Ikoja-Odongo and Ocholla (2004) affirm that the informal sector is the main bulwark against unemployment, destitution and crime in that country. In Ghana, the informal sector is made up of about 90 percent of working population, it is characterised by ease entry of small scale operator, unregulated markets, reliance on indigenous resources and outdated technology" (Baah, 2007). The informal sector in Nigeria may be categorised into the following sub-sectors:- (i) Productive; (ii) Service; and (iii) Financial (Ekpo & Umoh, 2013).

The informal sector is influential on majority of entrepreneurs who recognise it as a sector for helping themselves in a number of ways including generating income for survival, fighting poverty and unemployment, saving themselves from shame for lack of self-support or gainful employment. Literature is replete with studies of informal sector entrepreneurs both locally and globally. However, none of these focused on academic environments. Hence this study aims at unravelling the pattern of information seeking by informal sector entrepreneurs in 3 academic environments in Lagos State, Nigeria.

To achieve the objectives of the study, the following research questions have been proposed:

1. What are the information needs of informal sector entrepreneurs in an academic environment?
2. What is the information seeking-behaviour of informal sector entrepreneurs in an academic environment?
3. How do informal sector entrepreneurs use information to aid the growth of their business?
4. What is the influence of academic environment on informal sector entrepreneurship?

Research Hypothesis

One null hypothesis was formulated for the study at 0.05 level of significance.

H_1 There is no significant relationship between information resources provided in academic environment and informal sector entrepreneurs' information seeking behaviour.

Limitations of the Study

The major limitation suffered by this study is lack of cooperation on the part of the respondents. Many of them were not willing to fill the questionnaire nor consent to the interview schedule. Their reason mainly was that their profit rate would be known in order to increase their rent. This affected the sample size for the study.

Methodology

The descriptive survey design was adopted for the study. Three (3) campuses consisting of a University (University of Lagos), a Polytechnic (Yaba College of Technology) and a College of Education (Federal College of Education Technical), all in Lagos State constituted the study population. 60% of the total population constituted the sample size. 350 copies of the questionnaire were administered using stratified random sampling technique to draw sample among the strata from the three (3) campuses.

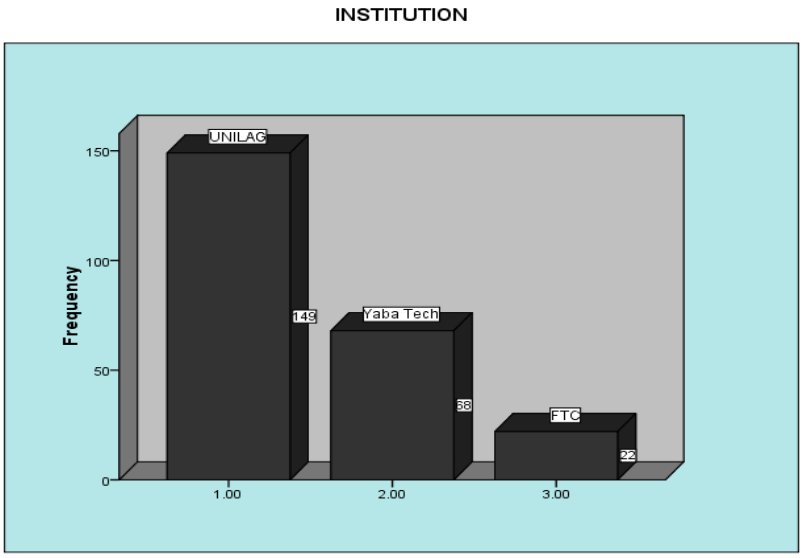
There are over 25 types of informal sector operating in the campuses under study. They ranged from food sellers to tailors, cobblers, telephone operators, private campus shuttles, hairdressers, shopping complex, and so on. To ensure that all of them were represented in the sample, stratified random sampling technique was adopted. 272 questionnaires were returned and 243 were found analysable. Data was analysed using descriptive statistics while null hypothesis was tested at 0.05 using Pearson's Product Moment Correlation (PPMC).

Results and Discussion

Three academic environments were sampled for the study and 243 respondents constituted the sample size.

Figure 1 presents the breakdown.

Figure 1Sampled Institution



From this figure, the tallest bar signifies number of respondents in University environment = 149 (62.3%) representing the highest category of informal sector entrepreneurs in the study. Next to this is Polytechnic category with 68 (28.5%) while the least is College of Education which has 22 (9.2%) of the respondents.

Table 1 gives the breakdown of the sex of respondents.

Table 1 Gender of respondents

Sex	Frequency	Percentage
Male	93	38.2
Female	150	61.8%
Total	245	100.00

Majority of the respondents are females as indicated in the table 1. This is not surprising owing to the fact that in many communities especially in this part of the world, women are more involved in the act of selling and buying.

Fig 2: Age distribution of respondents

As shown in figure 2, most of the people involved in informal sector entrepreneurship are youths. These are people who are vibrant and should be gainfully employed in public service. Perhaps poverty and state of unemployment in the country pushed them into this sector of the economy. This supports Ikoja-Odongo and

Ocholla (2004) who reiterated that the increase in the growth of the informal sector in Uganda is as a result of retrenchment in the public service, increase in the number of school drop-outs without formal employment, rural urban migration, and so on. This may be an indication that unemployment level is high in the country.

Information Needs of Informal Sector Entrepreneurs within Academic Environments

To answer objective number 1, table 2 presents the data analysis.

Table 2 Information needs of informal sector entrepreneurs

		SD (%)	D (%)	A (%)	SA (%)
1	I need information on the type of Business to do on campus	33 (13.5%)	70 (38.8%)	53 (21.8%)	79 (32.5%)
2	I need information on how to start Business on campus	34 (13.9%)	50 (20.5%)	70 (38.8%)	75 (30.8%)
3	I need information on the how to finance my Business.	17 (6.9%)	51 (20.9%)	80 (32.92)	70 (28.8%)
4	I need information on where my product will attract buyer best	13 (5.34)	53 (21.8%)	89 (36.6%)	74 (30.4%)
5	I need information on how to sustain my business on campus	5 (2.05%)	27 (11%)	113 (46.5%)	77 (31.6%)
6	I need information on how to make my business grow.	0 (0%)	19(7.8%)	94 (38.6)	107 (44%)
7	I need information on what the community frequently request for.	8 (3.2%)	21 (8.6%)	91 (37.4)	104 (42.7%)
8	I need information on how to attract more customers.	4 (1.6%)	14(5.7%)	108(44%)	121(49.7%)

Respondents were presented with variety of options for which they require information with regards to their businesses on campus in a likert scale of 4 namely: Agree = A; Strongly Agree = SA; Disagree = D; and Strongly Disagree = SD. From the table above, respondents' highest need of information is on how to attract more customers within the academic environments (49.7%), while another 42.7% affirmed they needed information to make their businesses grow. The lowest need as indicated on the table is use of information on how to finance business (28.8%). On the average, it is obvious that this group of people do have information needs for various purposes but all geared towards the growth and sustenance of their businesses. This finding supports Ikoja-Odongo and Ocholla (2008) who confirm that the informal sector entrepreneurs has information needs and use the information at macro levels.

Information Seeking Behavior of Informal Sector Entrepreneurs in Academic Environments

Table 3 gives the details of data for objective number 2.

Table 3: Strategy adopted by entrepreneurs in getting information

	ISB	**Freq**	**Percent**
1	I go to the library	8	3.2%
2	I check the notice board	17	6.9%
3	I seek from the media, e.g newsflash, radio, newspaper, etc	33	13.5%
4	I ask my business partners	72	29.6%
5	I ask Students	139	57.2%
6	I go to information Unit	15	6.1%
7	I attend Business training/seminars	10	4.1%

Table 3 revealed that students (57.2%) are the highest source of information to the group under study. Next to this is their business partners (29.6%) while library is the least consulted of the sources (3.2%). The reason for having students and business partners as highest sources of information may not be unconnected to the fact that less time and effort is spent to gather information from people than consulting information repositories (Robinson, 2010). However, their non-use of the library calls for concern. This is because majority of the group under study are youths which by implication are supposed to be literate. It is therefore assumed that the desire to obtain information regarding their businesses should drive them more to the library or other media than verbal sources of information (people) as it is being revealed in this study. The implication of this to the study is that the impact of the library and other information centres located within academic environments are not being felt by this group of people.

Use of Information by Informal Sector Entrepreneurs to aid Business Growth

Data obtained for objective number 3 is presented in table 4.

Table 4 Use of information for business growth

	Variable	**Freq.**	**Percent**
1	Guide on how to further develop my business	166	68.3%
2	Guide on how to control price of goods to be sold.	30	12.3%
3	Guide on how to get goods at cheaper rate.	31	12.7%
4	Helps me on how to obtain credit facility in sustaining my business	17	6.9%
5	Guide me on the choice of product to sell.	35	14.4%

Though table 4 revealed that respondents make use of information for variety of reasons, guiding them on how to further develop their businesses has the highest use (68.3%). Basically, all the purposes for which they use information are geared towards the growth of their businesses. This is not surprising since an average businessman will not only desire to make profit but to also sustain (develop) his business.

Influence of academic environment on informal sector entrepreneurship

Table 5 gives the details of data for objective 4.

Table 5 Influence of academic environment on ISE

No	**Contribution of academic environment**	**Frequency**	**%**
1	Contributes so much	158	65%
2	Contributes averagely	48	19.7%
3	Contributes not so much	20	8.2%
4	Does not contribute at all	4	1.6%

In table 5, 65% of respondents affirmed that academic environment has a great deal of positive influence on their businesses while only 1.6% indicated that the environment has no contribution whatsoever to their businesses. Influence as we know could be positive or negative. Having considered the positive influence of academic environment on this sector, challenges being faced by them were looked into and Table 6 presents the breakdown of their responses.

Challenges facing informal sector entrepreneurs within academic environments

Table 6: Challenges facing informal sector entrepreneurs

No	Challenges	Freq.	%
1	Students vacation	182	74%
2	My literacy level	105	43.2%
3	Campus price control affects my profit margin	48	19.75%
4	Arbitrary increase in shop rent by school authority	85	34.9%
5	Strike/students' unrest	133	54.7%

A high number (74%) of respondents indicated that their greatest challenge has to do with sales of their goods when students are on vacation while a few (19.75%) of them affirmed that campus price control affects their profit margin. Again, the latter is not surprising since observation has shown that an average human being has the tendency to exploit the other if allowed to do so. The campus price control is an attempt to ensure that the informal sector do not exploit the community where they carry out their businesses. Though this may not go down well with the sector, other benefits they enjoy like security, business relationship and so on are binding factors that may not let them quit the environment.

Relationship between Information Resources and Entrepreneurs' Information Seeking Behaviour

To answer the fifth objective which is the last, one null hypothesis was tested.

