AFRICAN JOURNAL OF LIBRARY, ARCHIVES AND INFORMATION SCIENCE

VOLUME 15 NUMBER 1 OCTOBER 2005

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Automated Medical Record Tracking System for the Ridge Hospital, Ghana- Part II: Evaluation of the System

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Abstract

The first part of this article sought to explore, describe, and analyse the inherent deficiencies in the manual records tracking system at the Ridge Hospital using the systems methodology. This was done with a view to designing a computerised records tracking system. The procedures undertaken in designing the computerised system have been described in detail. Part I concludes with the observation that the computerised tracking system goes beyond its primary function of tracking records. In other words the system is expandable and can also be used to generate data on admissions and discharges. Part II (the final part) of the study focuses on evaluation of the system designed and described in Part I. The evaluation takes into account the following: cost implications, hard and software requirements, efficiency level of the system and future challenges. Database related issues such as data integrity, security, networking and back-up have been discussed.

Introduction

The first part of this article focused on the development of an automated medical record tracking system for the Ridge Hospital. The systems analysis and design methodology was employed to develop the automated tracking system. The manual tracking system was analysed. A preliminary design that reflects the procedures in the manual tracking system was developed. This was followed by a detailed design for the automated system.

Microsoft Access 2002 was used at the logical design stage to create a database meant to function as the folder movement book, the daily ward state book and the admissions and discharge book. Finally, the detailed design was developed with the Visual Basic Programming Language. Details of the system analysis, design and development have already been reported in the previous issues of this journal (Vol.15, No.1).

This second article on the system evaluates automated tracking system, (designed in Part I), taking into account the cost of developing, running and maintaining the system; the hardware and software requirements; the efficiency level of the system; and the future challenges that may possibly confront the system. Further, the user interface, characteristics of the program and general functions of the system are examined in order to ascertain the strengths and weaknesses of the system. Other database related issues such as data integrity, security, networking, back-up and maintenance are also discussed.

Review of the Proposed System

The program was designed with the Microsoft Access from the Office XP Professional suite which being based on the relational database model, permits great flexibility for the retrieval of data.

Bradley and Millspaugh (1998) have also emphasised that the "user interface should be clear and consistent." Hence, the program was highly designed with a graphical user interface (GUI) model. This makes it possible to retrieve or track data by a few mouse clicks. Basic functions such as deleting, adding records, updating records, and others including tracking records, and printing and view reports, etc, were customised into command buttons to reduce the burden of selecting from menus or typing commands.

A significant property of the user interface is that all functions to be performed by a user are delegated to command buttons and pull down lists or combo boxes for selection of items. Fields such as USER, PURPOSE, TRANSIT POINT, etc. have items listed in a combo for a user of the program to just click a pull-down button to select name of user, transit point, and so on, other than typing which may be slower. This facility also reduces typing errors and ensures data consistency in the fields.

Another advantage of the combo box is that, it prevents the user from entering data that are not acceptable. For example, all ward names and transit points are given within the TRANSIT POINT field. Therefore, no user can enter any other data for transit points apart from what is given in the combo box. This does not however mean that, for instance, if a new user is introduced to the system, his name cannot be added. The combo boxes are expandable. New items can be added or removed from a combo box. This function is limited to the systems administrator who can use a special window within the system to add or delete items to and from combo or list boxes.

Software and Hardware

In selecting software and hardware for the system, the authors not only considered seriously but their own expertise but also the need to develop an automation system for tracking records in a software environment that most users at the hospital were familiar with. Interactions with users and observations during the study revealed that all computers at the hospital were basically running Microsoft Windows and Microsoft Office, using Microsoft Word for all word processing tasks such as reports, letters, memos, etc. The hospital uses Microsoft Excel for accounting and spreadsheet functions, including graphs, charts and statistical functions. Microsoft PowerPoint is the only software known to the hospital for presentations and demonstration on computers. Based on the fact that users are already familiar with the Microsoft environment and have gained knowledge in the basics of the Microsoft Windows operating system and its graphical characteristics, the authors recognised the strategic significance of designing a system in this environment.

The advantages are that it will stimulate users to adapt to the system within a short period. On the other hand, it may not be the best information and communication technology platform for the development of an automated system. The authors, for this reason, admit that all the weaknesses, limitations, and challenges of the Microsoft systems as well as their advantages properties will be shared by the automated system.

Another major consideration in the choice of software is the cost involved in acquiring new software. The authors considered major issues associated with new software and systems acquisition. These include training of users, supportive hardware, expertise and the fiscal implications for the whole system. The management of the hospital had been facing financial challenges in acquiring information and communication technology resources for basic needs. It would, therefore, be an extra burden to consider other technologies, though they might be relevant and resourceful.

The authors perceived the need for an automated system to improve efficiency in tracking records. The records unit and users of the records also expressed the need for an automated system despite the financial challenges. These conditions provide a reasonable challenge to an information technology professional, systems analyst, or records administrator to design a system that exploits available resources, both hardware and software, at the least cost. Armed with this knowledge the authors resolved to design the automation system with the Microsoft Access database management system and Visual Basic 6 development tool, which can be installed on the already available Microsoft operating systems in the hospital. There are of course other platforms which can be used to develop the automated system more efficiently. An example of such platform is the Oracle database system. However, using such a platform means that a Linux server must be used to run the program.

User and System Administrator Training

The training program for the new system requires users to:

- Understand the navigation and linking of windows within the system;
- New terminologies in the system;
- Error messages; and
- How to record, perform, tracking and report generation operations.

This training does not involve any strenuous learning and can be conducted within hours. In future old users can also train new users to understand the system. A user is not required to have any knowledge of Microsoft Access or any data base management system. Nevertheless, a fair knowledge of the windows graphical environment would be a plus.

The systems administrator would have to undergo comprehensive training to understand the framework of the system. A fair knowledge of Microsoft Access would be a plus. Apart from that, any person who has some amount of knowledge in the Microsoft Windows and Office environment can be trained as systems administrator. The function of the administrator would include:

- Adding new users
- Adding, deleting and updating records in list or combo boxes
- Changing passwords
- Deleting or adding records
- General maintenance of the system

Data Integrity

One of the most crucial challenges of every database management system is whether the electronic data in reality represents what it stands for. The integrity of a database system can be measured by:

- The impossibility of data alteration by unauthorised users; and
- Validation rules that govern data entry.

It is very important that any information retrieved from the system represents precisely what it stands for. Name of patient, patient identification number and information about a folder's transit point must not be different from what is retrieved from the system. It is not impossible for a database system to recall wrong information about an item from its records. Another possible misinformation could be that two patients might bear the same identification number in the database, or the system may indicate that a patient's ward of admission is, for instance, the mobile ward, when in reality it is the surgical ward. If these and many other possible examples are common in a database management system, then the data integrity in the system would be questionable.

Many issues including the following affect data integrity:

- Wrong coding
- Entering wrong data by users
- Common syntax error
- Bugs
- Insufficient error checks.

To ensure data integrity, peculiar measures must be taken during the system and program design stage. A program must be tested thoroughly for errors and bugs. Mitchell and Atkinson (2003) observed that "the more codes you write, the more bugs you will create, and the larger your application, the more bug-ridden it will be." They recommended that the time spent in programming should be equal to, if not more than, the time spent to ensure that a program is free of bugs and errors in order to achieve high data integrity.

Certain measures have been put in place to ensure that information within the automated system represents what it stands for. To obtain this, error checks have been encoded into the system to ensure the following:

- Patients identification numbers are not duplicated
- Correct dates are entered
- A transferred folder can be verified from the user who received the folder
- A user cannot edit a transferred form from another user
- A user does not mistakenly confirm that he has received a folder
- The central database cannot be edited by any user apart from the systems administrator
- Unauthorised users cannot have access to the system.

All these steps have been put in place to reduce errors and to achieve high data integrity. To ensure this, two main checking systems were coded into the program. These are Validation Rule and Security Systems.

Validation Rule

The validation rule is a mechanism to ensure that only appropriate data is entered. Jennings (2003) stated that validation rules govern the format in which data is entered and prevents invalid data entry. For example, the system has a validation rule that prevents a user from entering, say, the date a folder was returned not earlier than the date the folder was taken. It also regulates date format to the "day", "month", and "year" sequence.

Validation rule goes with what is known as validation text. The validation text is a warning message that appears on a screen when the validation rule is violated. For example the system might display a message box that reads: "Invalid date format, enter correct date." Data can never be accepted by the system if it does not comply with the validation rule. There is another validation rule within the system that prevents more than one patient to bear the same identification number.

Security System

The system ensures that unauthorised users do not have access to the system. This is ensured by the use of passwords and assigning read only property to files that should not be edited by any user except the system administrator. Apart from passwords, the system has been designed in a manner that makes it impossible for a user to have access to co-users, transfer form. A transfer form is filled when a user receives a folder transferred to him from any transit point. To certify that indeed a user has received a folder from another user, a transfer form from the receiver's transit point is checked to seek confirmation from him through the system.

The important issue about the transfer form is that it serves as proof of folder transfer transaction for both the unit that transferred the folder and the unit that received it. This is put in place to avoid a situation where a user claims he has transferred a folder, but the supposed recipient does not accept responsibility to that effect.

Another security system is the user access permission facility. All users have permission to view only patients' folders information and current state of folders. The permission is also extended to viewing admissions and discharge records. Any user can therefore have a read only access to all patients' folder records. Access is however denied to users to perform the following functions:

- Delete records
- Modify another user's transfer form
- Change system settings
- Modify system design
- Add records

The system can be said to function exactly as the manual system, but with high speed and much flexibility, which makes it more efficient. Within the manual system, report generation is a separate exercise. The fragmented finding aids such as folder movement book, daily ward state book, admissions and discharge book are integrated into a central database system which makes the automated system quite dynamic and multi-purpose. One important feature is that the system is easily expandable and can go through redesign and modification without troubling the database. However, the authors admit that the system will face all the challenges that confront the Microsoft windows applications including errors that are not yet debugged.

Conclusion and Recommendations

Though the automated system does not necessarily combat all the problems within the manual tracking system, its advantages outweigh that of the manual system especially in the case of the Records Unit at the Ridge Hospital. If the need for speed is imperative to a tracking system, then there is no doubt that the proposed automated tracking system should be operational as a component of the electronic medical records management system for the hospital.

To make this proposed automated tracking system work efficiently, the authors have the following recommendations to make:

- Considering the importance of folders to health administration, all legitimate users of folders must be well informed about the significance of patients' medical records. If the users have such valuable knowledge, it would definitely affect their approach to handling of folders and, therefore compliance with all the regulations that go with the use of the automated tracking system. This knowledge can be acquired through organised seminars and workshops.

- Considering the platform on which the automated system was designed, it is important that whoever takes over the duty as systems administrator should have sufficient knowledge of the Microsoft Windows and Office environment. He should also be familiar with database management systems and have a fair understanding of the Microsoft Access database system.
- All prospective users of the automated system should also be trained to understand how the system works and how to handle error messages. Users must also make sure that they fill transfer forms whenever they transfer or receive folders. By doing so, the automated tracking system will always reflect the exact transit points of folders.
- It is also recommended that there should be adequate technical support to ensure constant operation of the system. Required support systems include power supply, back-up systems and storage back-up facilities.
- All the computers at each transit point must run the same disk operating system and the same version of Microsoft Office applications to avoid irregularities in the network.
- In order to ensure compatibility of all the hardware facilities, the hospital should engage the services of an information and communication technology expert to acquire the required network and communication facilities of the system.
- Finally, the authors recommend that the system should be implemented alongside the manual system till users gain enough understanding of the automated system before full implementation of the system commences.

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Evaluation of Deterioration of Library Materials at Olabisi Onabanjo University Library, Ago-Iwoye, Nigeria

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Abstract

The nature and extent of deterioration of four categories of library materials (newsprints, textbooks, dissertations and journals) at Olabisi Onabanjo University Library, Ago-Iwoye, Ogun State, Nigeria was investigated. The pH, fold endurance and the extent of mutilation were determined, while the microorganisms associated with decomposing library materials were isolated and identified. The library materials with acidic papers constituted 69.0% for textbooks, 52.2% for journals, 73.2% for dissertations and 85.3% for newspapers. About 93% of textbooks, 98% of journals and 89% of dissertations did not break up to six folds. The percentage of mutilated books was 11.9% for textbooks, 5.7% for journals and 10.4% for dissertations. The microorganisms associated with deteriorating library materials were Bacillus sp., Streptococcus sp. Staphylococcus sp., Pseudomonas sp. and Flavobacterium sp. for bacteria, while the moulds included Aspergillus niger, Aspergillus flavus, Aspergillus fumigatus, Penicillium sp., Cladosporium sp., Neurospora sp, Penicillium sp and Rhizopus sp. The ability of these microorganisms to degrade (utilise) native cellulose (filter papers) was investigated so as to be able to know whether these organisms could actually deteriorate papers. All the moulds except Neurospora sp. effectively utilised filter papers than the two bacterial species Bacillus sp. and Pseudomonas sp. that also degraded filter papers. A. niger and A. flavus most utilised the filter papers for growth among the moulds. Apart from the deteriorative effect, the health implications of the presence of microorganisms particularly the moulds on library materials to library users are discussed.