H_1 There is no significant relationship between information resources provided within academic environment and informal sector entrepreneurs' information seeking behaviour.

Table 7 Correlations

		Information Resources (1)	Information Seeking Behaviour (2)
IR	Pearson Correlation	1	.006
	Sig. (1-tailed)		.464
	N	236	236
ISB	Pearson Correlation	.006	1
	Sig. (1-tailed)	.464	
	N	236	236

One tail test at 0.05 significant level was carried out on the variables of information resources and informal sector entrepreneurs' information seeking behaviour as perceived in the study. The result of the test showed the 'r' value to be 0.006, meaning that there is no significant relationship between the two variables. The implication of this to the study is that the group under study does not depend on the information resources provided in the libraries within the academic environments where they sell. Therefore, the null hypothesis is accepted.

Conclusion

In conclusion, this study has revealed that the informal sector entrepreneurs need information to enable them thrive in their businesses. The study also established that the sector do not make use of information resources though they operate within academic environment where information is the life wire of all activities. The study lamented that despite the fact that majority of the group under study were youths who should be at the fore front of exploring information technology facilities to expand their businesses

amongst others, they depended more on verbal information. The sector needs skills as entrepreneurs in their various fields and it is obvious that these needs particularly information needs are not being met by library and information centres – the supposed information reservoir, situated within the environment they operate.

Recommendations

In view of the findings, the study recommends that this category of people should be made to see the benefit they can derive from the various information resources at their disposal. We are in the information age and since majority of them are youths who are supposed to be literate or semi-literate, they should be encouraged to interact with information resources (print and media) and even the internet in order to be updated about their businesses.

Also, libraries located within the academic environment should reach out to them through exhibitions targeted at their needs. This will not only create awareness about the type of information available in the library but also enable them to ask questions in their areas of businesses and as well obtain relevant information. Ideas will be exchanged at a such forum and different kinds of business information will be shared.

Services such as current awareness (CAS) and selective dissemination of information (SDI) where informal sectors areas of information needs will be identified and provided for should be encouraged by library and information professionals. This would bring relevant business information that may help in boosting their businesses and enhance a better service delivery.

Access to information on government policies and activities of other stakeholders that bothers on credit facilities to further develop their trade should be made available to them through the various information media.

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Privacy and public access: using Internet cafés in Zimbabwe

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People who use Internet cafés, like any other Internet users, risk the invasion of their personal privacy. This is because the Internet has become a 'field' for data mining. Evidence from empirical research on the nature of the threat to personal privacy faced by Internet café users when using the Internet in a developing country was not readily available; hence this study which sought to contribute in closing this gap. The study consisted of two sections. The first section, which was guided by an individualistic definition of privacy, involved a study of Internet café operators in the City of Bulawayo, where data was collected through interviews, and an analysis of websites of some of the institutional entities in Zimbabwe. Judgemental sampling was used in both instances. Qualitative data was collected and analysed on the basis of themes that emerged from the literature. The second section was a normative assessment for postulating the way forward for Internet-based services in Zimbabwe

The findings showed that, overall, the country was in transition, especially as evidenced by the state of the legislative regime. A data protection bill was at draft stage, and the Internet Service Providers (ISPs) did not seem to be adhering to the current legislation that required them to monitor transactions of Internet cafés; and at the same time, the Internet café operators reported that they were ignorant of the legislation that required them to observe the personal privacy of their patrons. Some of the Internet cafés had instituted measures to protect their computers and patrons while others had not bothered. The normative assessment concluded by recommending use of the communitarian position, utilitarian view and social contract theory in developing a society that respects the personal privacy of its citizens in a digital age.

Keywords: Internet privacy, Internet cafés, information ethics, Zimbabwe

Introduction

Internet cafés or cybercafés play an essential role in bridging the digital divide. They provide the general public with opportunities for both technological access and social access to the Internet (Kling cited by Bjørin, Stein & Fathul, 2005). Technological access involves the provision of physical access to information technology (IT) infrastructure, computer hardware and software; and social access refers to the "mix of professional knowledge, economic resources, and technical skills required for the use of ICTs" (Bjørin, Stein & Fathul 2005:6).

The role, extent of adoption and impact of the Internet café as a model of accessing the Internet and information by different social groups has been of interest to a number of researchers. Studies have sought, variously, to establish attributes of people who use Internet cafés, the nature of information services sought after from the Internet cafés as well as the empowering effect of Internet cafés in information access in different countries. Among these studies, Gomez (2012) provided a compilation of papers on public access to ICTs in various countries, internationally; Furuholt and Kristiansen (2007) undertook a comparison of Tanzania and Indonesia; Bjørin, Stein and Fathul (2005) focused on Indonesia and Sairosse and Mutula (2004) focused on Botswana. All such studies highlight the importance of Internet cafés in facilitating access to ICTs, information and digital communication; but many do not go further to illustrate the fact that Internet café service providers should shoulder the responsibility of protecting the rights to personal privacy of the consumers of their services when using the Internet in the service providers' Internet cafés. Studies on the Internet and privacy have mostly

focused at cyber democracy, where the Internet has been viewed as providing an alternative public sphere where the population could air its views without being subjected to the regulatory frameworks which were considered repressive in a face to face environment. Examples include Manganga (2012) who noted that "the Internet offered the possibility . . . [of an] electronic commons, a virtual public sphere" where individuals who wanted to articulate their political views freely could subvert legislation that led to reprisals by the state in Zimbabwe; and Wheeler (2007) who focused on how the Internet had allowed women in the Egyptian society, which was considered as conservative, to communicate with the outside world.

This paper, however, contends that issues of privacy and the Internet should extend further than privacy and freedom to communicate; and should include Internet privacy, that is, the privacy of the data and information which is generated by a computer in the course of someone transacting with Internet-based applications. Internet privacy has become an issue of concern because of the emergence of a "billion-dollar data collection industry devoted to obtaining personal data and leveraging it for consumer and professional purposes" (Bonadies ,2013); whose activities involve data mining by tracing and capturing data on "searches, browsing histories, and social media interactions to build comprehensive profiles that trigger targeted advertisements or content". These activities have brought serious privacy threats to Internet users. Highlighting the same concerns, Graham (1999) observed that although new technologies are presenting opportunities for massive production of digital information than could be done previously, this had raised a number of technical and social issues and is at a cost. "One possible cost is *privacy*" (Graham, 1999). For example, anyone who has ever used an Internet café to access their email in Bulawayo will tell you that the probability of attracting spam into one's email account and that of addresses in their address book are very high after using an Internet Café. The need, therefore, to establish the extent to which Internet Café service providers protect the Internet privacy of their clients.

Internet provision and Internet cafés in Zimbabwe

According to a report by the Zimbabwe Internet Service Providers Association (ZISPA), a coordinating body of ISPs in the country, a "significant number of Internet cafés had been opened in urban centres [in Zimbabwe] . . . and some were being overwhelmed by customers" (Internet World Stats, 2011), largely using them for education and entertainment. According to Chidzero (2012) Internet penetration through Internet cafés was 5% in 2011. Harare, the capital city of Zimbabwe, had over 30 Internet cafés rising from less than 20 in a space of 2 years. The number of people with access to the Internet was estimated at almost 1.5 million, 11.5% of the population, as at December 2011, having grown from 50,000, which was 0.3% of the population in 2000; and the number for Internet Service Providers (ISP) had increased from 6 in 2003 to 27 in 2011 (Internet World Stats, 2011). The popularity and growth of Internet cafés was attributed to the fact that they presented a relatively cheap means of communication compared to phoning and also to an increase in digital literacy among college students.

The major supplier of bandwidth to private ISPs in Zimbabwe is TelOne, a government-owned communications company. Government and parastatal organisations obtain their Internet services from the Government Internet Service Provider (GISP).

In Zimbabwe, the cyberspace is regulated by the Interception of Communication Act (ICA) enacted in August 2007. The act empowers Internet and telecommunications service providers to intercept and monitor communications during transmission through a telecommunication, postal or any other related system in the country, so as to identity content that is 'dangerous' and poses a security risk to the country. It also requires that ISPs install technology that does the interception, including its funding and maintenance and that the ISPs provide the information so harvested to the state. ICA also provides for the establishment of a telecommunications agency, the Monitoring and Interception of Communications Centre, whose duty is to supervise the work of all the telecommunications and postal services. The Bill has been the subject of parliamentary discussions in which it is seen as violating the country's constitution. The arguments being raised against the Bill are the same arguments that weakened the effectiveness of the Post and Telecommunications Act (2000) which preceded ICA, in regulating the cyberspace. The Post and Telecommunications Act (2000)

empowered the state to monitor email usage as well as online publications and required ISPs to supply the state with information that the ISPs would have harvested, when requested to do so. This was deemed a violation of the country's constitution in a Supreme Court ruling in 2004. After the ruling, the government instituted policy that required ISPs to renew their operating licenses with TelOne. The policy also stipulated that ISPs should report any emails that were a security risk (Manganga, 2012).

Personal privacy issues are regulated under the Access to Information and Protection of privacy Act (AIPPA) of 2002. AIPPA's aim is to "prevent unauthorised collection, use or disclosure of personal information by public bodies: to protect personal privacy, to provide for the regulation of the mass media, provide members of the public with a right of access to records and information held by public bodies and to make public bodies accountable by giving the public a right to request correction of misrepresented personal information" (Individual Privacy Drive, 2013). AIPPA also provides for the establishment of a Media Information Commission whose role is to promote freedom of expression and a responsible media (http://www.mediacommission.co.zw/).

The legislative frameworks above have been subjected to analyses. The conclusions were that the legislations were ill-equipped to deal with the protection of personal privacy when using the Internet and social networking platforms (Manganga, 2012).

Literature Review

Most authors contend that the definition of privacy is elusive (DeCew, 2012, Schafer, nd:1). As a result, different conceptions of the term abound in literature. In assessing the different conceptions, DeCew (2012) pointed out that the concept of privacy is rooted in philosophy and that the term has come to assume different meanings as the focus on privacy issues from different countries and contexts increase. As a way of understanding how the different conceptions of privacy treated privacy issues, he proposed dividing the conceptions into two main categories: reductionism and coherentism. In reductionism, privacy is seen as not important in its own right; but as an issue that is subsumed or implied in other concepts, for example, rights to property. Coherentism includes various privacy issues which exihibit something of fundamental and distinctive value, and coherence to privacy interests" (DeCew, 2012). The issues pertain to privacy and control over information about self, privacy and human dignity, privacy and intimacy, privacy and social relationships, privacy and restricted access, scope of privacy and privacy is relative

Assessing the different conceptions of privacy in literature also, Allmer (2011: 85) went on to call for a grounding of the conceptions in social theories because privacy is a social construct. This, he said, would provide the different conceptions with a theoretical base, which was lacking in the current definitions. He suggested grouping the definitions along the categories of social theories proposed by Fuchs (cited by Allmer, 2011: 85). The categories were based on how the theories "deal with the relationships of social structures and social action" (Allmer, 2011:85). He came up with three groups of approaches to conceiving privacy: individualistic approaches, structuralistic approaches and the integrative approaches that combined the individualistic and structuralistic approaches.