Introduction

The papers produced before the 19th century were made from fibres such as linen, cotton or rag flax with relatively few additives for the production of small quantities of physically and chemically strong papers that could withstand the wears and tears of age (Hunter, 1978). The additives in use then, animal glue and gelatin sizing or coatings, help the long-fibred papers to accept ink without bleeding. The increasing use of paper resulting in increased demand led to the development in the mid-nineteenth century of more efficient paper making technology with less durable papers. Ground wood pulp that is widely available and inexpensive replaced rags and linen for paper production. The mechanical grinding of wood during manufacturing processes create short paper fibres, which is also highly acidic due to the retention of wood lignin. Lignin is a natural constituent of wood that darkens and decomposes to acidic products with time. The additives in use such as alum/rosin and chlorine bleach weaken paper resulting in the increased acidity, discolouration and brittleness of the paper.

Chemically, modern paper is made from cellulose and water with small amounts of organic, inorganic and dye additives (Paci *et al*., 1995). It is perhaps one of the oldest and most used man-made materials. Paper deterioration refers to the loss in the quality of paper materials, which reduces its ability to carry out its intended function (Wessel, 1972). Williams (1971) observed that libraries nowadays have become hospitals for sick books and, in many cases, not much effort is devoted to treating these patients and books are not lasting as they should.

The degradation of paper may be due to different causes such as biotic factors and or chemical attack. The biotic factors are the living agents involved in the deterioration of library materials, and these include microorganisms (bacteria and fungi), insects, rodents and man (Harvey, 1992; Igbinosa, 2000). The biotic agents are the most important cause of paper deterioration in the humid tropics because the prevailing high ambient temperature and relative humidity provide excellent conditions for their proliferation and destructive activities (Davey and Elcoate, 1965). In chemical terms, the degradation of paper is essentially the conversion of fibrous or highly crystalline cellulose into a largely amorphous or degraded material. Such conversion is often of different, complex processes of which acid hydrolysis is by far the most important (Proietti *et al*., 2004). However, the biological and chemical factors are interrelated because humid conditions and high temperatures (abiotic factors) favour the growth of moulds (biotic factor), and accumulation of dust and dirt (abiotic factors) will attract insects (biotic factor). The rate of book deterioration is particularly high in tropical countries where factors that aggravate deterioration are at optimum. All the factors that cause paper deterioration: physical (acid, heat, humidity, light), biological (moulds, insects, rodents) and careless handling methods are more pronounced in Africa than elsewhere in the world (Mwiyeriwa, 1988). Of the 2,511 total book acquisition of the University of Ghana in 1986, up to 600 books that were disintegrating physically were taken to the bindery section for repairs; and there were still many more disintegrating books on the shelves that had not been identified (Akussah, 1991). Mwangi (1994) reported that about 33.3% of bibliographic collections in selected Kenyan libraries had pH less than 4, and thus stood the risk of acid hydrolysis. Alegbeleye (1996) found that 67% of the Africana collections at the University of Ibadan had undesirable level of acidity (pH less than 5.4). According to Zyska (1997), while considerable effort has been devoted to research on degradation of library materials in Europe, there is paucity of such information on library materials in Africa. Zyska (1997) further stated in the review of fungi isolated from library materials that fungi of library materials in Africa are completely unknown.

The objective of this study was to determine the nature and extent of deterioration of library materials at Olabisi Onabanjo University (OOU), Ago-Iwoye, with emphasis on the role played by microorganisms. The University library started in January 1983 in a few classrooms before it was relocated to a temporary building that was completed in the latter part of 1983. At the time of this study, the library had a main library and a separate law library in Ago-Iwoye, Sir Hassan Odukale Library at the Permanent Site for the Faculties of Arts and Social and Management Sciences, and the College of Medicine Library at Sagamu for the Pharmacy and Medical students. Specifically, the study sought to determine the:

i level of acidity or alkalinity of the library collections;
ii proportion of brittle collections in the library;
iii proportion of collections that has tears or has been mutilated; and
iv types of microorganisms associated with deteriorating library collections and investigate the role of each organism in causing deterioration *in vitro*.

Methodology

The survey of the extent and nature of deterioration of library materials at Olabisi Onabanjo University Library, Ago-Iwoye, Ogun State, Nigeria was carried out from April to July, 2002. At the time of the study, the total collections in the library were: textbooks and pamphlets, 45,232 volumes; theses and dissertations; 3,912; journals, 18,962 volumes (2,774 titles); and the number of newspapers, 14,422.

The stratified random sampling (Peterson, 1985) was adopted to select library materials for the investigation. The materials were organised into homogeneous units and randomisation was now applied to each stratum. The samples of different library materials included in the study were textbooks, 1,265; journals, 230; dissertations, 280 and newspapers, 150.

The nature and extent of deterioration of the library materials was carried out by determining the level of acidity/alkalinity, the level of folding endurance, extent of mutilation, and by isolating the microbes associated with deteriorating materials. These four methods have been found to be very reliable determinants of the durability of library materials.

Tests Used for the Study

Determination of Acidity/Alkalinity

The acidity/alkalinity test was carried out by determining the pH of the paper materials. pH is a measure of the hydrogen ion concentration of a substance. Acids have pH values below 7 (1 – 6), while alkaline have pH values above 7 (8 – 14). The pH value is a very reliable determinant of paper permeance and durability.

The pH was measured by placing a drop of distilled water on the portion to be tested, and then the pH indicator was brought into contact with the tested portion. The colour that appeared in the indicator was compared to the colour on the standards of the plast box. After the test, a small tissue paper was put on the portion tested to dry the surface.

The Folding Endurance Test

The degree of brittleness of the materials was determined by the fold endurance test. The higher the number of folds that paper could survive, the less brittle the paper. Paper materials that are brittle could not be subjected to much circulation and photocopy. The top corner of the last page of each material was folded twice to obtain one double fold, then it was folded twice in the opposite direction. Further repetition of the folding in alternate direction was repeated up to the sixth fold. However, folding was terminated immediately any little breakage was observed in the corners even before the sixth fold. The fragile nature of newsprints did not allow us to carry out the folding test. The folding endurance test would have been made to proceed more than six folds but the library authority did not permit us to carry out the exercise beyond this level.

Determination of the Extent of Mutilation

The extent of mutilation of library materials is a very good indicator of the carefulness of librarians and users in the handling of library materials, though some other factors such as moulds and insects could cause mutilation. The growth of moulds could lead to the production of spores, which would impart colouration to library materials, while insects such as cockroaches could create holes in books and their excretory materials may give rise to stains.

To determine the extent of mutilation, five pages in each of the materials were randomly opened and observed for stains, scribbling, tears or marks. The percentage of mutilated materials in each category was calculated from the number of mutilated materials over total number of materials samples.

Isolation of Microorganisms from Library Materials

The library materials that had visible evidence of deterioration were used for the investigation. These materials had been removed from the shelves and they were packed in one room in the library. The media used for the cultivation of microorganisms were nutrient agar for bacteria and potato dextrose agar (PDA) for fungi. Appropriate quantities of the powders were dissolved in distilled water, and sterilised in the autoclave at 121°C for 15 minutes. Small portions (1cm) were cut from the deteriorating materials and placed on the agar. Fifty cut tissues were placed on petri dishes for each type of library materials. For the control, the media were left without any deteriorating paper materials on them. The petri dishes inoculated with the cut papers were placed in the incubator at 27°C, and examined for microbial growth after the incubation period. Nutrient agar plates were examined after 24-48hours for bacteria, and PDA plates were examined up to 5-7 days for fungi.

The fungi and bacteria that grew out from the cut papers on agar were repeatedly sub-cultured on fresh agar plates until pure culture of each microbe was obtained. The pure cultures of fungi were identified by using morphological characteristics and by observing under the microscopes. The growth habits of fungi were observed under a wild binocular microscope. Portions of each fungus were put on a slide and teased apart (to spread the fungal structures apart so as to avoid overcrowding when viewed under the microscope) in distilled water, stained with cotton blue in lactophenol, then viewed under the light microscope and identified with reference to standard texts (Raper and Fennel, 1973; Barnett and Hunter, 1987) in consultation with mycologists in OOU, Ago-Iwoye.

For the identification of bacteria, colony characteristics such as shape, size, elevation, translucency and pigmentation were observed. The biochemical tests carried out on the bacterial isolates following the procedures outlined in Collins and Lyne (1976) and Fawole and Oso (1976) included Gram stain, motility test, spore staining, Voges-Proskauer test, gelatin hydrolysis, urease production, citrate utilisation, nitrate reduction, indole production, catalase test and oxidase test. The results of the biochemical tests were then used for tentative identification of the bacteria with the scheme of Bergey's Manual of Determinative Bacteriology (Buchanan and Gibbons, 1974).

Ability of Isolated Microbes to utilise Paper in Vitro

The ability of the isolated fungi and bacteria to degrade cellulose was investigated in order to know those organisms that were actually involved in the degradation. All the isolated fungi and bacteria were subjected to this test. The cellulose substrate used was Whatman No 1 filter paper, which is obtained from cotton 'linters' and can thus be regarded as pure cellulose. The method of Garrett (1962) was employed for the test. Three filter papers, each having a diameter of 9 cm, were folded together, and dried in the oven at 80°C to constant weight. One such wad was put in each of several Petri dishes to serve as the only source of carbon, and was enriched with 10 ml of nutrient solution of Pugh and Eggins (1962) of the following composition: $(NH_4)_2SO_4$, 0.5g; $MgSO_4.7H_2O$, 0.2g; KCl, 0.5g; $CaCl_2.2H_2O$, 1.0g and distilled water, one litre. For the fungi, mycelia disks measuring 10mm in diameter were cut from actively growing cultures and introduced onto the enriched filter paper, while in the case of bacteria, the inoculating loop was dipped in the culture and used in making zigzag lines on the surface of enriched filter paper. Three plates were inoculated for each microbe, while the control was also set up by introducing blank agar disk onto nutrient enriched filter papers. All the plates were incubated at room temperatures (28±2°C) for 21 days. Thereafter, the microbial growths were carefully removed, and the filter papers dried to constant weight. The weight loss was determined by subtracting the final weight of filter papers from the initial weight before incubation. The weight losses in the filter papers represented the amount of cellulose utilised for growth by the microorganisms.

Results

Acidity

Based on the criteria used to assess acidity/alkalinity, 4.90% of the books sampled in OOU Library were very acidic, 64% were acidic and 31% were slightly acidic, while none had neutral pH (Table 1). For the journals, 2.6% were very acidic, about 50% acidic, 46% slightly acidic while 1.7% had neutral pH. Among the dissertations used for our survey, none of the papers had very acidic pH, 73.2% had acidic papers while 26.8% had slightly acidic papers. In the case of newspapers, 2% had very acidic papers, 83.3% had acidic papers while 14.7% had slightly acidic papers. Altogether, if the materials with very acidic and acidic pH are added together, then, 69.0% of textbooks, 52.2% of journals, 73.2% of dissertations and 85.3% of newspapers were acidic in nature.

Folding Endurance

Table 2 presents the results of the folding endurance test on different categories of library materials. The results shows that less than one per cent of books and dissertations broke after one double fold, while none of the journals sampled broke when subjected to one double fold. The percentage of books with broken corners increased when subjected to two double folds, but the value was still less than 1% in journals, 1.1% in books and 3.6% in dissertations. After the third double folds, 98.3% of journals, 93.4% of books and 89.3% of dissertations did not have broken corners.

Table 1: The pH Values (Acidity Levels) of Library Materials Surveyed

Materials	n	pH values	Frequency	Percentage	Level of acidity
Books	1,265	<3.8	63	4.9	Very acidic
		3.8 - < 5.4	809	64.0	Acidic
		5.4 - <7.0	393	31.1	Slightly acidic
		≥ 7.0	0	0	Neutral
Journals	230	<3.8	6	2.6	Very Acidic
		3.8 - < 5.4	114	49.6	Acidic
		5.4 - <7.0	106	46.1	Slightly Acidic
		≥ 7.0	4	1.7	Neutral
Dissertation	280	<3.8	0	0	Very Acidic
		3.8 - < 5.4	205	73.2	Acidic
		5.4 - <7.0	75	26.8	Slightly Acidic
		≥ 7.0	0	0	Neutral
Newspaper	150	<3.8	3	2.0	Very Acidic
		3.8 - < 5.4	125	83.3	Acidic
		5.4 - <7.0	22	14.7	Slightly Acidic
		≥7.0	0	0	Neutral

Keys for grouping the acidity of the library materials

<3.8	Very acidic paper
3.8 - < 5.4	Acidic
5.4 - <7.0	Slightly acidic
≥ 7.0	Neutral

Table 2: The Frequency and Percentage of Library Materials with Broken Corners after Different Folding Levels

		Materials with Broken Corners		
Materials	level of folding	Frequency	Percentage	Durability
Books	One double fold	5	0.2	Very Brittle
	Two double fold	14	1.1	Brittle
	Three double fold	64	5.1	Weak
	Not broken	1182	93.4	Not Brittle
Journals	One double fold	0	0	Very Brittle
	Two double fold	1	0.4	Brittle
	Three double fold	3	1.3	Weak
	Not broken	226	98.3.	Not Brittle
Dissertations	One double fold	2	0.7	Very Brittle
	Two double fold	10	3.6	Brittle
	Three double fold	18	6.4	Weak
	Not broken	250	89.3	Not Brittle

Mutilation

The results in table 3 present the frequency and proportion of mutilated materials among library collections at OOU. For the assessment, a material was categorised as mutilated if it had stains, tears, scribbling or marks. The newspapers had the highest proportion of mutilation (22%), followed by textbooks (11.9%), dissertations (10.4%) and the lowest in journals (5.7%).

Table 3. Frequency of Library Collections at OOU that had been mutilated

Materials	n	Mutilated Materials	
		Frequency	Percentage
Books	1,265	151	11.9
Journals	230	13	5.7
Dissertation	280	29	10.4
Newspaper	150	33	22.0

Microorganisms

Five bacteria and seven fungi were isolated from deteriorating library materials (Table 4). The bacteria were tentatively identified as *Bacillus* sp. *Streptococcus* sp. *Pseudomonas* sp. *Staphylococcus* sp and *Flavobacterium* sp with *Bacillus* sp being the most common. The fungal isolates were *Aspergillus niger*, Aspergillus *flavus*, *Aspergillus fumigatus*, *Cladosporium* sp, *Neurospora* sp, *Penicillium* sp and *Rhizopus* sp. The most common fungi on deteriorating library materials were *A. niger*, *A. flavus*, Cladosporium sp, and *Penicillium* sp. The following microorganisms, *Bacillus* sp. *A. niger*, *A. flavus*, *Cladosporium* sp and *Penicillium* sp were found on all the four different types of library materials investigated.

The newsprints harboured the highest number of microorganisms, with the isolation of 12 microbes and 52 isolates, followed by textbooks (10 microbes and 49 isolates), while the least was found in journals (7 microbes and 33 isolates).

The test on the ability of microorganisms to degrade filter paper, which is a form of paper material, was carried out in order to know whether the organisms are just present as surface contaminants, or that they are actually involved in the biodeterioration processes. Of the five bacteria isolates, only two, *Bacillus* sp and *Pseudomonas* sp. utilised little quantity of the filter paper for growth (Table 5). Visual ratings of growth showed that the two bacteria had scanty growth on filter papers.

Table 4: Frequency of Microorganisms Isolated from various Deteriorating Library Materials (n = 50)

Microbes	Textbooks	Journals	Dissertation	Newsprint	Total isolates
Bacillus sp	6a	6	4	7	23
Streptococcus sp	4	-	-	3	7
Pseudomonas sp	3	-	3	2	8
Staphylococcus sp	3	-	2	2	7
Flavobacterium sp	-	3	-	4	7
Aspergillus niger	8	6	8	7	29
Aspergillus flavus	9	6	7	5	27
Aspergillus fumigatus	5	-	2	4	11
Cladosporium sp	4	6	8	7	25
Neurospora sp	-	2	4	3	9
Penicillium sp	4	4	5	7	20
R*hizopus* sp	3	-	-	2	5
Total isolates	49	33	43	53	178

a = Number of plated tissues yielding each microorganism out of a total of 50

The fungus *A. niger* effected the highest reduction (58.3mg) in the weight of filter papers followed by *A. flavus*. The net loss in weight caused by these two fungi was significantly higher ($p<0.05$) than those caused by other fungi. Visual ratings of growth also showed that these two fungi also recorded excellent growth on filter papers. The three other fungi that hydrolysed filter papers in decreasing order of effectiveness with the net loss in weight in parenthesis were *A. fumigatus* (41.0mg), *Penicillium* sp (38.7mg) and *Cladosporium* sp (22.5mg). These three fungi recorded moderate growth on filter paper. Two fungi *Neurospora* sp and *Rhizopus* sp, did not grow on filter paper, pointing to their inability to utilise cellulose for growth.

Discussion

It is an established fact that acidity is a major cause of paper deterioration; and that the higher the acidity, the shorter the life-span of the paper. However, acidification is a very efficient cost- saving means of hydrolysing wood which is the first phase in the production of paper. The general belief is that that the origin of acidity in paper is from the acid used during the process of paper manufacturing. However, it is now realised that the absorption of oxides of sulphur and nitrogen from the environment could generate strong acids, while the spontaneous degradation of cellulose and hemicellulose during aging could generate weak acids. Alegbeleye (1996) was of the view that the pH of paper should be between 5.4 and 6.0 for durability. A considerable proportion of the library materials (69.0% of textbooks, 52.2% of journals, 73.2% of dissertations and 85.3% of newspapers) in OOU had pH below 5.4, indicating that the life-span of the materials might not be too durable. That the majority of those collections are acidic is to be expected because many of the books were products of acid hydrolysis of woods. Mwangi (1994) had pointed out that 73.3% of the books in selected Kenyan libraries had pH below 4.0 and thus stand the risk of acid hydrolysis.

The results of the folding endurance tests revealed that less than 10% of the OOU Library collections were in the brittle category. This is to be

Table 5. Hydrolysis of Paper after 21 Days of Incubation at Room Temperature (28 2^{0}C) by Microbial Isolates

Isolates	Net loss in wt (mg) of filter papers	Visual estimation of growth	Rating of growth
Bacillus sp	21.3 2.5b**	+	Scanty growth
Streptococcus sp	0.0a	-	No growth
Pseudomonas sp	13.7 1.8b	+	Moderate growth
Staphylococcus sp	0.0a	-	No growth
Flavobacterium sp	0.0a	-	No growth
Aspergillus niger	58.3 3.5d	+++	Excellent growth
Aspergillus flavus	52.3 2.8cd	+++	Excellent growth
Aspergillus fumigatus	41.0 4.3c	++	Moderate growth
Cladosporium sp	22.5 3.5b	++	moderate growth
Neurospora sp	0.0a	-	No growth
Penicillium sp	38.7 4.6c	++	Moderate growth
Rhizopus sp	0.0a	-	No growth

Keys for determination of visual growth of microorganisms on filter papers

- = no growth
+ = scanty growth
++ = moderate growth
+++ = excellent growth

Each value is a mean of three replicates ± standard deviations; the values represent the weight loss of filter papers due to its utilisation by microorganisms for growth and metabolic activities.

** Means followed by the same letter(s) are not significantly different at $p < 0.05$ using the Duncan Multiple Range test.

expected considering the fact that the age of the University was still less than 20 years at the time of the study and a majority of the collections were purchased new after the university began operations. In the Yale's collections, 37.1% of the collections had brittle papers (Walker, 1985). It therefore means that with time the proportion of brittle papers in the library will increase, and the library will need to take proper steps now to minimise the problem in future.

The present study has revealed the association of five bacteria identified as *Bacillus* sp, *Streptococcus* sp, *Pseudomonas* sp, *Staphylococcus* sp and *Flavobacterium* sp and seven fungi: *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus fumigatus*, *Cladosporium* sp, *Neurospora* sp, *Penicillium* sp. and *Rhizopus* sp. with deteriorating papers at Olabisi Onabanjo University, Ago-Iwoye. The air spora contain many fungal spores that could colonise any surface if conditions are favourable. The fungi that were isolated in this study are ubiquitous, implying that they are found everywhere.

It was found that the fungi in decreasing order of ability: *A. niger*, *A. flavus*, *A. fumigatus*, *Penicillium* sp and *Cladosporium* sp were able to utilise filter paper for growth. The two bacterial isolates, *Bacillus and Pseudomonas sp.* grew mildly and utilised filter paper. The implication of this finding is that fungi are more important than bacteria as agents of paper deterioration. While the results confirmed that fungi play active roles in the deterioration of paper materials, it also implies that bacteria isolated from deteriorating books may have arrived at the surfaces as contaminants from dusts and that they do not play important role as causative agents of degradation.

The degradation of paper is a pointer to the production of a complex extracellular enzymes that could degrade cellulose collectively referred to as cellulases. The production of cellulolytic enzymes is a very rare attribute among microorganisms. That *A. niger* and *A. flavus* efficiently utilised filter papers for growth is to be expected because these organisms are often abundantly isolated from decaying plant materials in the soil (Alexander, 1978). Olutiola (1976) reported the presence of cellulases in the culture filtrates of *A. flavus*.

Apart from the destruction of materials, the presence of these fungi on book materials may pose some risks to the health of library users. In developed countries, microbial, and particularly mould-related health problems in homes, offices and public buildings including school libraries have gained recognition as one of the most common indoor environmental issues (Eckardt, 2004). *A fumigatus*, one of the prominent fungi isolate is known to cause a respiratory disease known as 'aspergillosis' with the symptoms resembling that of tuberculosis, and it is also known to produce the mycotoxin gliotoxin (Alexoupolus, 1979). *A flavus* produces numerous spores which can contaminate food and produce very potent secondary metabolites such as aflatoxins and cycolpiazonic acid. Aflatoxin is a strongly carcinogenic metabolite classified as a class I carcinogen (IARC, 1993), and it has also been shown to cause immunotoxicity and growth retardation in West African children (Gong *et al.*, 2002). Though the principal mode of infection of mycotoxins is by ingestion of contaminated food, however, they have been proposed to cause adverse human health effects after inhalation exposure to mould in indoor residential, school and office environments (Kelman *et al.*, 2004). The inhalation of the spores of moulds such as *Cladosporium* sp could elicit allergic reactions in compromised individuals. The tubercule bacilli (*Mycobacterium tuberculosis*) have been found on the dust on books and cloths used by carriers (Joklik *et al.*, 1984). The discharges from the throats and nasal passages of a library user that is a carrier of pathogenic microorganisms could contaminate books. The presence of microbes on books could thus constitute a potential source of health hazards to users, especially those that are used to putting their fingers in the mouth before using them to flip through the pages of books.

Conclusion and Recommendations

The present work has shown that most of the paper materials in OOU Library had acidic properties, thus making them liable to deterioration. The work established the roles of biological agents (moulds and bacteria) in the deterioration of library collections. Physical evidence of deterioration in papers includes browning, tears, scribbling, marks and the visible presence of spores of fungi on papers. Deacidification technologies to remove acid in papers could be used but it may not be cost-effective and also requires expertise. Also, deacidification can neither restore strength to papers that are already brittle nor remove colourations from papers. Thus, for acidic books that have become brittle, reformatting techniques, which involve one of the following: microfilming, microfilming and digitisation and photocopy could be used to make these materials accessible.

The literature shows that the isolated fungi have strains that can produce toxic metabolites that may be toxic on inhalation and could also cause allergic reaction in man, thus constituting a danger to the health of library users. Thus, the deterioration of papers by biological agents, particularly moulds, should be accorded high priority in tropical countries including Nigeria, because the prevailing high ambient temperature (25-35°C) and relative humidity (³80%) particularly in the southern parts facilitate rapid proliferation of microorganisms. Library materials showing traces of deterioration due to microorganisms should be removed immediately from circulation because of their heath implications. Library users should be educated on the danger of putting their fingers into the mouth before flipping through paper materials as a human carrier of disease might have previously used these materials.

The proliferation of moulds and other biological agents such as moulds and insects in eating up paper is halted at low temperature; it is thus recommended that air conditioners be installed in all parts of the library, and they should be functional at all times because interrupted services of air conditioners will create temperature and humidity fluctuations that will do more harm than good.