The individualistic approaches group was based on individualistic and subjectivistic social theories which view society as being constituted by social actors and do not highlight social constraints to the action of the actors. The approaches to the conception of privacy in this group were seen as descriptive, that is, they were value neutral (Schafer, nd:5). They describe the situation as is and the factors that may need to be taken into consideration. The conceptions view privacy in terms of control of information by the owners, persons or groups, of the information such that these owners are able to determine the parameters within which the information about them can be shared, and external influence is seen as invasion of privacy. Summing up the characteristics of the individualistic approaches, Allmer (2011: 90-91) noted that the approaches:

> ... focus on the individual and understand privacy as control over information about oneself. They assume that privacy is a personal interest, or/and privacy includes the freedom from external interference in one's personal choices, decisions, and plans, or/and the degree of personal choice

> indicates how much privacy an individual has, or/and restrictions of privacy are losses, or/and privacy should be defined in a descriptive way, or/and full privacy is reached as long as the individual is able to choose which personalities should be disclosed.

The second group, the structuralistic approaches group, consist of conceptions that are based on normative principles. Their focus is on what ought to be done and not what is being done. Privacy is seen as an inalienable right which ought to be protected by law, and not an issue of individual choices. A person loses their privacy when someone else gets information about them, thus privacy denotes restricted access to an individual's personal information. Total privacy is achieved only when there is total absence of contact with other social actors. Summing up, Allmer (2011) noted that among the structuralistic definitions, privacy is:

> ... a specific social structure, a moral or legal right, which is used to enable someone's ability to limit or restrict others from access to persons or information.

The third group, integrative approaches, according to Allmer (2011: 92), is made up of those approaches that include both the need for protecting the people from external interference; that is, providing protection and at the same time letting the people make their personal choices. Example of authors in this group include Moor (1990; 1997) and Tavani and Moor (2001) with the Restricted Access/Limited Control (RALC) theory of privacy. The theory proposes the aspect of restricted access through the setting up of zones which individuals can use to control or limit access to their information by others, and the importance of individuals' management of their privacy. Highlighting the double nature of the integrative-based definitions of privacy, Allmer (2011: 92) pointed out that:

> On the one hand, these concepts recognize the constraining effects of social structures, which restrict the individual control over information. On the other hand, they also consider the individual role of control and choice, which is also required for having privacy. Integrative notions take into account that having full control over personal information cannot be reached, but that individuals can limit or restrict their access because they are able to control the flow of personal information to a certain extent.

Allmer (2011: 93) indicated that there were some authors who questioned the whole idea of the concept of privacy. Among them are liberal thinkers who advance the notion of private property in the conception of privacy and the 'commodification' of privacy.

This paper assumes an integrative approach. It uses Clarke's (2006) definition and his notion of the digital persona to assess the operations of Internet cafés as well as websites of some of the institutional entities in the country, and adopts a normative approach for postulating the way forward for the provision of Internet-based services in Zimbabwe. This is done in the discussion section.

Clarke (2006) defined privacy as "the interest that individuals have in sustaining a 'personal space', free from interference by other people and organisations". In the notion of the digital persona, Clarke posited that controlling someone's personal information is tantamount to controlling an aspect of identity which that person portrays to the world; thus, the right to privacy "is the freedom from unreasonable constraints on the construction of own identity" (Agree and Rotenberg, 1997). In this perspective, privacy is viewed as going beyond the right to secrecy or seclusion, but that people construct their identities by selecting the personal information that they want to reveal through negotiating boundaries on the basis of a tacit moral code. This, according to Goffman means that "personal identity is not a static collection of attributes but a dynamic, relational process" (cited by Agree and Rotenberg, 1997). In sum, Clarke observed that, privacy issues centre on mechanisms that are used by people to "define themselves and conduct their relationships with one another . . . [that] comprise technologies, customs, and laws, and their reliability and fairness are necessary conditions of a just social order" (Agree and Rotenberg, 1997). Some of these mechanisms are what have been used to create a framework that has informed the first section of this study.

Importance of privacy

A number of authors have written on the importance of privacy. However, Clarke (2006) has succinctly grouped the issues under five perspectives: philosophical, psychological, sociological, economicall and political. He noted that philosophically, human beings are "very important for their own sake"' and that it is on this basis that the notions of human dignity and integrity as well as individual autonomy and self-determination are considered important.

Psychologically, people need private space, be it in public or in private surroundings. This is evidenced by the fact that people tend to look around to see who is seeing them before engaging in particular behaviours.

Sociologically, Clarke (2006) noted that people should be free to behave and associate with others under the guidance of their social norms. They do not require "continual threat of being observed" (Clarke , 2006).

Economically, innovators perform best when they know that they are not under surveillance. Thus, they need private space where they can freely try-out their ideas. This is supported by Lewis (2011) who saw privacy on the Internet as providing such a space.

Politically, people need to freely share their ideas and to live freely. Surveillance is contrary to democratic ideals, it stifles intellectual freedom.

Invasion of Internet privacy

Surveillance

Surveillance involves monitoring the behaviour of persons for purposes of collecting data, mostly, without the knowledge or permission of the persons. When the surveillance is limited to collecting data without monitoring the person, Clarke (1994) refers to it as dataveillance.

Commenting on surveillance, Samarajiva (1994) noted that surveillance is aimed to reduce uncertainty and increase control to the one conducting the surveillance. For a commercial entity, some of the push factors for surveillance include mass customisation in which information is required for marketing processes as well as production decision making. Surveillance threatens the privacy of the surveilled persons. This is largely because the information collected about the persons may be manipulated with a "view to controlling their behaviours . . . the relative permanence of such records, and the relative distance between the data manipulators and customers or data subjects places the customer at a disadvantage in these relationships" (Samarajiva, 1994).

Surveillance can take place in a variety of environments. Some such environments include social media platforms which have become important because of their ability to support interactivity. Thus, someone undertaking a surveillance could visit platforms used by persons they are interested in so as to establish what the persons could have posted online. Bonadies (2013) noted that employees' private activities on social media platforms were becoming of interest to their employers because digital activities of employees can be used as a reflection of the nature of a company. As a result, employers can collect personal sensitive data about their current or prospective employees in online environments which can "help them identify character flaws or negative personality traits . . . but it also can result in privacy invasions". He added, the worry is not about being tracked which is similar to unobstrusive observation in data collection, but when the harvested information is used to build a profile of who the person is and what they were doing, it then become an issue of invasion of the privacy of the employee.

Cyber terrorism and national security

Governments the world over are involved in surveillance programmes. Federal Bureau of Investigation's (FBI) Carnivore programme was originally developed to find cyber terrorists; but when it was in operation, it gathered data on anyone who logged on to the Internet. It thus, ended up collecting information about everyone including

those who were not terrorists. Carnivore was superseded by PRISM, which according to Snowden, the United State was using to hack into China's database (Pempel, 2013).

Cybersecurity initiatives are inevitable, observed Lewis (2011). He said that it was the "differing views of authority, economics and the role of government [that] explain why cybersecurity initiatives so often meet with opposition from the privacy community". He added that, at a national level, a reduction of privacy did not necessarily mean loss of civil liberties where freedom of speech is protected. He also pointed out that online surveillance presents nothing out of the ordinary because people have traditionally been sharing information, though not that widely because it was expensive in terms of time and money. What the Internet has done, is changing the economics of information sharing, it has reduced the costs. He recommended an increase in individual control on the use of data than stopping the harvesting of the data altogether.

Computer hackers and crackers

Brey (2007) said that hackers and crackers are typically highly skilled people who break into computers for "malicious purposes: to steal information and software or to corrupt data or disrupt system operations" (p. 26). He added that some hackers justify their behaviour in that it enables the sharing of data and exposes the weakness of the system broken into. Such hackers are an organised group with a code of ethics whose principles "include convictions that information should be free, that access to computers should be unlimited and total, and that activities in cyberspace cannot do harm in the real world" (Brey, 2007:26-27). He went on to describe the different types of hacking that can be done as: cybertrespass, cybervandalism, cyberpiracy and cyberfraud. Cybertrespass happens when someone breaks into a computer system or password protected websites; cybervandalism is when someone releases malicious programmes that corrupt data on a computer network; cyberpiracy refers to as software piracy, it involves reproducing and distributing proprietary software and cyberfraud is identity theft. Cyberfraud happens when a person uses another person's identity or a false identity as his own in an online transaction.

Fake online researchers

The issue of fake online researchers can also pose a threat to Internet users. These 'researchers' would collect data purporting to be conducting 'innocent' research, but end up using the collected data for other purposes.

Pop-up advertisements on the screen with the users name and spam

This includes unsolicited communication that is received by an online user. The communication can be a nonsense. It is confirmation that there is no privacy on the Internet.

Possible solutions

Solutions have been devised to help curtail some of the threats mentioned above. The solutions can be social or technical. Social solutions pertain largely to regulations and legislation on how to observe personal privacy, be it in a company or the whole country. Technical solutions involve using Privacy Enhancing Technologies on the computer to stop the tracking cookies from harvesting ones' data. This, however, is possible where one owns the computer equipment, and not when one is depending on computers in an Internet café. Hence, the question of this study: what are the social factors on Internet privacy that affect Internet café service providers in Bulawayo, Zimbabwe, and how do they protect their clients from Internet privacy threats?

Methodology

The study was qualitative and descriptive. Data was collected through interviewing some of the Internet café service providers in Bulawayo and analysis of websites of some of the institutional entities in the country. The people who were interviewed were those whom the researchers were permitted to talk to. It was assumed that these were the supervisors, and not necessarily the owners. Study units were sampled using the judgemental method for the websites and the judgemental and snowball methods for the Internet cafés. Sixteen Internet cafés and twelve websites were visited. Visits to the Internet cafés were undertaken during May to June 2013 and coincided with the country's preparations for an election at the end of July 2013. As a result, interviews were

not readily granted as most of the respondents suspected the researchers to be government agents. Where possible, the data collected was validated through documentary evidence.

Analysis of data from the interview was based on the following themes:
Social issues - service provider perspectives

- Awareness of Internet patrons' rights to privacy and business acumen.
- Awareness and observation of regulatory frameworks that guide operations of Internet cafés and patrons' privacy.
- Influence of other players in the Internet café industry and business acumen.

Technical issues - operations undertaken

- Computer operations undertaken to ensure inaccessibility of data on users by other patrons, for example use of privacy enhancing technologies
- User training on behaviour that enhance maintenance of one's privacy when working online.
- Physical protection of patrons.
- Signage and posters to alert patrons of the importance of maintaining their privacy when working online.

Findings

The findings are presented in two main sections. The first covers responses from the interviews conducted at Internet cafés and the second part is an observation of how some of the institutions, organisations and business entities, based in Zimbabwe have catered for personal privacy issues for their online clients and visitors.

Responses from the Internet cafés

Social issues - service provider perspectives

Awareness of patrons' right to privacy and business acumen

A number of the respondents were aware of the need to maintain the privacy of clients, but not necessarily because it was a client's right to have privacy when working online, but as good business and work practice.

Three respondents indicated that it was their understanding that patrons were responsible for ensuring their own privacy. Two of these respondents reported that patrons had complained of their email accounts always getting hacked each time the patrons used computers at these specific Internet cafés. However, the respondents had not been able to do much after the complaints to reverse the situation.

Awareness and observation of regulatory frameworks

None of the respondents spoken to indicated that they were cognisant of ICA or any regulatory framework that required them to ensure the privacy of their clients. It was only in one instance where the respondent indicated that they were aware that their ISP can intercept communication passing through its equipment, but did not offer their opinion on the implications of this to the Internet café patrons. However, as mentioned before, respondents may not have felt free to criticise the government since they assumed that the researchers were government agents.

Influence of other players in the Internet café industry and business acumen

The researchers were not able to establish from the respondents the existence of an association of Internet café service providers. None of the respondents said that they knew of such a body.

Technical issues - operations undertaken

Privacy enhancing activities

One of the techniques used to ensure privacy and security was to install Deep Freeze software on the network. Eleven of the respondents reported using this software, which was described as useful in eliminating

"workstation damage and downtime by creating a "frozen" snapshot of a workstation's configuration and settings" every time that the computer is restarted (Faronics, 2013). The 'frozen' state means that the computer was restored to its original state, that is, any changes which may have happened to the computer when it was in use are rendered ineffective, including all the history of patrons who would have been using the computer. "User and application data are re-directed to a thawed (unprotected) partition or drive enabling users to store data while still enjoying total system consistency" (Faronics, 2013). According to the respondents, Deep Freeze helped them maintain the integrity of their computers as a way of protecting both the computers and the patrons. In six of the cases, computers would automatically log-off after 5 minutes of the expiry of a patron's booking time, activating the software. The patrons would have been sent pop-up messages to inform them of the time remaining before expiry of their booking. Two respondents said that they activated the software when they log-off their computers at the end of business each day.

Another privacy and security measure undertaken was to install a Virtual Protection Network (VNP). One respondent who was specific on the issue said that they had installed Avast VNP. VPN technologies protect data on the web by using "advanced encryption protocols and secure tunneling techniques to encapsulate all online data transfers" (Faronics, 2013).

Firewalls were another technology used. These protected data while on the computer**.** Three respondents said that they used firewalls to protect their machines and clients from possible hackers, prevent spam from other networks and also from websites that were a threat to security. Firewalls were essential because most of the respondents used pirated software which left their equipment with 'cracks', thus insecure.

Antivirus software was used by all. It helped them to detect and remove malicious software, malware. They opted for free brands, with the popular being Avast, Avira and Nod34.

In addition to the some of the technologies mentioned above, some of the respondents whose machines did not automatically log-out said that they sent pop-up messages to inform patrons that their time was about to expire and should start logging out. Where the patrons failed to do so within the stipulated time, they gave the patron a few more minutes, only to log-out; and in cases where patrons walked out without closing their accounts, the respondents did the logging out to "clear the digital footprints' as said by one respondent, before assigning a new patron at a workstation.

Viewing what a patron was doing by the service provider also emerged as another privacy concern. In one instance, the respondent said that they had set-up their network in such a way that the network administrator would only see the nodes that were active from the server and not what the patrons would be working on at their nodes. This was in contrast to another respondent who said that the network administrator was able to see what was happening on the nodes of patrons. This was important for them because they did not allow patrons to visit pornographic sites, thus were able to monitor this way.

Another security and privacy measure promoted at one Internet café was to encourage patrons to bring and use their laptops to the café. In such cases, the charges to the patrons were only for Internet use and not use of the venue, which made the rates very attractive. Such an initiative worked only where there was wireless connection to the Internet.

User training on privacy maintenance

The entire Internet cafés visited never took time to explain the importance of privacy to their clients, because no one saw it is an important issue. The training that was given involved largely computer literacy skills to patrons who would have requested for the assistance.

Physical protection of patrons

Physical protection was also provided in some cases. This included shielding workstations in separate booths. The partitions were however of different heights, and at times did not provide adequate shielding in that it would

be possible for other people to peep and see the computer screen in an adjacent booth while someone was working on a computer.

Physical protection measures also included, in one instance, the adoption of a 'one person per computer' policy. This way, the computer technicians would easily pick-out people who may be snooping around. At the Internet café where they had this policy, they did not allow even the technician to stand behind a patron who was working at a workstation, unless if the patron would have requested for the technician's assistance.

Signage and posters

All the places visited did not have signages on the importance of maintaining online privacy.

Organisations and business entities: Internet privacy observations

Web presence has become a norm for organisations, companies and individuals in Zimbabwe, as is the trend the world over. This is largely aimed to facilitate sustained contact with stakeholders. An online search indicated that ISPs and organisations in Zimbabwe with a web presence have privacy policies. Entities visited ranged from online newspapers that include the state run newspapers like the Herald and Chronicle and privately run like the Financial Gazette, the Southern eye, to banks, commercial companies, embassies, industrial concerns, as well as personal entities like individual blogs and social networking and email accounts.

An example of an entity with a privacy policy is an ISP Utande (http://www.utande.co.zw/privacy-policy). The policy outlines the nature of information that the entity collects from Internet users who visit their site. They also state how they use the information and give the users the option to be anonymous. While the initiative by the organisation is commendable, one wonders how easy it would be for a common man on the street, whose privacy has been violated by one such organisation, to get adequate compensation when there is no law in the country that directly addresses grievances of such a nature.

Trends in the global marketing sector are also being felt in Zimbabwe as Internet-based companies whose sole purpose is online mining and harvesting of personal data for advertising and marketing are setting-up shop. An example of such a company is Icono Global Zimbabwe (http://www.iconoglobal.com/). The company states in its privacy policy the nature of data it collects, how it collects and uses it, protects it as well as how the user's personal rights are observed. Another example is the Marketers Association of Zimbabwe (2012). The organisation also states that its web visitors have the freedom choose between letting the organisation collect information about them or not, and that it uses the information so collected to customise its various service. It goes further in offering promotions and attractions which would make the visitors continue to use the site.

Actions stated in the personal privacy policies of the entities studied may be taken to mean that the entities are cognisant of the importance of observing the personal privacy of their clients. There, however, is need for a legislative framework that these entities can answer to. Otherwise, all that the entities may purport to do might actually be impossible to implement when the need arises.

The assessment above is confined within a physical boundary. However, it is important to note that when the public in Zimbabwe engage with the Internet, they become partakers in online activities taking place the world over. The implications are that concerns for Internet personal privacy cannot be confined to geographical boundaries.

Discussion

The findings above indicate a lassie-faire attitude with respect to the observation of online privacy by Internet cafés service providers in Bulawayo. This could be explained by the fact that the Internet phenomenon is, by and large, recent in the country to the generality of the population and thus, the implications of online privacy are not yet widely known. However, as part of the global village and as users of the Internet, it is imperative that

Zimbabwe understands online privacy threats. An assessment of the experiences that Zimbabwe is going through in the development of legislation that adequately addresses personal privacy issues is similar to what Graham (1999) said happened in the United Stated (US). He pointed out that in the US information started being treated as an asset during the 1960s when computers began to be used to archive lots of data, both personal and governmental. The data became state property and was not accessible to the public. This was followed by public disgruntlement leading to the enactment of freedom of information legislation that gave the public access to government and corporate information, but made provisions to restrict access to sensitive information that included state secrets. Public concerns were, however, raised on the possibility of misuse of personal information under a freedom of information legislation because the legislation was not explicit about the invasion of privacy because it did not say how the personal data collected would be used. The solution was the enactment of data or privacy protection legislation. Reflecting this scenario on Zimbabwe, the freedom of information legislation tallies with AIPPA in a face to face environment, and ICA for a virtual environment. These pieces of legislation can be said to have failed to protect personal privacy, but have managed to help protect state security as shown by public disgruntlement associated with the legislation (Manganga, 2012). The government has seen this shortfall and has issued a draft Data Protection Bill. The proposed Bill provides for the establishment of an independent body, the Data Protection Authority of Zimbabwe, to administer the Bill when it becomes law. The proposed Bill makes provision for how personal data should be collected, processed and the quality maintained as well as used.

The issue of protecting personal privacy is not as straight forward as narrated above, but presents an ethical dilemma which the Zimbabwean public should address. The dilemma arises from the need to balance requirements for personal privacy and at the same time ensure the maintenance of national security. Snowden's leak of PRISM, a National Security Agent's surveillance programme, has raised global debate about the topic, an indication of the importance of the issue to, literally, all governments in the world (world.org).

The issue of personal privacy and national security has been of interest to a number of authors. Some of the authors and advocates for personal privacy have tended to take a rights perspective (Senges & Horner, 2009; Lewis, 2011), communitarian position and others have grounded their arguments on ethical theories (Lee 2012). The rights perspective is premised on the range of rights bestowed on citizens whose governments are signatories to the Universal Declaration of Human Rights (UDHR) (1948). Article 12 of the UDHR states that: "No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks" (UNESCO, 2010). According to the rights perspective, surveillance of persons by the state, even for security reasons, is a violations of someone's right to privacy.

The rights perspective seems to be countered by the communitarian position (Communitarian Network, 1999). Communitarianism broadly, advocates for society to formulate a common understanding of the concept of good by involving all members in the society. This is because different people's conceptions can never be universal, such that what some might consider to be for the common good may not necessarily be considered so by others, hence the need to foster a common ground that society would strive for. According to this view, if society agrees that surveillance is essential for everyone's security, it therefore should be done.

The other approach taken in literature was to use ethical theories. The theories which have been found to be useful in resolving the personal privacy vs security dilemma include the social contract ethics, deontological ethics and consequentialist ethics, specifically utilitarianism theories (Lee, 2012). Social contract ethics which are based on the social contract theory state that humans, because of their *state of nature* will naturally fight for self-preservation and to promote self-interest. However, in society they get into a social contract in which they agree to forfeit their personal freedom so as to promote the safety and well-being of all. This contract forms the basis of their government. From this point of view, argues Lee (2012), "rational people would agree to monitoring . . . even if it compromises his privacy". One can therefore say that social contract ethics supports state surveillance for security purposes.