The current drive of most libraries to develop their collection is worthwhile; it would also be desirable if preservation strategies for these materials to ensure their durability are also integrated into collection development. Thus, preservation criteria should be incorporated into collection decisions by academic libraries. The authors would also like to support the recommendations of Alegbeleye (1996) that academic libraries in Nigeria should now create positions for conservationists and preservationists whose duty would be the physical care of various library materials. Academic libraries should work hand in hand with scientists in relevant disciplines to be able to devise appropriate preventive and treatment strategies against paper deterioration.

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Acknowledgements

The authors wish to acknowledge the assistance of Drs S.A. Bankole and A. Osho, Department of Microbiology, Olabisi Onabanjo University, Ago-Iwoye, Ogun State and Mr. Festus Olajubu, Department of Medical Microbiology, Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State for experimental contributions and helpful discussions.

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Afr. J. Lib. Arch. & Inf. Sc. Vol. 15, No. 2 (2005) 109 - 116

Knowledge, Attitude and Perception of Health Workers on the Health Management Information System: A Case Study of Kinondoni Municipality in Dar Es Salaam Region, Tanzania

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Abstract

A cross-sectional study was conducted to assess the knowledge of health workers on the Health Management Information System (HMIS), attitude towards data collection activities and perception on the appropriateness of the system. Using a structured questionnaire, 214 health workers from 69 health facilities (dispensaries, health centres and hospitals) in Kinondoni Municipality were interviewed. Focus group discussions were also held with selected health staff. Knowledge of basic HMIS concepts was found to be low (11.8% - 23.4%). However, this study found no significant difference in the knowledge of HMIS between those trained and not trained on HMIS. A majority of health workers (70%) thought the system was useful for purposes of determining disease patterns and for keeping records. Although HMIS was reported as cumbersome, a majority (79.5%) wanted the system to continue without changes. Reasons for this contradictory position could not be established. The study concludes by arguing that training of health workers on HMIS needs to be demand driven and conducted after thorough training and needs assessment. Strategies are required to create demand for data among health workers at health facility level. These might include improving managerial capacity, empowerment and accountability.

Introduction

The Health Management Information System (HMIS), also known in Kiswahili as Mfumo wa Taarifa za Huduma za Afya (MTUHA), was conceived in the late 1980s and its implementation started in 1993. Before the HMIS was introduced, Tanzania had no formal integrated health information system. There existed a fragmented information system organised through individual programmes, private facilities and non-governmental organisations (NGOs). All of them had their own parallel systems for data collection, compilation and reporting.

Several weaknesses were associated with these systems: first, the inherent verticality of the systems implied that there was no horizontal flow of information. For example, information from vertical programmes in private and NGO hospitals could not be accessed and shared at the community, district and even at the regional levels simply because these levels were by passed in the reporting hierarchy. This denied health workers at these levels valuable information necessary to address health and related problems. The system was fragmented, top -down and ineffective in the sense that it did not facilitate data utilisation in management and decision making at the lower levels of the health care delivery system (HERA: 2000).

It was in view of these weaknesses that the Ministry of Health, Tanzania, conceived the HMIS. The main goal of the HMIS was to optimise the performance of health services at all levels of the health care delivery system. Specifically, the system aimed at improving health service delivery by providing necessary and sufficient information needed by health managers to plan, implement, monitor and evaluate their activities at all levels of the health care delivery system. The system was designed to be functional at the level of data collection. This was facilitated by the introduction of a number of indicators with numerators and denominators collected through registers and forms. For each indicator, target and threshold values were set to guide health workers in decision-making. The system also sought to integrate data requirement by the numerous vertical programmes whose demand for data overburdened health workers.

Through the HMIS, a wide range of data is captured. These include number of outpatient attendance, admissions, deaths and diagnoses. Others include, reproductive and child health data such as births, maternal mortality rates, infant mortality rates, attendance at RCH clinics, environmental and sanitation data, and pharmacy and laboratory data. Information from the data book is used for management purposes and also reported to the higher levels (i.e. district, regional and ministerial).

The HMIS was introduced through a cascade approach under which health workers were trained on the system throughout the country. Whereas all health workers at regional and district levels (Regional Health Management Teams and District Health Management Teams respectively) were trained, a maximum of 3 members of staff were trained at dispensary level, 6 at health centre level and 12 at hospital level. The assumption was that those trained would in turn train other staff on the job. The targeted health workers at health facility levels were those involved in data collection and processing, namely, health facility in charges, doctors/clinicians, nurses, pharmacists and laboratory technologists.

Training was conducted in two phases. During phase one, emphasis was put on imparting knowledge on data collection while in phase two the focus was on development of skills for data analysis and interpretation. The latter was conducted three months after to enable health workers gather enough data to make training more practical. Initial follow-up was conducted between phase one and phase two training and the second follow-up was made three months after phase two training. Again, a cascade system was used to follow-up implementation after training. Guideline books describing data collection process including definitions of terms, procedures for recording, aggregating data and calculation of indicators were provided (Ministry of Health, 1992a). Much as the HMIS sought to provide health managers at lower levels (health facility level) with data of acceptable quality, ten years after its introduction the goal is yet to be achieved (Ministry of Health, 2002). A review conducted in 2002 showed that the quality and accuracy of HMIS data was not sufficiently assured and that health workers especially at the health facility level, were overburdened by high workload in collecting HMIS data. This study was therefore conducted in order to explore the knowledge, attitude and perception of health workers with regard to the HMIS. Specifically the study aimed at determining the level of understanding of the HMIS basic definitions and concepts by health staff. Also, the study aimed at determining the level of understanding by health staff of the basic definitions and concepts of HMIS, the attitude and perception of health workers towards data collection activities and the appropriateness (relevance, detail and frequency) of routinely collected data.

Methodology

Study Site

Kinondoni is one of the three municipalities that form the city of Dar es Salaam in Tanzania. With a population of about 1,088,867, it is the most highly populated district in the country (Central Census Office: 2003). The Municipality is served by one district hospital, four health centres and [illegible] dispensaries owned by government. There are also 10 hospitals and 148 dispensaries that are owned by the private sector. The Municipal Medical Officer of Health is the overall in charge of health activities assisted by other members of the Council Health Management Team. There are a total of 649 health staff of whom 22 serve at the district level. [illegible] the Municipal Hospital, 118 in the health centres, 224 in the dispensaries and 57 are working in the Environmental Health Section.

Study Sample and Population

Kinondoni district was conveniently selected since it is within Dar es Salaam where the researchers are based. Using a list of health facilities available at the office of the Municipal Medical Officer of Health, a random sample of 41 was picked out of 148 private health facilities representing 25% of all private health facilities. These included dispensaries, health centres and hospitals. A sample of 25% has been reported to be an adequate representative sample in health systems research (Kielman, 1995). All the government health facilities (28) including the district hospital and parastatal health facilities were involved in the study. Altogether, a total of 69 health facilities were covered as shown in table 1 below.

Table 1. Number and Type of health facilities studied

Type of Health Facility	Government	Private	Total
Hospital	1	4	5
Health centre	5	0	5
Dispensary	22	37	59
TOTAL	28	41	69

Using a structured questionnaire, all health staff involved in data collection were interviewed. Altogether, 214 health workers were interviewed in this study as shown in table 2.

Table 2: Interview Health Workers by Type of Facilities

Facility Type	Government	Private	Total	Percent
Hospital	3	16	19	8.9
Health Centre	19	6	25	11.7
Dispensary	87	83	170	79.4
Total	109 (50.9)	105 (49.1)	214	100.0

Staff categories included facility in charges; doctors/clinicians; nurses working in the RCH clinics; and pharmacy and laboratory staff. Focus group discussions were held in six health facilities. Criteria for selection were based on the existence of adequate number of staff to form a group for the discussion, that is more than six. Because of the limited number of staff to form groups for discussions, particularly in private and parastatal facilities, in-depth discussions were held instead. These were held in four dispensaries.

Methods of Data Collection

Data collection was done using a structured questionnaire that was administered to all the staff included in the study. Issues probed included health workers' knowledge on basic HMIS concepts, training status, perceptions and attitudes on HMIS data collection activities. Data collection was conducted by the investigators assisted by two research assistants.

Focus group discussions (FGD) were used to elicit health workers' attitudes and perceptions about HMIS data collection activities. Flexibility of questioning in this method allowed in-depth description of problems and solutions pertaining to HMIS that could not be revealed using structured questionnaire (Dawson et al, 1993). FGDs and in depth discussions were held by the two investigators. In each session, one of the investigator played a leading role while the other took notes. The discussions were taped for records and for the purpose of facilitating analyses. Key issues raised during the discussions included the perceived importance of data collection; constraints experienced in the process; the perceived quality of data emanating from the systems and recommendations on the future development of the system. A pre-test was done in four health facilities to check on the relevance of data collection tools and the overall research approach. The results of the pre-test were used in the preparation of the final refined data collection tools.

Data Analysis

Data were analysed using both quantitative and qualitative methods. Quantitative data were analysed by using EPI Info software in which frequency and cross-tables were generated. Qualitative data from the focus group discussions were analysed descriptively from notes taken during FGD and transcript prepared from tape-recordings.

Findings

Knowledge of HMIS Concepts

Knowledge of HMIS concepts was assessed by asking respondents to explain/define five basic concepts shown in table 3. Definitions found in the HMIS guidelines were used as criteria for determining correct response. Of the five basic concepts, the long form of HMIS was better known (23.4%) while the least known concept was threshold value (11.8%). Whereas 26 participants declined to respond to the question on long form of HMIS, 27 of them did not respond to the other four concepts.

Table 3: Knowledge of the various HMIS Concepts (N = 214)

Concept	Correct Answer		Incorrect Answer		Don't know		TOTAL
	No.	%	No.	%	No.	%	Total
HMIS long form	44	23.4	90	47.9	54	28.7	188
Indicator definition	32	17.1	94	19.3	61	32.6	187
Numerator definition	24	12.8	100	53.5	63	33.7	187
Denominators definition	24	12.8	100	53.5	63	33.7	187
Threshold value definition	22	11.8	102	54.5	63	33.7	187

About a third of the respondents did not know the various concept defintions as revealed in table 3.

Training on HMIS

Although 93% of the targeted health workers were initially trained on HMIS (AFRO-AID, 1997) this study showed that only 36% of the respondents reported to have had the training - see table 4. This difference can partly be explained by staff attrition rate through retirement, death and even changing to other non-medical professions. Moreover, it should be noted that staff who have been employed in recent years have not yet been exposed to HMIS training. However, these reasons alone cannot explain such a low level of understanding of HMIS concepts. It is possible that lack of training might have been cited by staff as an alibi for inadequate performance in the HMIS.

Table 4: Training on HMIS by health facility ownership (N = 214)

Health facility ownership	Trained	%	Not trained	%	Total
Public	55	52.9	49	47.1	104
Private	22	20.2	87	79.8	109
Total	77	36.2	136	63.8	213

An attempt was made to associate health workers knowledge of the HMIS with training using knowledge of the long form of HMIS as an example. Results show that those who received training on HMIS had a slightly better knowledge (52.1%) compared to those not trained (47.9%). From a statistical point of view, the difference was not significant (p-value > 0.05).

Attitude and Perception

Health staff were asked to give their opinion on what they thought was the importance of the HMIS. Table 5 shows that a large proportion of health workers thought the system was for determining disease patterns (40%) and for reference (26.7%). The perceived role of data for identifying managerial problems, ordering drugs and planning was relatively low, 2.1%; 7.2% and 15.4% respectively. Overall about a quarter of the respondents (24.2%) thought that HMIS was useful for decision- making.

It was noted during the FGDs that health facility workers perceived the HMIS data as a property of the higher authorities, as quoted from one of the health workers '*Our work is just to do the compilation and send the reports to the district. It is the district people who know how to use such information....*'. Surprisingly, health facility workers

Table 5: Perceived Level of Importance of HMIS Data (N = 214)

Item/activities Assessed for level of importance	Number	Percent
Disease pattern	78	40.0
Reference	52	26.7
Plan	30	15.4
Order drugs	14	7.2
Reporting	6	3.1
Know type of problem	4	2.1
Others	11	5.6
Total	195	100

in the Municipality have been involved in the preparation of their own plans that were later incorporated into the Municipal comprehensive health plans. It was also revealed through FGDs that excessive paperwork and recording of the same data in a series of books was a serious weakness of the HMIS system. One of the staff made a comment saying, *"If I was a private operator I wouldn't need all these registers."* Health workers were asked how they perceived the quality of the HMIS data during focus group discussions where one of the staff was quoted as saying *"We are too few here and we are handling so many patients and clients. The paper work is just too much. We have to fill in papers dealing with insurance scheme, cost sharing, exemptions, financial records and of course HMIS books. Under these circumstances it happens that some of the data is not entered in the books hence affecting accuracy."* Another participant from a private health facility was quoted as saying *"I have worked with government health facilities before, and I know their data is not accurate because most clinicians are not filling the outpatient registers as required."* It can be concluded that findings from the FGDs reinforce those of interviews obtained through quantitative method.