Deontological ethics are duty-based. The view, based on Kant, is that duty is an absolute obligation and should be undertaken by everyone in the same way and that the only good thing in itself is good will and a person's will determines the morality of an act as opposed to the outcome. The theory further states that there are hypothetical and unconditional or categorical commands or imperatives. Hypothetical imperatives apply to the 'if . . . then situations' and categorical imperatives are based on rules which must be obeyed by all, and should never be violated. Categorical imperatives are centred on the fact that 'what is right is right'. Thus, on the basis of categorical imperatives, surveillance and monitoring is wrong, irrespective of the outcome of the act.

A different view that takes into account the outcome of a behaviour is the utilitarian view, which posits that the best course of action is that which maximises the goodness of the outcome of the action. In rule utilitarianism, all rules and regulations whose outcomes give benefits that outweigh the harm that may result from applying the rules should be preferred. Basing on this view, state surveillance is preferred, although it compromises personal privacy

Conclusion

From the above discussion, it can be concluded that Zimbabwe is yet to resolve its issues on personal privacy vs national security debate. Internet cafés are as important stakeholder in this debate. It is recommended that Zimbabweans make use of the communitarian position, utilitarian view and social contract theory in developing a society that respects the personal privacy of its citizens in a digital era. Further research can focus on the public, by strata, to gather their views and at the same time create a consciousness of privacy issues.

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Challenges of Access and Use of University Library Services in Uganda: Some Ethical Considerations.

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The paper is a reflection of the second chapter of the author's doctoral thesis which is in progress. It contextualizes the study in Uganda by providing some background information on the geographical location, list of the university libraries, and information and communication technology in the country. The paper points out the university library and information services in Uganda specifically mentioning some services that are being provided to the users. It should be noted however that the scope of modern library services is quite extensive and diverse. The paper therefore concentrates on the information services that help users identify, locate, access and retrieve information resources, leaving out the ancillary library services. Challenges of access and use of university library information services and resources are discussed and at the same time underlining some ethical considerations that are pertinent to the study.The libraries have to consider the fact that their user communities are increasingly becoming heterogeneous in composition due to the trends in the system of education which institutions of higher learning have adopted in the 21st century. Institutions have regular, part time, evening students some of whom residing within the campus and others commuting from outside the campus (Lebowitz, 1997; Adeogun, 2008). The same situation applies to the faculty members. The libraries therefore have to ensure that none of their targeted users is denied access to the information services and resources while at the same time putting measures in place to prevent users from misusing the services and resources.

Keywords: University libraries, Uganda, information ethics

1. Introduction and Context

In order for the readers to comprehend the relevance of the issues being discussed, the circumstances surrounding the subject matter should be highlighted. This calls for brief information on the geographical location of the country, number of university libraries, and ICT infrastructure to enable the reader to conceptualize the deliberations on the provision of library and information services and some related ethical issues.

The country is bordering with Sudan in the north, Kenya in the east, Tanzania in the south, Rwanda in the southwest and by Democratic Republic of Congo in the west as illustrated below:

Map of Uganda (Country fact, 2011:9).

Public and private university libraries in Uganda.

There are six public and twenty five private university libraries accredited as such in the country. They are all totaling to thirty one recognized universities each university with a university library. Below is the list of accredited and recognized universities in the country (Country fact sheet Uganda, 2011: 37-38).

Table 1: Public Universities in Uganda

No	Name of institution	Founding body	District	Commencement Date
1	Makerere University	Government	Kampala	1922
2	Makerere University Business School	Government	Kampala	
3	Mbarara University of Science and Technology	Government	Mbarara	1989
4	Gulu University	Government	Gulu	2002
5	Kyambogo University	Government	Kampala	2002
6	Busitema University	Government	Busia	2007

Table 2: Private Universities in Uganda

No	Name of Institution	Founding Body	District	Commencement Date
1	Islamic University in Uganda	Organization of Islamic Conference	Mbale	1988
2	Ndejje University	Church of Uganda	Luwero	1992
3	Uganda Martyrs University	Catholic Church	Mpigi	1993
4	Bugema University	Adventist Church	Luwero	1994
5	Busoga University	Church of Uganda	Iganga	1999
6	Nkumba University	Private	Wakiso	1999
7	Uganda Christian University	Church of Uganda	Mukono	1997
8	Kampala University	Private	Kampala	2000
9	Kampala International University	Private	Kampala	2001
10	Aga Khan University	Private	Kampala	2001
11	Kumi University	Private	Kumi	2004
12	Kabale University	Private	Kabale	2005
13	Mountains of the Moon University	Private	Kabarole	2005
14	African Bible College	Private	Wakiso	2005
15	Uganda Pentecostal University	Private	Kabarole	2005
16	Fairland University	Private	Jinja	2005
17	Bishop Stuart University	Private	Mbarara	2006
18	St. Lawrence University	Private	Kampala	2007
19	Lugazi University	Private	Mukono	2007
20	Muteesa Royal University	Private	Kampala	2007

21	All Saints University, Lango	Private	Lira	2008
22	International Health Sciences University	Private	Kampala	2008
23	African Rural University	Private	Kibaale	2011
24	Islamic Call University	Private	Kampala	2011
25	Livingstone International University	Private	Mbaale	2011

ICT infrastructure in the country.

Considering the country as whole, the Government still has a lot to put in place in terms of information and communication technology infrastructure. It should be noted that ICT is conventionally accepted as a short form of the term "information and communication technology" (Mohanty, 2011). In order for Uganda to steadily progress in improving its ICT infrastructure, the Government has to ensure that all people in their geographical locations benefit from the national electricity network. Currently the highest concentration of the country's electricity network is within urban areas leaving most of the rural areas marginalized with less or no access to electricity (Rural, 2012; Uganda, n.d). However it is observed that plans are being worked out which will eventually enable all regions in the country access the national electricity network (Rural, 2012).

Mohanty (2011) defines ICTs as "a diverse set of technological tools and resources used to communicate, and create, disseminate, store, and manage information". As a way of demonstrating the importance of ICTs, it was pointed out during the United Nations meeting that equitable distribution of ICT infrastructure in any country, should be adopted as one of the development goals which are to be realized by or after 2015 (Bates-Eamer; Carin; Lee; Lim; & Kapila, 2012). Uganda has put in place a framework that is supposed to regulate the distribution of ICT infrastructure countrywide to ensure that all people can access ICT based services in urban areas as well as in rural areas (The Republic of Uganda, 2003). For the purposes of clarification, ICTs encompasses "computers; internet; broadcasting technologies (radio and television); and telephony" (Mohanty, 2011: para. 1).

It is observed that the ICT based services in the country until the year of 1996, were mostly accessible by people in urban areas as compared to the access opportunities that were available to the people in rural areas. Gradually however the ICT infrastructure country wide started improving in terms of telephone services; internet based services; and broadcasting services. With regard to telephone services, more telephone providers have augmented the sector with their provision of mobile phone services bringing the services more accessible to the people. With regard to the internet based services, more internet service providers get authorized to provide the services within the country. The providers under the auspices of the government are strategizing on how to make the internet based services affordable for all the people in urban and rural areas.

University Library and information services in Uganda.

Public and private university libraries in Uganda provide the students and staff with both print and electronic information resources. However according to Musoke and Kinengyere (2008), since the time libraries opted for incorporating information and communication technologies in their operations, most of them are aggressively acquiring electronic information resources and are less aggressive in acquiring print resources. Below are some of the electronic information services being provided by university libraries to address the information needs of their users:

Library websites

Libraries worldwide are now creating their websites to serve as an information service virtual platform from which the targeted users can proceed identifying any kind of information that has been put in place for accessing purposes (Fang, 2007). In Uganda however, websites of the recognised public and private universities indicate that a few libraries have already created their websites whereas the majority have not yet done so. Some of the libraries with websites have put in place an interface that facilitates users' search for available information resources from a single search location without switching from one database to another especially in terms of e-books and electronic journals databases. The interface saves the users from being subjected to various uernames and passwords which would have been the case if they were to navigate from database to database (www.mulib.mak.ac.ug; www.kiu.ac.ug/library/; www.umu.ac.ug).

Online public access catalog (OPAC) service

Madhusudhan and Aggarwal (2011) rigtly demonstrate that library catalogues play an important role in helping users to identify access and retrieve information from the varieties of information resources of the library. Due to the influence of the information communication technolgies, libraries have transformed their catalogues into online catalogues conventionally known as online public access catalogue (OPAC). A number of university libraries in Uganda provide online public access catalogue services to their users. In some libraries, the OPACs are web-based enebling users to access the library information resources from any geographical locations. In some libraries however, the OPACs are not web based providing accessibility to the users either within the library in question or within the university premises. By implication, the intra-based OPACs inconvenience the off-campus users in the sense that they are denied of their right to access the information resources through the catalogue services.

Indexing services

University libraries manage their information resources differently as they strive to satisfy the information needs of their users. Some libraries therefore may decide to index some resources of their choice to facilitate their retrieval and use by their targeted user group. Indexing service can be defined as a "service that indexes the contents of a number of publications for use in printed or machine-readable form" (Indexing, 2013).

According to Makerere university medical library website (Welcome to the Albert ,2011), the library has put in place an indexing service to facilitate users' search for information resources particularly in the medical field. The scope of coverage is limited to information resources which are unpublished provided they are authored within Uganda focusing on health related issues of the country. The library submits its compiled index work to the African Regional office of the World Health Organization located in Congo- Brazzaville to facilitate its inclusion in a major database known as African Index Medicus: access to African health information. The database is available online and can be searched by keyword, subject, author, and title (Olot, interviewed, 2013).

Digitization services

The service covers all types of information resources which are in analogue format. It can be defined "as a complete process that broadly includes: selection, assessment, prioritization, project management and tracking, preparation of originals for digitization, metadata collection and creation, digitizing, quality management, data collection and management, submission of digital resources to delivery systems and into a repository environment, and assessment and evaluation of the digitization effort" (Digitization, 2009).

According to Tibenderana and Ogao (2008), some university libraries in Uganda have already started digitizing some of their information resources to help students and staff to identify and retrieve the resources in question for research purposes (Tibenderana & Ogao, 2008). The literature available to the researcher is silent on the

specific materials that are being digitized in various libraries and even how they are being searched by the users. However, by using its website Makerere university library demonstrates how the users can access its digitized resources by instructing them to visit the university's digital repository which is operating on the Dspace software. The users can search the digital repository database using various access points such as "issue date; authors; titles; and subjects". It should be noted as well that the users can access and retrieve a full text document or article from the database (Library, 2013).

CD-ROM databases services

In a full wording, CD-ROM is a short form of "compact disc-read-only memory" (Bhatnagar, 2004:112). By being read only products, the information that is available on the CD-ROMs cannot be altered since it is permanently stored. During her doctoral study, Tibenderana (2010) noted that a number of university libraries in Uganda were providing CD-ROM databases services to their users. The literature available to the researcher does not divulge information on how the CD-ROM services are being managed in the university libraries concerned nor do they illustrate how the users access and search the CD-ROMs that have been put in place for them to use. Whichever the case, a user accessing CD-ROMs that provide indexes or abstracts, he/she will be directed to the sources that have the identified information in full since the indexes or abstracts just provide citations for reference purposes. Where one is accessing the CD-ROMs that provide full text information, he/she will not need to look for the same information in other sources as in the case of indexing/abstracting CD-ROMs.

Reference services

Green was quoted by Tyckoson (2001:186) clarifying what a reference librarian was supposed to do. He viewed a reference librarian as someone who "instructs patrons how to use the library; answer patron queries; aids the patron in selecting resources; and promotes the library within the community". In his deliberations on Green's perception of what reference librarian's work entails, Tyckoson (2001) indicates that Green's concept of a reference librarian has not been phased out. What has changed about the concept is simply the way reference services are being provided due to the influence of ICTs. In light of Green's concept of a reference service, the study identified the following specific reference services that are being provided to the users by a university library/or several university libraries in Uganda.

Quick reference services

Perusing through the university library/university websites of the universities in Uganda, the researcher observed that some of the university libraries provide quick/ready reference services to their users. The services are meant to provide ready answers to the users' factual knowledge questions or inquiries. The mode of providing such services varies from library to library. The library at the Makerere university college of health sciences offers ready reference services to the users in form of frequently asked questions abbreviated as "FAQs" on its website. The library anticipates the questions which the users would ask about and provides the appropriate answers to such questions or queries. By visiting the library's website, the users simply navigate through the provided list of questions/queries looking for an appropriate answer to their factual knowledge query (Welcome to the Albert Cook, 2011).

Information literacy /user education service

University libraries in Uganda know how imperative it is for them to provide information services and resources that are commensurate with the information needs of their targeted university user community as it is evidenced by their decision to establish a consortium of Uganda university libraries in 2001 (Lugya, 2011). It is observed that the services imparting library information skills to the users, are being referred to differently among university libraries in Uganda. Looking at Makerere university main library website alongside the websites of its branch library websites, the services in question are in various instances referred to as information literacy; user

education; user orientation. The services are meant to equip the users with skills that would transform them into information literate users in regard to using the library (Makerere University, 2013). The Kampala international university library offers information library skills services under the terminology of "Freshers' orientation". The users can access the services by visiting the library website and click on freshers, orientation (Idi Basajjabalaba, 2012). St. Lawrence university library offers information library skills services under the terminology "library instruction" (www.stlawu.edu/library/services).

Current awareness services

In general libraries offer current awareness services to keep their users abreast with the new information resources arrivals. However the mode of delivery of such services vary from library to library (Current awareness, n.d). One mode of delivery is by distribution of compiled lists of newly acquired information resources. This mode of delivery is evident at Makerere university library. It is observed that from time to time the library compiles a list of new electronic databases and sends it together with any pertnent information to the members of staff through the email services (Namaganda, 2013).

The other mode of delivery is the selective dissemination of information service. The service selectively provides specific users with information on the available resources relevant to their personal expressed area(s) of information need (Selective dissemination, 1999-2013). The available literature indicates that at least at Makerere university library, the library users interested in selective dissemination of information service are supposed to register for it designating their specific areas of study. In turn they are updated by the library about the information resources that have come in, which seem to meet their personalized information need using the email platform (Welcome to the albert, 2011; Library, 2012).

Literature searching services

Literature searching services are being provided to the library users worldwide. In most libraries, these services are meant for the users who for some reasons cannot conduct their own searches. As a consequence, they request the library in question to perform the searching on the desingated subject areas. According to the websites of university libraries in Uganda, most of the libraries seem to be silent on the provision of literature searching services. However Makerere university main library together with some of its branch libraries are currently providing literature searching services to their users. It should be noted that these services are available to the users free of charge. The users that may be interested in the services simply submit their requests to the library using various options one of them being the use of emails. It is imperative for the users to specify the areas of concern where they are seeking for information to enable the library staff to identify the most appropriate sources that may address the required needs (Welcome to the Albert Cook, 2011; Library, 2012; Adoma, interviewed, 2013).

Electronic books services

Some university libraries in Uganda provide electronic books services to their users as it is evidenced by some of the websites cited as a point of reference. Islamic university in Uganda (www.iuiukclibrarydepartment.blogspot.com/2012/10/news.html); Uganda martyrs university library portal (http://portal.umu.ac.ug:85/); Bugema university library (www.bugemauniv.ac.ug/index.php/2013-11-13-19-07-46/university-library); and Makerere university of health sciences Albert Cook library (www.chs.mak.ac.ug/acook/). According to the website, the electronic books services available at the Albert Cook library, can be accessed by the users using a password. However, according to Namaganda (2013), the electronic books services available at Makerere university main library are accessible to the users within the campus due to the fact that the e-books in question are IP address –based. In addition she observes that access restriction tagged on IP address, implies that a number of users who are off-campus are denied of their right to access the services in question (Namaganda, 2013).

Electronic journal databases services

Smith (2003: 162) defines electronic journal as "any journal that is available online, including both electronic-only journals and journals that are available both electronically and in print". Some university libraries in Uganda have indicated in their websites that they provide access to electronic journals for their designated users. However, the mode of access available for the users varies from library to library depending on the information and communication technology infrastructure which the library in question has put in place. Kampala international university library has an interface software which makes all the different electronic journals databases available for the users searchable from one central access point. The users are not subjected therefore to using user- names and passwords as a requirement for each database (www.kiu.ac.ug/library/).

Reflections on the challenges of access and use of university library information services and resources

The section discusses the challenges which the Ugandan university libraries face as they provide electronic information services and resources to their targeted users facilitating their search for information. The section argues that the users are also faced with challenges as they try to access and use the information services and resources which the libraries have put at their disposal.

Challenges facing libraries

Considering the information and communication technology infrastructure within the country and at the same time looking at the way the libraries are providing e-information services and resources to their users, it becomes evident that the libraries face a number of challenges which they have to grapple with.

Ensuring accessibility of e-services and resources

It is already underscored that libraries are strategizing on how to provide their information services and resources to the university user community of students and staff some of whom are resident within the university premises and others are commuters from off-campus residences. The following factors make it practically insurmountable for the libraries to provide access of e-information services and resources to all the targeted users namely students and staff:

Electrification distribution in the country

The status of the ICT infrastructure in the country in terms of availability of national electricity network remains less distributed in rural areas as compared to the urban areas. By implication it becomes extremely difficult for the libraries to make their e-services and resources accessible to the students/ staff when they happen to be in their rural areas. They cannot make their e-reference librarians/ virtual reference librarians accessible to these users who would be searching for factual knowledge; electronic journals and electronic books; even the open source information resources acquired by the libraries are also not accessible to these users in the rural areas. Some of the users with their own laptops might not conveniently use them to access the e-services and resources due to lacking facilities in rural areas where they can recharge their laptop batterries. Therefore in such instances users find themselves deprived of their right to access the services and resources simply because they are in areas where they cannot benefit from the national electrification network.

IP based e-information services and resources

Most Ugandan university libraries register for e-information resources that they acquire through subscriptions such as electronic journals and e-book databases, using the IP address network of their parent universities to ensure that these resources are accessed only by the authorized users. Besides the resources on subscription basis, the available digital library repository resources are also accessible within the university's IP address network. All this implies that such e-resources can only be accessed within the campus premises. Consequently some faculty members and students who may be outside the campus premises cannot have access to such resources which the libraries have put at their disposal.

Un-networked CD-ROM services

The fact that the CD-ROM services provided to the users are not accessible through the libraries' networks means that the users have to access the services within the libraries in question. Faculty members would probaly wish to access the services while they are in their offices on campus unfortunately the service provision does not support that option unless the user has borrowed the CD-ROM(s) from the library concerned. The same applies to the students. Some of them having laptops may wish to access the services from anywhere on campus outside the library using their laptops. Like the former category of users, this option is not possible for the students unless they have borrowed the CD-ROMs from the library. It should be noted however that the CD-ROMs are so vulnerable to theft; damage due to mishandling; and to inadvertent misplacement if they are lent out to the users by the libraries. By implication therefore the students and staff that would not have time to be physically in the library find themselves denied access to the CD-ROM databases services.

Enforcement of fair use concerns

It is common knowledge that the users accessing electronic information services and resources that are provided by the university libraries, are at liberty to download articles/information from various databases into their computers/or computer storage devices such as flash disks. It is also clear that there are some restrictions as to what extent someone can be permitted to download what he/she has retrieved from the databases where the libraries signed a license agreement with the owners of the databases in question. It is therefore a challenge for the librararies as to how they can ensure that their targeted users are not in breach of the singed license agreements regulating the utilization of the electronic databases such the e-journals (University of Minnesta, 2011). The websites of the Ugandan university libraries are silent on whether libraries in question have put in place some measures ensuring that the terms of the licensed agreements are respected by the users.

Below is a sample of restrictions that might be contained in the terms of the license agreements university libraries enter into with the owners of the information databases in focus (University of Minnesota, 2011: para.3):

In using licensed electronic resources, users must:

- familiarize themselves and comply with license terms associated with specific resources (note: in many cases, license agreements impose greater restrictions on use than does copyright law);
- limit uses to non-commercial, educational, or personal research purposes;
- not engage in systematic downloading of licensed content (e.g., downloading entire issues of electronic journals or large-scale downloading from databases to create other collections of data);
- not distribute copies of material to individuals or groups outside the University of Minnesota-Twin Cities, unless the license for the resource specifically allows it;
- not share client software used to search licensed resources with individuals or groups outside the Universityof Minnesota-Twin Cities; and give proper attribution when quoting from material.

Note: Many licenses prohibit the downloading and posting of licensed content on another server, even if for use in course web sites or course reserves. In general, it is preferable to link to articles (using an appropriate authentication mechanism) rather than to download and post articles to a server.

Multiplicity of passwords

With regard to the provision of electronic journals services, some university libraries in Uganda demonstrate through their websites how they have designed the e-journals services indicating that they have created library portals with software interface. The interface enables the users to navigate through the different journals databases from one central access point. The portals relieve the users of the burden of using many passwords as they try to access different journals databases. However, other libraries are silent on how their e-journals services are accessed. Probably the other libraries have not installed interface software that enables the users to navigate through the databases from one central access point. In this case the users are subjected to using many

passwords corresponding to the number of journals databases put at their disposal. Unfortunately the library may not be aware of the users that are unable to trace some designated passwords unless the affected users inform the library about their predicament. Otherwise the situation may force the users in question to abandon the search.