Opinions were sought from health workers on the future of the HMIS. Despite concerns of being overburdened by workload, and the tedious work of filling in a series of registers / data books, majority of health staff (79.5%) felt that the system was important / very important and wanted to have collection of data to continue in their facilities. These findings correspond with those reported through focus group discussion where some of the respondents were quoted as saying: *"The system should be sustained by all means." "If we were to choose whether or not to continue with the HMIS (OPD register), I would choose to continue using it."* A majority of them wanted the system to continue, as it is, with few modifications. A health staff operating in a private facility said during FGD saying 'I *like to have these registers because they give me a record of what I am doing..."* However, a few of them had a different opinion saying *'If it was in my power I would scrap off the HMIS."* Again, despite concerns on being overburdened with data collection, when asked to propose data to be dropped from the system, a majority (91.9%) could not mention any; instead, they wanted the system to continue as it is – (see table 6). Although more public health staff mentioned some changes (12.4%) compared to staff in private facilities (4.0%), the difference was not statistically different (p-value > 0.05).

Table 6: Opinion on whether or not to drop data items from the HMIS by Respondents Health Facility Ownership (N = 214)

What to delete	Gov	%	Private	%	Total	%
Mention	12	12.4	4	4.0	16	8.1
None	85	87.6	97	96.0	182	91.9
Total	97	100.0	101	100.0	198	100.0

Discussion

The proportion of health workers who understood basic concepts of the HMIS was found to be extremely low, less than a quarter. Th s indicates either lack of training or indifference to the whole exercise of data collection, or both. The low level of knowledge found in this study can partly be attributed to the large proportion of staff (64%) who reported to have not been trained. Training has always featured as the main strategy for improvement of routine data collection (Finau, 1994). During the introduction of the HMIS in Tanzania, health facility and MCH in charges were targeted for training (Ministry of Health, 1992b). Others were left out due to financial constraints. An assumption was made that those trained would conduct on-the-job training for their subordinates.

The HMIS was introduced in Dar es Salaam Region in July 1997. Six years after its introduction, a significant proportion of health workers still did not know the basic concepts. This shows that the assumption made that those trained would train others did not materialise. What is so intriguing is the fact that during the implementation of the HMIS, guidelines for data collection that included definitions of terms and procedures for recording and aggregating data were provided (Ministry of Health, 1992a) and continued to be distributed on an annual basis.

However, training in HMIS may not be the problem. Instead, it is probably a manifestation of unwillingness to fill in the forms and lack of commitment and accountability of the poorly supervised health workers (Finau, 1994). Training workshops are taken by health workers as income generating activities through the per diems that are usually offered (Van Lerberghe et al, 2002). This can explain the reluctance of health workers to learn from their colleagues on the job as it denies them potential income. Thus, the lack of knowledge is seen as an asset that might attract consideration for training on HMIS with ultimate financial gains.

In view of the above facts, one can argue that the failure to understand simple and basic definitions/ concepts of the HMIS that have been disseminated through training and the guideline books available in most of the facilities at best depicts a lack of interest and apathy on HMIS among health workers.

The need to have data seemed to be unquestionable by many health facility staff. However, the motive for the need was not obvious. Both qualitative and quantitative data from this study have shown that data were not explicitly needed at the health facility for decision making. The question then is, why do health facility workers collect data when they do not intend to use it for decision making? On the other hand, why should the health facility workers be obliged to process data for the sole purpose of reporting when it takes a substantial amount of their time to compile data every month and 'calculate' indicators each quarter? In relation to these questions, this study has shown that health workers generally think the HMIS is for the district and the Ministry of Health officials and that their role is simply to collect data and report to them. The implication of this attitude is that the health workers do not attach much value to the data they are required to collect and process. It has been reported that, often, it is the highly-placed bureaucrats, financers of HMIS and academicians, whose need for data is enormous, who make decisions on what data to be collected without adequate consideration of health workers at the lower level (Opit, 1987). Since staff at health facility level are alienated from its use, they regard the system as a useless bureaucratic task (Opit, 1987). It has also been argued that data are often collected by subordinates and reported to the higher authority as a social norm that makes it highly symbolic (Feldman and March, 1981).

The HMIS was developed to be a tool for facilitating problem identification and evidence-based decision making in the management of health care services. The fact that only a quarter of health workers appreciate the importance of HMIS as a tool for decision-making and planning, might explain the indifference to the system and lack of ownership of the system by health workers at the health facility level.

Conclusion and Recommendations

This study has revealed that health workers at the health facility level do not perceive the HMIS as a useful tool to them. Interestingly, the same health workers who showed inadequate sense of ownership of the system expressed willingness to collect and diligently report all the HMIS data as currently requested of them. Unless this conflicting interest is addressed, strategies to strengthen the HMIS would be fruitless. This raises a number of questions such as, what value do health workers attach to data collection and reporting? Is it a status symbol as claimed by other authors (Feldman and March, 1981), or are data perceived to be an end in itself?

The success of HMIS depends on ownership of the system by health workers who collect the data. It is irrational to demand from health workers at the periphery to compile data they do not intend to use. Therefore, efforts to strengthen the HMIS need to be preceded by strategies to increase ownership at the health facility level. This can be achieved through rationalisation of data needs, on one hand; and strategies for creating demand for data for decision-making at health facility levels, on the other hand. With rationalisation, only necessary data at the respective level are collected. Demand for data for decision-making can be increased through improving managerial capacity, accountability and empowerment of health workers at the health facility level.

This study has shown that the level of knowledge of HMIS is very low. Although a majority of them reported not to have been trained on HMIS, apparently, even those trained did not show better knowledge. Thus, training on HMIS need to be demand driven. Through training needs assessment true demands for training can be established.

Since this study was conducted in one urban district, findings and conclusion made might not necessarily represent the rest of the districts, particularly the rural districts that are in the majority. A similar study covering more districts (both rural and urban) is recommended in order to draw conclusions and generalisations about health workers' knowledge, perceptions and attitude about the HMIS. The limitation notwithstanding, this study has a wider implication as it underscores the need for continuous recasting of the HMIS in Tanzania, taking into account experiences accrued to date, and the needs of data collectors- the health facility workers.

Acknowledgement

The authors wish to thank the Muhimbili University College of Health Sciences and SAREC for financial support. Also, the Kinondoni Municipality Health Management Team and the in- charges of the respective health facilities for their cooperation in this study.

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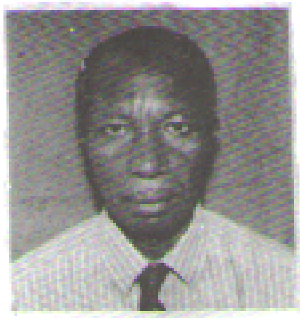

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Afr. J. Lib. Arch. & Inf. Sc. Vol. 15, No. 2 (2005) 117 - 124

The Integration of Information Literacy Skills into a Credit-Earning Programme at the University of Botswana

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Abstract

Information Literacy Skills (ILS) empowers graduates to develop abilities and skills to harness and use information resources efficiently and effectively. Universities are the major source of human resource development, and therefore have a responsibility to develop their graduates for life-long learning. The University of Botswana is no exception. The paper shares the experiences of the University of integrating its ILS programme into a credit-earning programme. The paper reports challenges faced and how they were addressed.

Introduction

Many organisations and scholars have defined information literacy in different ways. To some people it means "library literacy" or "bibliographic instruction". Other people believe it is "computer literacy" or "critical thinking" (American Library Association, 1996). The American Library Association defines it as a term "applied to the skills of information problem-solving", and adds that an information-literate person is one who "must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (American Library Association, 1996). Raseroka (nd) states that the definition of information literacy has been articulated through the identification of abilities which are attained at the end of skill building activities. These include the location, evaluation, management and use of information from a range of sources not only for problem solving but also for decision making and research.

The long term vision for Botswana (Presidential Taskforce, 1997) highlights the importance of information when it says, "Botswana will have entered the information age" and that by 2016 "Botswana will be free and democratic, a society where information on the operations of Government, private sector and other organisations is freely available". With this vision, it is clear that people, including students will be expected to work more and more with information. To be able to effectively and efficiently do this, they will need to be information literate.

According to Raseroka (nd), the recognition by African governments of the importance of information for development through the Africa Information Society Initiative (AISI), places a responsibility on universities as the major source for human resource development to help graduates to develop abilities and skills to harness and use information resources efficiently and effectively. However, few universities, particularly in Africa, including the University of Botswana (UB), have accepted this responsibility, and have delegated the responsibility to their libraries. This role of the university library in facilitating the development of information literacy skills, according to Raseroka, arises from the library and information professionals' specialised abilities as front runners in the manipulation and exploitation of ICTs for identifying, locating and managing information.

Literature on information literacy training practices in African universities is scanty. While most university libraries are probably paying attention to teaching information skills in various guises, details of such courses were often not reported in the literature. Most universities in Africa practise mainly user education and library orientation (Dulle, 2004), most of which lack the capacity of producing an information user who exhibits adequate information literacy attributes (Katundu, cited in Dulle, 2004). Nevertheless, in addition to what has been reported in the literature on information literacy at the University of Botswana (Asafu-Adjaye, 1993; Lamusse 1994; Mbambo and Roselle, 1999; and Yeboah, 1999), meaningful and significant efforts for information literacy development have also been undertaken in South Africa (Dulle, 2004; Kibirige, 2004) and Tanzania (Dulle, 2004).

Information literacy training programmes in South Africa started from the 1980s, but were neither compulsory nor credit-earning. However, as a result of the INFOLIT initiative, which resulted from the "Senn Breivik Report" on the importance of information literacy, a new credit-earning information literacy course was launched at the University of Cape Town (UCT) in 1996. It was initiated in the University of South Africa - Pretoria and Natal campuses, and at the Natal Technikon Library. There were also joint programmes between the University of the Western Cape (UWC) and UCT; and between the Universities of Pretoria and Potchestroom. They were all directed primarily at undergraduate students; and aimed at teaching information skills and not library skills. They were also generic, i.e. designed for students from different disciplines and did not deal with curriculum-specific material at any great depth (De Jager and Nassimbeni, 2002). The primary objective of INFOLIT, according to Dulle (2004) was, and continues to be to provide undergraduate students especially those from disadvantaged background with enhanced information literacy skills.

An exception, according to De Jager and Nassimbeni (2002), was the curriculum-specific course in research information skills for the master's degree students in chemistry at the University of South Africa in 1997. The course, designed as a distance offering programme, made use of workshop components to provide students with practical, hands-on training in information skills, and used an innovative method of portfolio evaluation with which to measure student performance. In UCT, it was introduced in the Faculty of Humanities in 2001. The Botany Department at UWC has an experimental course delivered on the World Wide Web (WWW), which emphasises the student-centred approach.

De Jager and Nassimbeni's (2002) report of current practices in South Africa show evidence of information literacy activities and of cooperation between the various libraries and academic departments in seven universities and five technikons (polytechnics). In four of the institutions with departments of communication or information studies, the departments were jointly responsible for courses with the libraries. Six of the institutions offered stand-alone and generic courses while six reported attempts at integrating courses into subject curricula, often at first-year level, as well as running generic courses. Sometimes, subject librarians were asked by academics to present subject-specific classes to the students. Courses were also clearly differentiated according to year of study with some being made compulsory. Seven also offered fully assessed courses; three, some assessment; and two none. Four had no credit-earning courses on offer. Where credit-earning courses had been introduced, they were fully assessed by means of assignments, tests portfolios or examinations. Course delivery was varied. It is either offered using computer-aided instruction or work in computer laboratories, or distance education augmented by contact sessions or workshops with librarians. The distance education involves the use of guides and "activity books" as course materials. Others use computer-aided instruction (with or without contact sessions), videos, lectures, tutorials, practices, and PowerPoint presentations as aids to course delivery.

The objective of this paper is to share UB experiences of integrating ILS into the curriculum.

Development of Information Literacy Skills at the University of Botswana

The University of Botswana has a population of 15,414 undergraduates and 1,385 postgraduate students (University of Botswana, 2004 Fact Book). The majority of these students came from secondary schools with small or no libraries and are ill -equipped with basic library and/or communication and study skills which are essential for university study.