Cutting and pasting malpractice

Most universities all over the world would wish that the copies of the dissertations, theses and other projects that students submit in partial fulfillment of their academic requirements are all under strict surveillance of the libraries to ensure that they are not plagiarized by other users particularly students. In digitizing some of its information resources, Makerere university library digitizes also copies of students' dissertations, theses received from the faculty members/or departments whose students have graduated. The users can access the digitized resources by visiting the institutional digital repository which is running on the D-space software program. The students can easily plagiarize the dissertations and theses as they access the digital repository database by cutting and pasting a section, chapter etc. and submit it as part of their work without acknowledging the source which they have consulted. The question is, how can the strict surveillance over such resources as desired by the university be implemented by the library? It would definitely be difficult for the library to monitor the users as they access the D-space database from different locations on the university network.

The seriousness of the challenge can also be looked at from another perspective. In his article entitled as vision and the changing roles of the future academic library professional in the e-learning environment: challenges and issues, Tharmaraiselvi (2009) cautions the internet users and those uploading information on the internet about the cyber-crimes being committed from time to time. Some information technology specialists can hack the database tampering with the digital resources contained therein including the digital dissertations and theses. The resources can entirely be plagiarized by the hackers for their personal gains. It is a big challenge not only for Makerere university library but for all academic libraries all over the world that have created digital information resources repositories.

3 Ethical dimensions pertinent to the study

It cannot be over emphasized that the provision of information services and resources to the users by the university libraries all over the world has ethical considerations. The same applies to the Ugandan situation. The section therefore concentrates on the definition of ethics, identifying and discussing ethical theories pertinent to the study, pointing out ethical related issues.

4.1. Terminological explanation of ethics

There is a lot of literature attempting to elucidate what ethics is all about. In some instances ethics is defined as "the study of principles relating to right and wrong conduct"; as a "branch of philosophy concerned with the study of what is good and bad"; as a "branch of philosophy concerned with the meaning of all aspects of human behavior" (Definition of ethics, n.d: para.1; 3; 4). Valasquez; Andre; Shanks and Meyer (2010: para.8-9) provide a descriptive definition that "first ethics refers to well-founded standards of right and wrong that prescribe what humans ought to do, usually in terms of rights, obligations, benefits to society, fairness, or specific virtues. Secondly, ethics refers to the study and development of one's ethical standards". According to MacDonald (2010;para.1), ethics is "the critical, structured examination of how we should behave- in particular, how we should constrain the pursuit of self-interest when our actions affect others". Britz (2013: 1) on the other hand defines ethics as the "branch of philosophy that studies human behaviour in terms of what is good or bad regarding relationship with themselves, others and their environment" The definitions all emphasize two variables namely that ethics empowers humans to tell what is right from what is wrong and vice versa.

4.2. Types of ethical theories partinent to the study

i. Aristotle's virtue theory

Aristotle constructed his virtue theory basing himself on the fact that nobody is born with any virtue but rather every person acquires specific virtues as he/she advances in years. He observes that one acquires a given virtue by repeatedly performing certain activities so much that in the long run they end up moulding his/her character (Aristotle, 350 B.C.; Britz, 2013). In illustrating the mode through which human beings acquire virtues, Aristotle indicates that vices which are on the opposite side of vritues, are acquired also in the same manner by repeatedly performing certain unvirtuous activities (Aristotle, 350 B.C.). The virtue theory has ethical implications for libraries with regard to the way they provide information services and resources and also with regard to the way the users access and use the services and resources which the libraries have has put at their disposal.

Someone might have built up a perception about himself/herself as a person who is genuine in whatever he/she does. At one time the same person may resort to misusing the library services without being suspected. By the time his/her misconduct is unearthed a lot of damage has been done to the library services and resources. He/she may be excessively downloading articles from online journals in violation of the fair use doctrine as spelt out in the journals publishers' license agreement duly signed by the libraries in question. Other instances might be that some of the library users could be habitually bent on engaging in academic and research dishonesty activities such as excessive downloading of articles and plagiarism of others' dissertations and theses. Working with the virtue theory in mind, the librarians should ensure that precaution measures are put in place to pre-empty any possible vicious activity from jeopardizing the provision and use of information services and resources.

ii. Deontology theory

The theory is built on the concepts of rights and duty. The protagonists of the theory namely John Locke, and Immanuel Kant postulate that human beings have rights and duties towards each other. The position just affirms that what one claims as his own right becomes a duty for the other person ensuring that he/she does not antagonise the person's right and vice versa (Britz,2013). The theory therefore promotes mutual respect and advancement of the common good of everybody. There are some African ethical related concepts that corroborate the deontology theory such as ubuntu concept underlining the need of collaboration and coorporation among peoples (Britz,2013); and Mbiti was quoted by Lassiter(1999:para.14) that "the individual can only say I am because we are; and since we are, therefore I am" . Mbiti's concept is rich in meaning. An African does not live in isolation but within the context of a community. The community remains cohesive, strong, and prosperous as long as its members remain united. The Ganda ethnic tribe in Uganda have a proverb "agali awamu, ge galuma ennyama". The literal english translation would read as "the teeth that are together are capable of chewing the meat". The provable advocates for mutual concern, and community building. Any engagement therefore that would not advance the ideals of the members of the community and of the community as well, would be considered unethical. The targeted library users have a right to access and use the information services and resources. Should some members of the user community realize that information needs are not addressed then cohesiveness of the community might be at stake. According to the theory it logically follows that the libraries have the duty to provide information services and resources that satisfy the information needs of their targeted users. It would be unethical on the part of the libraries if they would fail to do so.

iii. Utilitarianism theory

As the term itself suggests, the theory denotes a situation where the main character performing any activity is so convinced that the outcome of the activity would definitely benefit everybody in the targeted group of people (Britz, 2013). The targeted users are not part of the planning/designing process, they cannot influence anything and their input is not requestd for. The theory provokes ethical related issues that can impact negatively on the library users and the libraries themselves. Libraries may have a tendency of providing inform services and

resources to their user community without conducting user studies to enable them know whether the users' information needs are met or not. Libraries can be surprized to learn that the perception which they had about their provision of information services and resources may not synchronize with the users' perception about the services and resources that are put at their disposal.

5. Conclusions and recommendations

The paper has come up with the following conclusions:

- There are variations in the way university libraries in Uganda provide electronic information services and resources to the university user community.
- The Uganda university libraries are faced with the following challenges as they provide electronic information services and resources to the users:
    1. Ensuring accessibility of electronic information services and resources
    2. Enforcement of fair use doctrine
    3. Multiplicity of passwords
    4. Cutting and pasting malpractices.
- The following ethical theories can in one way or the other influence the way the libraries provide the information services and resources to the users and also influencing the way the users utilize these services and resources:
    1. Aristotle's virtue theory
    2. Deontology theory
    3. Utilitariansism theory.

The paper makes the following recommendations:

On the issue of OPACs, libraries whose OPACs are not yet web based should make an effort to transform their online catalogues web based to make them accessible to the users even outside campus premises.

On the issue of digitization, while it was a noble decision to engage in digitization of resources, libraries should also put in place mechanisms checking on the unscrupulous users bent on plagiarizing digital dissertations/theses. At least anti-plagiarism software such as turn-it-in should be installed on the university network to counteract plagiarism and the cutting and pasting malpractice.

On the provision of CD-ROM services, these services should be networked through the CD-ROM tower server technology to ensure that the CDs are centralized and that they can even be accessible anywhere within the campus premises.

On the provision of e-journal services, and e-books services, creating library portals sustained with an interface software supporting a one search central point would save users from navigating through different databases using different passwords corresponding to the number of databases available. In addition, the interface software would help the users to save on time as they search for information.

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Impact of Digital Divide on the Access and Use of Electronic Information Resources at Egerton University, Kenya

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Information and communications technologies (ICTs) have continued to spread globally. This has giving rise to digital divide in the society with the education sector being one of the most affected as institutions strive to incorporate ICT in the education system. The use of computers and the Internet has increased in the Universities and this has brought with it a myriad of opportunities as well as challenges. With the ever expanding Internet information sources and information databases both online and off-line, almost everybody is in need of information in different formats. In their quest for accurate, relevant and appropriate information to do their assignments and conduct research, students are faced with information overload. This largely affects use of electronic information resources as many students either shy off or get discouraged as the exercise consumes a lot of their time. In Egerton University, the library has invested heavily in the provision of e-resources in a bid to supplement its print books. However, the e-resources remain largely underutilized. The increased gap between those who are 'information literate and those who are information illiterate in the Universities continue to contribute to difference in the way e- information resources are accessed and used. This paper presents findings of a study that investigated the differences on the levels of information literacy among students at Egerton University, and how this has affected the way they perceive, access and use of e-resources provided by the University Library. Random sampling method was used and data was collected through self-administered questionnaires from both postgraduate and undergraduate students. The data obtained was analyzed using SPSS Version 18 using frequencies and Chi-Square and presented in tables and figures. Finally, based on this study, suggestion and recommendations have also been provided.

Keywords: Digital divide,information access,electronic information resources,Egerton University,Kenya

Introduction

The explosive growth of Information and Communication Technologies (ICTs) has continued to spread As this spreads unevenly, the need for skills to access computers and the internet has become progressively more important if one is to actively participate in the socioeconomic and political activities in the modern society. However, due to the persistent growth in the gap between the privileged and the underprivileged in the society, not everyone has access to this technology. This unevenness has given rise to the use of the term "digital divide". The term refers to the "information haves" and "information have-nots" in the society and it borders on the discrepancies in the access to telecommunications and infrastructure, as well as other factors such as income, literacy and education, and skills to use ICT (Martin, 2005).

One of the sectors greatly affected by digital divide in the developing world is the education secto. As higher education is responding to the demands of the market, the institutions operate in an increasingly competitive global market for students and for funding. They are under pressure to show relevance and the ability to meet new challenges. As a result, the use of computers and the Internet has increased in the Universities, bringing with it a myriad of opportunities and challenges.

The next section of this paper will review articles in library and information science literature that discuss the digital divide and its impact on the use of resources in the academic libraries. Some background information on the current state of digital divide in the institutions of higher learning in the developing world will be highlighted in order to provide a context to analyze the effect of the digital divide on the access of e-resources. Study area, methodology, findings and discussions have been presented. Finally, based on this study recommendations have also been provided.

Literature Review

Background of Egerton University

Egerton University is one of the oldest universities in Kenya. Its vision is to be " a world class University for the advancement of humanity". The University's mission is to generate and disseminate significant knowledge and offer exemplary education to contribute to and innovatively influence national and global development. The University was founded in 1939 as an agricultural college, and was originally named Egerton Farm School. It was established by a large land grant of 740 acres (3 km²) by Lord Maurice Egerton of Tatton. The school's original purpose was to prepare white European youth for careers in agriculture. By 1955, the name had changed to Egerton Agricultural College. A one-year certificate course and a two-year diploma course in agriculture were offered. In 1986, the Agricultural College became a constituent College of the University of Nairobi. It was elevated to a University in 1987 through an Act of Parliament. Since its inception, the University has registered significant expansion in student numbers, academic programmes and physical facilities. Currently the University has a student population of over 15,000 and a staff number of 1,900 and consists of two campuses (Njoro and Nakuru Town). It currently (2013) has a library system consisting of a Main library, two campus libraries, a research library and three faculty libraries

Use and Access of Electronic Resources in Academic Libraries

In an attempt to provide efficient and better services that satisfy diverse user needs, academic libraries have resorted to using ICTs. Most academic libraries are striving to transform into digital and virtual libraries where books, journals and magazines are changed into e-books, e-journals, and e-zines (Ansari &Suberi, 2010). Electronic resources are desired in most libraries because they solve storage problems. They also help in coping with challenges of information explosion. Moreover, information is considered is a positional good needed in economic, social and cultural competition. Hence, the need to establish any existing gaps in the access and use of relevant e-resources and bridge them through information literacy (van Dijk, 2000: Amunga, 2011).

Lack of current and relevant information resources "hindered African academics south of the Sahara, frustrated their research activities. In the 1990s, several electronic journals emerged and these offered an opportunity to improve the situation in the African universities by providing access to current, relevant and quality access to these at reduced or no cost. The developments in wireless and satellite technology further created the concept of virtual libraries and offices redefined alongside individualized communications (Shibanda, 2006).

The emergence of consortiums which include schemes from the United Nations agencies for health, agricultural and environmental research (HINARI,AGORA and OARE), the multidisciplinary Programme for the Enhancement of Research Information (PERii, established by the International Network for the Availability of Scientific Information (INASP) and Electronic Information for Libraries (eIFL.net) have had a considerable impact on the provision of current e-resources to scholars and researchers in University and research libraries in South of Sahara (Harle,2009; KLISC, 2013). Prior to this initiative, Egerton University Library relied solely on The Essential Electronic Agricultural Library (TEEAL) from Cornell University, a database it still subscribes.

Digital Divide

With the ever expanding Internet information sources and information databases both online and off-line, almost everybody is in need of information in different formats. This has affected the use of electronic information resources as many students either shy off or get discouraged as the exercise consumes a lot of their time. This difference in access and use of ICT between students can be identified as a form of digital divide. There are varied ways to understand the term digital divide. These ways include viewing the ability to access and use ICT and connectivity, and to relating this to different socio-economic levels such as education level, age, policies in place, gender and/or geographical location. According to Van Dijk (1999) digital divide refers to psychological access resulting from lack of digital experience; lack of interest in computer and lack of motivation to use the new technology; lack of access to computers and network connections; and lack of skills to use digital equipment.

Methodology

This study was undertaken in Egerton University (Kenya). The university is located in Nakuru district of the Greater Rift Valley province. The district lies within the Great Rift Valley and borders: Kericho and Bomet (West), Kiobatek and Laikipia (North), Nyandarua (East), Narok (South West) and Kajiado and Kiambu (South). It covers an area of 7,235.3 Km^2 and is located between longitudes 35" 28" and 35" 36" and latitudes 0" 12" and 1" 10" South. The district has a total population of over 1.3 million and a population density of 164 persons per Km^2. Its population is largely youthful – about 54.8 percent are below 20 years while 74.4 percent are under 30 years thus exerting pressure for gainful employment.

A multi stage sampling methodology was used in this study. A total of 150 respondents were selected to participate in this study and a qualitative approach used to collect data to answer the three research questions posed to help clarify the assumptions of the effects of digital divide on the access use e-resources by students in Egerton University. The research questions were:

1. How often do the students use the e-resources provided by the University through the library system?

2. How well are the students able to independently locate information resources?
3. What factors do the students attribute to the difficulties they face when accessing or using the e-resources?

The data obtained was analyzed using SPSS (Statistical Package for Social Sciences) Version 18. Descriptive analyses were performed for various variables using frequencies and Chi-Square as presented in tables and figures in the next section.

Findings

A total of 150 respondents made up of 84 male and 66 female from 7 faculties were involved in the study. Majority of the respondents 48% were undergraduate students. Others were 28% postgraduate students and 24% diploma students.

The study sought to establish the level of ICT literacy among the respondents at the time they joined the university. The results showed that majority (82%) had learnt how to use computers prior to joining the university, while 8% did not know how to use the computers. These were made up of undergraduate students (36%), followed by 26% postgraduate students and 20% diploma students. (Figure1).

Figure 1: Students' ability to use computers prior to joining the University

Based on the respondents' ability to use computers prior to joining the university, the study sought to find out how well they could use computers. 46% of the respondents who had learnt how to use computers prior to joining the University indicated that they could use computers quite well, followed by 28% who indicated that they could use computers very well, while 8% indicated that they could not use computers well.

The study explored the ways the respondents accessed the Internet and what they used the Internet for. The findings established that 94% of the respondents used the Internet. The findings indicated that Mobile phones were the most used means of accessing the Internet among the students, followed by the resource centers within the University and personal computers. The library and the computer labs were least used by the students to access the Internet (Table1).

Table 1: How students access the Internet

	Very Often	Often	Rarely	Never	p-value
Computer lab	15	33	57	45	.036*
Mobile phone	81	27	24	18	.000*
The Library	15	54	33	18	.090
Resource centres	60	45	33	12	.012*
Personal computer	51	27	39	33	.423

*P<0.05= statistically significant at 95%

The study sought to establish why the students used the Internet. The findings indicate that majority of the students (78%) used Google very often to search for information, followed by (50%) who used e-resources very often. Interestingly enough all the respondents use Google and email when they access the Internet (Table 2).

Table 2: Activities for which internet is accessed

	Very Often	Often	Rarely	Never	p-value
e-resources	75	45	21	9	.000
Email	60	69	21	0	.013
Social media	69	48	24	9	.000
Google for general information	117	27	6	0	.000
Games	21	30	66	33	.016

Table 3 indicates high usage levels on-line e-resources compared with print information resources and offline information resources. Majority of the respondents indicated that they rarely used offline e-resources.

Table 3: Information Resource Usage

	Very Often	**Often**	**Rarely**	**Never**	**p-value**
Online e-resources	42	42	45	21	.350
Print Information Resources	21	42	63	24	.019*
Offline e-resources	12	18	69	51	.000*

*P<0.05= statistically significant at 95%

The respondents were asked to indicate whether they faced any difficulties with the access and use of the information resources. The findings indicate that 44% of the students have some level of difficulty when accessing information resources, while 14% of the respondents indicated that they had a lot of difficulty accessing online electronic resources. 42% of the respondents indicated that they could access information resources without any difficulty (Table 4).

Table 4: Ability to access and use resources

	Without Difficulty	With some difficulty	With a lot of difficulty	p-value
Online resources	63	66	21	.015
Print Information Resources	57	60	33	.001
Offline databases	42	69	39	.000

The respondents were further asked to indicate the challenges they experienced in their attempts to use e-resources provided by the University Library. The findings indicated that the respondent's faced the highest challenges with the poor Internet connectivity (40%) and limited computer facilities (40%) , followed by respondent's lack of knowledge of the available resources (38%). Other challenges included lack of information searching skills (20%), limited computer skills (18%), lack of guidance from library staff and lack of library skills(16% and 14%) respectively. 11% of the respondents blamed their own lack of interest to learn how to access and use e-resources as a challenge. (Table 5).

Table 5: Challenges faced by users of e-resources

	No.	P- value
Lack knowledge on existing resources	38%	.090
Lack interest to learn	11%	.000
Lack of guidance from library staff	16%	.000
Lack of information searching skills	20%	.005
Lack of library skills	14%	.000
Limited computer facilities	40%	.157
Limited or lack of computer skills	18%	.000
Poor Internet connectivity	40%	.157

Discussion

Ability to use computers prior to joining the University

It is clear that most University students learn how to use computers and how to access the Internet prior to joining the University. The survey data shows 85% of the respondents knew how to use computers outside university. They are furthermore surrounded by technology in other locations such as cyber cafes and mobile phones. The increase of 3G mobile phones and social media accounts is a major motivation for the youth to use resources available online (Furaso, 2009).

Access of Internet in the University

The use of Internet among the students has increased and as the findings of this study show, the virtual nature of internet means that it can be accessed without having to rely on the library or the computer laboratory. Furthermore, there are a number of e-resources that do not depend on the University's Internet Protocol (IP) address to be accessed. The students can also access Internet through available wireless Internet link spots within the University compound. D'Esposito and Gardner (1999) concur with the findings. In a study on the Internet usage trends, they found that students had low preference of Internet use in the traditional library settings, except where they were using information to satisfy their in research needs.

Use of Information sources

The findings show that the difference between the access of offline electronic resources anduse of print resources was statistically significant ($p<0.05$) in comparison to the use and access of online electronic resources. From the findings of this study, there is a possibility that knowledge on the use of computers prior to joining the university may not have equipped the students well enough to use electronic resources. Less than half of the students indicated that they had no difficulty in accessing online electronic resources. This could be attributed to the fact that despite having the ability to use computers and the Internet, they did not have the opportunity to actually use them prior to joining the University. This factor is supported by the fact that without information literacy programmes in the Universities, the number level of e-resources usage remained low. Amunga (2011) stated that apart from the few students who joined the university from private schools with libraries, most primary and secondary school children in Kenya have no encounter with libraries.

Challenges faced in the use of e-resources

The challenges that the students face in the access and use of e-resources are mainly attributed to scarcity of computers to use and poor connectivity. The findings are in agreement with findings of KLISC 2013 that found that lack of access to computers and poor connectivity were the most common hindrances to usage of e-resources. The findings of this study however, differ from the one of KLISC in that it reveals a higher percentage (40%) compared to their findings (21% and 25% respectively).

Limitations

This research was carried out in a single public University in Nakuru County. The results may not be inferable to all public and Private University Libraries in Kenya. It also did not gather data on the socio-economic conditions of the students, a factor which could contribute to the level of use of on-line resources.

Conclusion

The implications of this paper are that although there is a seeming high rate of computer literacy, there is need for improvement on the ICT facilities and infrastructure in the University. The fact that majority of the respondents use their mobile phones to access the Internet is an indication that they have the desire to access the Internet and the e-resources. This research shows that information literacy should be key in the University library. Librarians should also play an active role in ensuring that students get the desired assistance to locate and use the information e-resources.

Recommendations

- The University should improve the wireless connectivity.
- The University should increase bandwidth
- The library should increase and raise more awareness on online journals
- The number of resource centers should be increased and be placed under the management of trained information specialists to assist users in accessing the information resources.
- Information literacy should be budgeted for and enhanced among the students.

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