The University of Botswana Library (UBL) uses a subject specialisation approach to information provision (Lumande et al., 2000). This approach was adopted in 1981 (Qobose, 2000). The library has faculty subject teams for education, humanities, science, engineering and technology, business, and social science. User education, took the form of "library orientation" (Asafu-Adjaye, 1993; Lamusse, 1994) and "bibliographic instructions". UBL had therefore for a long time recognised the need for further involvement with teaching students how to find information effectively. However, other competing tasks did not allow librarians adequate time to embark on any thing beyond what was being offered.

However, feed back from departments on the ability of students to use the library resources, as well as student's own evaluations (Lamusse, 1992) of the impact of orientation called for a more direct intervention by the library. The feedback indicated gaps in what the library and the academic departments had been able to impart to students in terms of skills for self-reliance in information seeking. Students, for instance, continued to rely on the Reserve Section, for prescribed textbooks and on class notes for their assignments. Perhaps a more revealing feed back was one from one employer who observed that some graduates they had recruited with a particular specialisation lacked information gathering and report writing skills.

The Move Towards Integration

Prior to the integration of ILS into the curriculum of the University, the different departments and faculties have been teaching ILS skills in a sporadic and uncoordinated manner. The respective faculties and the University Library were responsible for handling the course. ILS was introduced at different levels depending on the interest of the respective faculties.

The consequence of ILS not being integrated into regular courses and, therefore, not timetabled, was that both theory and hands-on exercises took place in the library's minimal space, using the manual card catalogue and later the publicly available Online Public Access Catalogue (OPAC) terminals in the library, and librarian offices, which were already congested. The programmes for each faculty also took place at the same time. As a result, the Library felt that there was a need for a high degree of cooperative planning and teaching to avoid clashes and noise.

The various efforts at adequate planning for the programme were later coincided with the university's intention to switch its academic programme from the year-long approach to the semesterised approach, and the introduction of the General Education Courses. These provided the opportunity to launch the ILS programme into the mainstream university curriculum.

Integrating ILS into the University's Main Stream Course Offerings

In 2000, the University of Botswana (UB) decided to change from the year-long subject system to the semesterised course (or modular) system. In line with this new system, academic programmes were revised. As part of the semesterisation programme, the concept of General Education Courses (GEC) was introduced. There are currently seven areas of GEC. Thus, a university-wide computer and information skills programme under the concept of General Education Courses (GEC) emerged, and was placed in Area 2. (University of Botswana, 2002).

The courses were to be offered to certificate, diploma and degree students with courses at levels 100 to 300 as outlined in table 1.

The GEC 121 and 122 are however compulsory for all first-year students and the GEC 121 is a prerequisite for GEC 122.

Table 1: GEC-2 (Computer and Information Skills) Course Modules

Course Code	Course Title	Credits	Status
GEC 121	Computing and Information Skills Fundamentals I	2	Compulsory
GEC 122	Computing and Information Skills Fundamentals II	2	Compulsory
GEC 221	Information Management Skills	2	Optional
GEC 222	Problem-Solving with Spreadsheet	2	Optional
GEC 223	Web Application Skills	2	Optional
GEC 321	Multimedia Information Presentation Skills	2	Optional

Table 2: ILS Components within GEC-2 Programme Courses

Course Code	Course Title	ILS component of the GEC-2 programme courses
GEC 121	Computing and Information Skills Fundamentals I	Concept of Information; organisation of information; information access tools; reference sources; and periodical literature.
GEC 122	Computing and Information Skills Fundamentals II	Searching indexes & abstracts; legal issues of information use; evaluation of information resources; The WWW – getting started; and web navigation
GEC 221	Information Management Skills	Web searching; bookmarks; and evaluating electronic information resources.
GEC 222	Problem-Solving with Spreadsheet	Use of electronic resources – CD-ROM databases; Use of electronic resources – electronic databases; evaluating electronic resources –follow up; and organizing and synthesising information.
GEC 223	Web Application Skills	
GEC 321	Multimedia Information Presentation Skills	Topic Analysis.

Within the library, there were meetings and consultations to come up with the course outlines for the information skills component modules, which eventually became part of the curriculum for the programme. For the initial take-off of the programme scheduled for August 2002, the Library came up with the modules indicated in table 2.

However, after one year of running the programme, the modules were revised not only to reflect the experiences of staff about the needs of students, but also because it was becoming clear that other components of the programme might eventually not take off due to lack of resources. In order for the students not to lose out on some of the skills considered for the second year, therefore the team coordinators carried out revisions twice. The last revision was carried on the 3rd of June 2003. The result of the revision is shown in table 3.

Table 3: Revised ILS Components within GEC-2 Programme Courses

Course Code	Course Title	ILS component of the GEC-2 programme courses
GEC 121	Computing and Information Skills Fundamentals I	Concept of Information; organisation information access tools; reference sources.
GEC 122	Computing and Information Skills Fundamentals II	Introduction to periodical literature; indexes & abstracts and full electronic databases; legal issues of information use; evaluation of information resources
GEC 221	Information Management Skills	Searching CD-ROMs
GEC 222	Problem-Solving with Spreadsheet	Searching subject gateways
GEC 223	Web Application Skills	
GEC 321	Multimedia Information Presentation Skills	Topic analysis, and organising and synthesising information for presentation

As a result of the limited number of modules for the information skills component, the component is being taught for three weeks of the 14-week long semester. Subject librarians in the UB Library operate as faculty teams, and thus a team of subject librarians is responsible for the teaching of ILS for their respective faculties.

The GEC Area 2 programme is currently housed by the Computer Science Department and its daily operations supervised by the head of the department.

Currently, only two courses (GEC 121 and GEC 122) within the programme are being taught because of resource constraints, which include computing facilities, laboratory spaces, teaching aids and human resources. Particularly daunting, however, is the problem of inadequate computing facilities, computing support and laboratory spaces.

Delivery Mode

Each course, co-taught by the staff of the Computer Science Department (formerly known as computer awareness lecturers) and librarians, under the GEC-2 programme is a two -credit course of three contact hours made up of one theory hour and two hours of laboratory session per student per week. The courses were initially planned to be delivered only face-to-face with the students. However, the introduction of e-learning in the university also comes with the on-line development of courses through the use of WebCT. WebCT is a course management system. It comprises an integrated set of educational tools for constructing and managing an online course environment. It provides a variety of tools and features that can be added to a course, including: conferencing system, on-line chat, student progress tracking, student self-evaluation, grade maintenance and distribution, access control, navigation tools, auto marked quizzes, electronic mail, course calendar and student homepages. It supports learning along a wide spectrum that extends from face to face courses enhanced by a web presence, through courses with both face to face and online components, to full online courses wherein all interaction takes place within the WebCT environment.

Both the computing and the information skill components were piloted for online delivery with GEC 121 in 2001 with the students in the faculty of social sciences, before its introduction to all the students in 2002. Currently, the computing component of the two courses is being delivered face-to-face and supplemented with WebCT delivery. The information skills component of the GEC 121 is similarly currently being presented using the same approach. A small committee of librarians is currently working on the delivery of the GEC 122 through WebCT as a complement to the face to face delivery.

Initial assessment plan was through continuous assessment (CA) and examination at a ratio of 1:1. The assessment was to be made up of a practical assignment (to be done in the lab) and a test. However, many problems were experienced with the logistics in the first year. These include the high population of the students, inadequate and erratic functioning of the computing facilities, and the lack of human resources support during the test in the first year. To overcome these problems, it was decided by the board of the GEC-121 that assessment be made up of take home assignment as CA, and the examination, as assessment methods. The CA constitutes 30 per cent while the examination constitutes 70 per cent. A few computing awareness lecturers started making their take-home assignments available through WebCT with GEC 121 in 2004. The marking of the assignment was also carried out through WebCT. Two library faculty teaching teams (Science and Engineering, and Education) also did the same with the information skills component of the GEC 122 in 2005.

Programme Management within the Library

Apart from the institutional support for the programme, the ILS component also enjoys departmental support. It is perhaps worth noting that the library was in 1999 re-structured into three divisions – Resource Management (RM), Customer and Extension Services (CES), and Information and Research Services (IRS), each with its own deputy director. The overall head is the Director, Library Services. Within the library, the Deputy Director (IRS) oversees the information skills component of the programme, which was, until the end of September 2004, coordinated by a subject librarian under the supervision of the Director, Library Services. The Library now has an established position of Coordinator, Information Skills Instruction/In-Service Training who reports to the Deputy Director (IRS). This is in recognition of the importance of ILS in aiding student learning, and staff development in terms of the development of skills and competences of staff to carry out their ILS teaching.

The Challenges

For the initial take-off of the programme, based on student's enrolment projection of 5700, lecturing/lab coordination/supervision of 1245 hours, and the university's full-time equivalent (FTE) formula, two lecturers (to come from the library) were allocated to the teaching of the ILS component by the committee across all the six faculties. Within the library, the load was shared among all librarians. In other words, all librarians currently teach the course as it was in the past.

But since the commencement of the teaching under the semesterised GEC-2 programme, the library has been faced with a number of challenges. The challenges basically relate to the impact of the teaching on library services delivery and the quality of the ILS delivery as a result of increased workload (even though the delivery of each of the courses spans three weeks per semester, the assessment process lasts the whole semester).

Impact on Library Services Delivery

Two of the courses are compulsory for all first years. As a result of the size of the students for three weeks of teaching, the timetable for some faculties runs from 7:00 hours to 21:00 hours everyday. With planning and teaching preparation, assessments (assignments and tests), invigilation and marking, librarians spend almost the entire academic session on the ILS delivery, leaving very little time for other library services. In extreme cases, a librarian teaches 17 hours a week (lab sessions inclusive). This is found to be affecting the quality of library functions and services such as collection development and maintenance, acquisition, liaison with faculty, reference and information services, etc. In other words, the library's core duties are being affected as it is becoming almost impossible to meet set objectives for services delivery.

Quality of ILS Delivery

The decision to involve all librarians in the delivery of ILS was based on the recognition, first, that librarians are in the best position to teach information literacy on the basis of which it was included in the job description for librarians; second, every librarian should be given a chance to experiment with teaching and third, on the belief that selecting a core group to teach will make some librarians super librarians, as they become more visible to faculty members than their colleagues who will not be teaching. However, after a year of teaching the course, there have been complaints from students about the poor quality of teaching by some librarians. Similarly, some were not comfortable teaching large classes.

Efforts at Addressing the Challenges

The course delivery has been reviewed, and meetings held within the library at which the library's commitment to the teaching of ILS was reaffirmed. Prior to the reaffirmation however, options had been proffered and discussed widely for the delivery of the ILS without arriving at any workable solution. These include: the possibility of wholly online delivery; involving some para-professionals in librarians' duties so as to free them for teaching; appointment of librarians to be responsible for teaching with reference services; courses to be taught as part-time with remuneration of staff; taking the course out of the library to the Department of Library and Information Studies (DLIS); and library partnership with DLIS, so that DLIS teaches the theory while librarians handle the practical aspect. As at the time of writing, all librarians were still teaching the course but with a determination to continue to explore ways of addressing the challenges. For example, effort is currently being made to get the Computer Science Department to employ demonstrators with background in librarianship plus computer skills. These demonstrators would be expected to handle the lab sessions under the supervision of the librarians while the librarians teach the theory.

In addition, the library management has encouraged and continues to encourage many librarians to take the opportunity of relevant courses and workshops organised by the Centre for Academic Development of the University to improve themselves on the delivery of ILS.

Conclusion and Recommendations

The development of ILS into a credit-eanring course at the University of Botswana has come a long way. It has also been a bold move and a show of commitment by the library to continue to accept responsibility for its delivery in spite of the challenges it is facing. The Library has witnessed improvements since the commencement of ILS as a credit course in 2002, and is continuing in its effort to address the challenges.

However, the Library should continue to train its staff for effective delivery of ILS while the University on its part should ensure the provision of resources, both material and human, as a show of support for the programme. On the part of the library, in order to ensure quality ILS delivery without compromising effective library services, it would be a step in the right direction to select staff interested in teaching to teach ILS in addition to responsibility for reference services.

Although a responsibility has been placed on universities as the major source for human resource development to help graduates to develop abilities and skills to harness and use information resources efficiently and effectively, information literacy skills instruction has not received much attention in universities in Africa. It is therefore recommended that other universities take a decisive step and give attention to ILS instruction through their libraries. They could learn from the experiences of other universities, especially in Southern Africa.

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Information and Conflict Prevention in the Niger-Delta Region of Nigeria

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Abstract

This paper is based on an empirical study that was undertaken between March 2004 and January, 2005. The primary objective of the study was to investigate the role of information in conflict prevention. The Niger-Delta Region of Nigeria comprising nine states and the oil companies operating in the region provided the setting and data. The survey method was used. Data collection instruments used were questionnaire, interviews and observation techniques. This study revealed that the local communities lack information about the terms of agreement between the Federal Government and the oil companies; about the oil companies' development activities and compensations; and about the agreements between the oil companies and the representatives of the local communities. Modes of dissemination of information also leave much to be desired. Thus, the communities know nothing about their rights and obligations and about events and actions that affect them as a group. This has given rise to avoidable rumours that whip up sentiments and lead to sabotage.

Introduction

The Niger-Delta Region of Nigeria is located in the southern part of Nigeria, comprising the contiguous nine oil producing states, namely, Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers. It covers an area of 70,000km^2. it is the world's second largest wetland and it is noted for its sandy coastal ridge barriers, saline mangrove, fresh water, permanent and seasonal swamp forests as well as low land forests. These characteristics tend to make development difficult (Egborge, 2000).

Between 1958 when oil was struck in the region and 1970 when the Nigerian Civil War ended, tension, youth restiveness and communal clashes reared their heads. Members of the various communities accused the federal government of neglect in spite of the fact that their region accounted for a large chunk of the nation's wealth and foreign exchange earnings. This led to the establishment of commissions and development agencies such as Willink's Commission (1958); Niger-Delta Development Board (1960); Niger-Delta Basin Development Authority (1979); Presidential Task Force (1980); the Belgore Commission (1990); the Oil Mineral Producing Areas Development Commission (1993); the Nigeria-Delta Development Commission (2000) and the abolition of the on-shore/off-shore dichotomy (2003) (Fekemo, 2003). The basic objective of these endeavours was the even and sustainable development of the Niger-Delta

(CNL and SPDC, 1999, 2003). The extent to which these commissions and development agencies succeeded in preventing conflicts in the region is however yet to be seen.

The aim of this paper is to demonstrate that:

i. lack of information can throw a community into chaos and bring about conflict;

ii. for people to take appropriate personal decisions about their relationship with others and to react to them rationally, they need adequate, accurate information about their rights and obligations and about events and actions that affect them.

Research Methods

The multi-national oil companies in the Niger-Delta Region that were used for this study are Agip, Chevron Nigeria Limited (CNL), Mobil and Shell Petroleum Development Company (SPDC). Added to these is the Nigerian National Petroleum Corporation (NNPC). The nature of the investigation suggests that the survey method is the most appropriate. A questionnaire containing 25 questions was designed and administered to the oil company/ corporation workers and members of the oil-producing communities. All the questions in the four sections of the questionnaire sought to elicit information about the respondents; the perception and dissemination of information by the individual respondents and their companies and the companies' organisational structures. An open-ended provision was also made for respondents to give the researchers any information that was not covered by the first 25 questions.

To supplement the questionnaire method, interview and observation techniques were also used for the collection of data. These gave the respondents the opportunity to either explain any ambiguous answers they gave or to seek clarification from the researchers about any seemingly unclear questions. They also provided the additional advantage of enabling the researchers to ask the respondents any necessary follow-up questions. Initially, some members of the community were hostile not only because they expected some financial remuneration from the researchers but also because they felt that the present research was funded by the multi-national oil companies. However, during the interviewing process, friendly conversations and interpersonal relationship developed between the researchers and the respondents, and both parties began to take on an identity as a social unit, and to show their colleagues that some form of relationships existed between them. On their part, the researchers were quick to take advantage of the intimate relationship to also use the observation method to collect data. They (the researchers) walked around freely among members of the community and the oil company employees, observed the mode of operation and asked questions without any inhibitions.

The questionnaire, interview and observation methods were complemented by the use of documents For the purpose of this research, a document is defined as any intellectual material, whether published or unpublished, and that may be used as a source of information.

The data was analysed by means of tables and simple percentages. Interpretation of results was done and inferences drawn.

Presentation and Analysis of Data

Two thousand copies of the questionnaire designed were administered. Convenience sampling method was used to select the 2000 respondents. Of these, 1233 or 66.65% were administered to members of the community in the oil-producing areas that make up the Niger-Delta region; while the remaining 617 or 33.35% were administered to the oil company workers. 1850 (one thousand, eight hundred and fifty) or 92.50% of all the copies of the questionnaire administered were returned.

Tables 1-3 show that the respondents were fairly and widely distributed by age, sex and educational qualifications.

Table 1: Respondents' Age Distribution

Age Brackets	Residents	Per cent	Workers	Per cent
20 – 30 years	148	12	75	12.16
31 – 40 years	467	37.88	234	37.93
41 – 50 years	463	37.55	232	37.60
Over 50 years	155	12.49	76	12.32
Total	1233	100	617	100

Table 2: Distribution of Respondents by Sex

Sex	Residents	Per cent	Workers	Per cent
Male	927	75.18	464	75.20
Female	306	24.82	153	24.80
Total	1233	100	617	100

Table 3: Distribution of Respondents by Educational Qualifications

Qualifications	Residents	Per cent	Workers	Per cent
Bachelors degree	597	48.42	298	48.30
Master degree	446	36.17	223	36.14
Doctoral degrees	34	2.76	17	2.76
Others	156	12.65	79	12.80
Total	1233	100	617	100

Tables 4-5 show the rating of information by the respondents, that is, the oil companies' workers and the community. The tables show that 450 or 72.93% of the oil company employees rated information very highly;135 or 21.88%, highly and 7 or 1.13% as very low; 38 or 3.08% of members of the community rated information from the oil companies as very high; 46 or 3.73% as high; 802 or 65. 04 as low and 191 or 15.49 as very low.

Table 4: Rating of Information by the Oil Companies Staff

Rating	Number	Percent
Very highly	450	72.93
Highly	135	21.88
Low	15	2.43
Very low	7	1.13
Don't know	10	1.62
Total	617	100

Table 5: Rating of Oil Company Information by the Community

Rating	Number	Percent
Very highly	38	3.08
Highly	46	3.73
Low	802	65.04
Very low	191	15.49
Don't know	156	12.65
Total	1233	100

Table 6 shows that 1504 or 81.30% of all the respondents thought that information reduced conflict; 1263 or 68.27% thought that information enhanced progressive, socio-economic and political development; 1187 or 64.16% felt that information enhanced development; 1098 or 59.35% held the view that information made people up-to-date.

Table 7 shows the different means by which the oil companies disseminated information to their employees. Print media and house organs topped the list with 610 or 98.87% of the responses followed by staff meetings with 603 or 97.73%; through heads of department/division with 498 or 80.71%; and memoranda and internal circulars with 346 or 56. 08%. Table 8 reveals that traditional rulers and joint staff/community meetings were the major sources of disseminating information to the community by the oil companies.

Table 6: Distribution of Responses to the Question on Uses/Values of Information

Significant values of information	Number	Per cent of Responses
Reduces chance of conflict	1504	81.30
Enhances progressive, socio-economic and political development	1263	68.27
Enhances development	1187	64.16
Makes a people up- to- date	1098	59.35
For education and Enlightenment	785	42.43
Facilitates interaction between people and between nations	661	35.73
Enables people to fight against ignorance and superstition	351	18.97
For personal decisions	209	11.30
Enables people to complete in a rapidly evolving world of technology	43	2.32
Serves as a national resource	0	0

N= 1850

Table 7: Means for Disseminating Information to Company Employees (Responses by Oil Company Workers)

Means	Number	Per cent
Print media and House organs	610	98.87
Staff meetings	603	97.73
Heads of Department/Division	498	80.71
Memoranda and internal circulars	346	56.08
Awareness workshop peer counselors	285	46.19
Electronic Media	149	24.15

N= 617

Table 8: Means of Disseminating Information by Oil Companies to the Communit(Responses By All Respondents)

Means	Number	Per cent
Traditional Rulers	780	42.16
Joint staff meetings between representatives of the community and oil companies	693	37.46
Electronic Media	509	27.51
Town criers	471	25.46
House organs such as bulletins	398	21.51
Print Media	362	19.57
Others	276	14.91

N=1233

Information about the frequency of meetings between the oil companies and the communities is brought out in table 9. Most of the respondents, 1143 or 61.78% stated that such meetings were frequently held; 581 or 31.41% that meetings were seldom held; 120 or 6.47% that meetings were very frequently held; and 6 or 0.32% that meetings were not held at all.

Table 10 illustrates the extent to which members of the community were aware of the agreement between the oil companies and the Federal Government of Nigeria. Most of the respondents 906 or 48.97% were not aware; 652 or 35.24% did not know; 242 or 13.08% were hardly aware while only 50 or 2.70% were very much aware.

Table 9: Frequency of Meeting between the Oil Companies and the Communities

Frequency of Meetings	Number	Percent
Very frequently	120	6.47
Frequently	1143	61.78
Seldom	581	31.41
Not at all	6	0.32
Total	1850	100

Table 10: The Extent to which all the Respondents are aware of the Agreement between each Company and the Federal Government of Nigeria

Degree of awareness	Number	Percent
Very much aware	50	2.70
Hardly aware	242	13.08
Not aware	906	48.97
Don't know	652	35.24
Total	1850	100

Table 11 provides information about the amount of interaction that existed between the governments, the traditional chiefs and the youths on the one hand and the oil companies on the other. Occasional interaction accounted for 723 or 39.06% of all the respondents; 566 or 30.59, seldom; 315 or 17.03%; do not know; 221 or 11.95%, not at all, and 25 or 1.35%, very much.

As to whether public enlightenment talks were given in primary and secondary schools, 240 or 38.90% of the responses were in the negative; 211 or 34.20% in the affirmative, while 166 or 26.90% did not know (table 12). Most of the respondents, 509 or 82.50% agreed that such talks could reduce conflicts and restiveness; 57 or 9.24% disagreed; while 51 or 8.27% did not know (Table 13).

Table 11: Amount of Interaction Existing between the Governments, the Traditional Chiefs and the Youths on the one Hand and the Oil Companies on the Other

Amount of interaction	Number of Responses	Percent
Very much	25	1.35
Occasionally	723	39.06
Seldom	566	30.59
None at all	221	11.95
Don't know	315	17.03
Total	1850	100

Table 12: Distribution of Respondents as to whether Public Enlightenment Talks are Givern in Primary and Secondary Schools by the Oil Companies

Responses by the company workers	Number	Percent
Yes	211	34.20
No	240	38.90
Don't know	166	26.90
Total	617	100

Table 13: Distribution of Respondents as to whether Talks in Schools can Reduce Conflict and Restiveness

Responses by the company workers	Number	Percent
Yes	509	82.50
No	57	9.24
Don't know	51	8.27
Total	617	100

Discussion of Findings

In this paper, the authors have attempted to establish the role of information in conflict prevention in the

Niger-Delta Region of Nigeria. Between 1958 and 1970, the multinational oil companies intensified their activities in this region. But it was after 1970 that the communities began to agitate that they received very little benefits from the region's vast oil resources. Frequent occurrence of oil spills contaminated their water and killed several mangrove swamps. Many residents assigned direct cause and effect relationship between oil development and declines in fisheries and agricultural productivity because both phenomena began at roughly the same time. The timing might, however, be largely coincidental because other factors such as information blackout were more significant causes of conflicts and restiveness. (Imobighe, Bassey and Asuni, 2002).

Obviously, neither the federal government nor the oil companies have been able to identify the major cause of the conflicts. Between 1958 and 2003 at least nine significant landmarks were made to prevent the conflicts. These are the Willink's commission (1958); Niger Delta Development Board (1960); Niger-Delta Basin Development Authority (1979); Presidential Task Force (1980); the Belgore Commission (1990); the Oil Mineral Producing Areas Development Commission (1993); the Niger Delta Development Commission (2000); the removal of the on-shore/off-shore dichotomy (2003); and the introduction of the minimum 13% derivation principle. The principle of derivation simply means that in sharing the revenue accruing to the states, the constituent unit whose resources are being exploited should be accorded larger share than other constituent units. Although the local communities see the 13% derivation principle as an unfavourable compromise considering the fact that their original demand was for 100% derivation, nevertheless this study amply shows that even if the 100% were granted, the conflicts and restiveness would not cease. In describing the role of the Niger-Delta Development Commission (NDDC), President Olusegun Obasanjo (2000) said:

> The Niger-Delta Development Commission has the potential to offer a lasting solution to the economic difficulties of Niger-Delta region which successive governments have grappled with even before independence in 1960. The Commission is an agency and one of the stake-holders in the development of the Niger-Delta region. Its activities do not preclude other federal government development programmes that are normally due to the states. Nor is the NDDC intended to inhibit local initiatives that are the normal responsibilities of the state governments, local governments and local communities. The Commission is not to take over constitutional responsibilities of any tier of government in the region: the federal ministries and the agencies will continue to carry out projects in the region just as the states, the local governments, the oil companies, etc. (NDDC, 2001)

From the functions and powers of the Commission as prescribed by law, the primary function of the Commission is to oversee, and see to the overall and sustainable development of Niger-Delta Region, including infrastructural, technological, ecological, environmental, human and sociological development, a buoyant culture, a peaceful socio-political environment and beneficial tourism, etc. To this end, the commission has adopted the following mission statement:

> To facilitate the rapid, even and sustainable development of the Niger-Delta into a region that is economically prosperous, socially stable, ecologically regenerative and politically peaceful. (Fekemo, 2003)

In spite of these developmental efforts on the part of the governments and the oil companies, agitation, restiveness and conflict situation are worsening rather than abating. Surely, something more than development and compensation is required to prevent the tension and conflicts that have characterised the Niger-Delta region for well over five decades. From the responses to the questionnaire, which were presented and analysed in the previous section, the following major findings emerge:

- Although the respondents and the oil companies rated information highly, members of the local communities rate it low.
- Majority of the respondents (81.30%) thought that information reduced chances of conflict.
- The means used by the oil companies to disseminate information to their employees are too formal. These include print media and house organs; staff meetings and through heads of Department/Division.

- The means used by the oil companies to disseminate information to the members of the community are inadequate. These include meetings between the traditional rulers and the oil companies; meetings between the oil companies and representatives of the local communities; print and electronic media and town criers. But the youths who are the kingpins are conspicuously absent. Besides, the meetings are not frequent enough.
- The facilities for the dissemination of information by the oil companies are modern but too sophisticated for the local communities. So too are the IT equipment. These include personal computers, communication modem/software, printer, fax machine, CD-ROM player connected to the computer, and internet.
- The open-ended provision made for the respondents to express their opinions fully yielded the following responses:
- The oil companies do not always organise meetings with the communities unless when their employees are attacked by the youths.
- The communication gap between the oil companies and the communities is very wide.
- Government, oil companies, traditional chiefs and the youths should work hand-in-hand to enhance peaceful coexistence in the communities in Niger-Delta area.
- In the overall interest of the Niger-Deltans... the oil companies should do something more concrete about dissemination of information to the oil producing areas of the Niger-Delta region.
- False information in form of rumours is capable of fuelling conflicts more than lack of information as they do not even need to go through the channels of information dissemination before they are heard and accepted by people in the community. Information and conflict prevention cannot be completely studied without considering rumours as one of the causes of many conflicts in the Niger-Delta area. If timely and accurate information is disseminated there will be no room for rumours.

Summary and Conclusions

Oil was first struck at Oloibiri in 1958 during the colonial era. However, the tension in the oil areas goes back to between 1966 and 1970. The more recent acts of kidnapping dates back to the late 1990s, while outright killing of both Nigerian and expatriate oil company workers developed in the 2000s. It is true that the local communities receive little benefits from the region's vast oil resources; that there are frequent occurrences of oil spills which destroy arable land and fishing activities, and that there is a lot of gas flaring which pollutes the air. But it is also true that the local communities do not have all the information about the agreement between the federal government and the oil companies; the prescribed obligations of the oil companies which the latter are carrying out; the monetary compensation and how it is shared, and the developments in the areas of agriculture, education, health and infrastructure. The information blackout leads to rumours, and such rumours are capable of whipping up sentiments and leading to misinformation which is often difficult to set right a later date. If these had seen anticipated and forestalled, conflict and youth restiveness would have been prevented in the Niger-Delta Region of Nigeria.

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Information and Communication Technologies (ICT) Adoption by Small and Medium Scale Enterprise (SME) Tourism Stakeholders in the Durban Region, South Africa

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Abstract

The adoption of information and communication technologies (ICTs) in tourism marketing has become important as traditional marketing methods cease to derive the desired results due to the increasing influence of technology in promotion. The KwaZulu-Natal's (KZNs), 'Tourism Strategy Report 2003-2006', identifies information and computer technologies (ICTs) as avenues through which small and medium scale enterprise (SME) tourism stakeholders can promote both the KZN region and their products in order to remain competitive and survive. Using a structured questionnaire this study set out to establish the extent to which SME tourism stakeholders in the Durban region had adopted ICTs in their operations in line with the proposals contained in the "Tourism Strategy Report 2003-2006." The empirical data collected from 51 SME tourism stakeholders in the Durban area between December 2003 and February 2004 revealed that there was a relatively high level of ICT usage among the region's SME tourism stakeholders, though much more needs to be done to ensure continued adoption of ICTs in this region.

Introduction

The perishable nature of the tourism product is such that various stakeholders face the problem of wanting to offer a discount of their products at the last minute to ensure a sale. At the same time, they also try to minimise the negative effect on the bulk of their sales, which are made in advance. According to Seaton and Bennett (2000), travel agents require information on tourism products in order to know what is available for selling purposes. This information may include prices (which are constantly changing) as well as sudden regulations and restrictions. On the other hand, consumers' information needs vary.

Business tourists/travellers need to find the right product to suit their schedules. Leisure travellers' independent nature of travel, based on individuality, flexibility and variety, revolves around custom-made itineraries, which require a tremendous amount of information.

Theoretical Background

Information and communication technologies (ICTs) are proving to be an effective mechanism to transmit information on the intangible tourism product as the functionality of this industry depends upon the transmission of accurate and reliable information.

Since the tourism product cannot be inspected, touched, seen or experienced prior to purchase, the only guide to the suitability of the product in relation to consumer needs and desires is that of information. Information on price, quantity, transport, quality, supplements and conditions of purchase, is conveyed via published materials such as brochures. However, due to the dynamic and perishable nature of the tourism product, it is now being transmitted electronically. Further, since the tourism product has a short lifespan and once its date has passed the product dies, information availability minimises/ reduces the number of perishable airline seats, beds and places. The tourism industry is a fragmented/ heterogeneous one and lacks standardisation, mainly due to competition within the industry. This inherent nature of the tourism product, which brings together elements from all over the world, creates a problem, which is usually solved by providing consumers with information. As the tourism product is constantly changing/volatile, external factors such as political and economic troubles, weather and air traffic control among many others affect the tourism product. Thus, information needs to be transmitted throughout the industry to avoid cancellations, wastage (underbooking) and inconveniences (overbooking).

Until the advent of ICTs, the methods used to seek transmit information were both cumbersome and inefficient. These methods included the telephone, the post, brochures, directories and face-to-face meetings. However, the Internet has become a major business instrument for individuals and organisations using Internet selling, buying, marketing and advertising. It has become important to service sector companies that rely on direct marketing to get their products to their consumers.

Emphasising the role of ICTs in tourism promotion, the World Tourism Organisation (WTO) Business Chief Executive Officer (CEO) said that the Internet was providing the platform for the greatest and fastest revolution ever in tourism promotion and distribution because of its ability to help trace and meet the requirements of rapidly-changing consumer patterns. Further, the WTO Business CEO further says that, there are enormous benefits tourism can gain from the Internet, a medium in which the world's four biggest outbound travel markets-the United States, Germany, Japan and the United Kingdom, account for some 80 per cent of its 129 million users worldwide (Zoreda, 1998).

At a forum organised to discuss "The Role of Information Technology in the Promotion and Marketing of Tourist Destinations" it was revealed that one area that tourism stakeholders could look to was that of 'common websites' which would enable potential tourists to find much more than basic information on a destination. By combining the purchasing of services, from air tickets to booking seats in a restaurant, consumers can create their own tailor-made holidays. Apart from offering a better service to the customer, this type of cooperation could help developing countries pay for a website and enable them to compete on an equal footing with established destinations (Zoreda, 1999).. A former WTO communications advisor further states that for many businesses and organisations, especially in the travel industry the Internet increasingly offers the opportunity to market internationally at a fraction of the cost of traditional marketing channels. The three essential key areas of opportunity for online marketing are, via the World Wide Web, electronic mail (email) and fixed online services (Wayne, 1999).

There are a variety of modern ICTs available in the tourism sector. Seaton and Bennett (2000) state that ICTs include Computerised Reservation Systems (CRS), Destination Marketing Systems (DMS), databases and home shopping. Other modern systems include fax on demand systems, teletourist systems which are based on cellular phone, voice message technology and the provision of audio clip information on a region's core attractions, themes and facilities. Information resource centres that house information resources such as research reports and articles, media reports, reference books, international journals, slides, CD-ROMs and videos also fall within the modern ICT systems (Tourism KwaZulu-Natal (TKZN), 2002).

The WTO Regional Africa Representative said that for Africa, given its vast natural wealth, the logical path is to concentrate on ecotourism products and promote them through new technology. As technology is leading the tourism industry, Africa cannot continue to adopt a policy of sticking its head in the sand (N'Diaye, 1998). A WTO consultant at a seminar on the theme "Marketing Africa as a Destination" indicated that Africa has a huge potential. But that this is not enough. As this potential needs to be put on the market by promoting it through new technology (Abad, 1996).

The importance of adopting ICTs in marketing African tourism products is emphasised by the World Tourism Organization (WTO), which states that if a destination is not on the Web, then it may well be ignored by the millions of people who now have access to the Internet and who expect that every destination will have a comprehensive presence, as the Web is the new destination marketing battleground.

Small and Medium Scale Enterprise (SME) Tourism Development Support in KwaZulu-Natal (KZN)

As most developing countries tourism sectors are small, they experience enormous difficulties in marketing their products globally. However, this is changing. While addressing an Organisation for Economic Corporation and Development (OECD) conference on ICTs, the WTO Secretary-General said that information technology was a blessing for smaller tourism suppliers as it provided them with the opportunity to compete with the industry's giants. Further, the WTO Secretary-General stressed that the emergence of the Internet has provided a cost-effective means of promoting and distributing the products of small enterprises by enabling a greater quantity of information to be distributed at a fraction of the cost. Innovative entrepreneurs who appreciate the power of the new media and design their presence in the electronic marketplace will reap benefits. This is because a new breed of travellers is relying on the electronic media to seek information on destinations and to communicate their needs to tourism suppliers. Tourism will increasingly depend on the rapid identification of those needs (Frangialli, 1998).

The WTO Secretary-General said that enterprises which take advantage of the emerging ICT tools will be able to interact closely with their customers and constantly adapt their products, however, the most challenging task for technological development is the integration of applications and systems to enhance the management and marketing functions of the tourism industry (Frangialli, 1998). Thus, ICTs seem to have helped decrease the tourism-marketing gap between the developed and developing countries.

As a contribution to black economic empowerment and transformation of the tourism industry, Tourism KwaZulu-Natal (TKZN) has continuously supported a number of emerging black tourism entrepreneurs particularly with marketing and registration assistance onto the TKZN database. With the assistance of TKZN, about twenty SME's were assisted to attend the 2002 Tourism exhibition and to sell their products to international travel buyers (TKZN, 2002).

Statement of the Problem

An important success factor in the development of new tourism in South Africa is the effective and creative marketing and promotion of the country. To be performed effectively, the marketing and promotion of South Africa as an international destination requires a coordinated and structured approach (South African Tourism white paper, 1996).

In 2002, the number of overseas arrivals to South Africa rose by 1.8 million (20%). In that year the South African landscape, wildlife, culture and heritage helped attract 6.4 million holiday makers, making tourism South Africa's best performing sector (British Broadcasting Corporation, 2003). In 2002, the KZNs total tourism industry was worth approximately R15 billion in terms of consumer expenditure while the total impact of tourism on the economy was R21bn. Further, its contribution to the Gross Geographic Product (GGP) of KZN was estimated to be in the order of 10%. This industry employed directly or indirectly approximately 153,000 people. The core KZN destination visited by foreign air arrival tourists was Durban, while the key attraction was the Durban Beachfront. KZN is also visited by at least 10% of the foreign land arrival market which equates to roughly 400,000 tourists per annum. This implies that KZN's total foreign tourism market is in the order of one million arrivals per annum. Land arrival tourists spend in the order of R7,000 or USD 1000 (+/- R1000 per day for an average of 7 nights) while in this province, implying that KZN's land arrival market is worth approximately R3 billion (0.5USD billion) per annum. KZN's total foreign market is worth about R7bn (1USD bn) in terms of direct tourism expenditure.

For TKZN to maintain these impressive growth figures and to achieve its projections in its "Tourism Strategy 2003 – 2006" it has planned to boost:

- growth in domestic urban tourist arrivals;
- growth in foreign tourism arrivals;
- growth in direct tourism spending; and
- growth in average length of stay.

Towards achieving these goals and its "Tourism Strategy 2003 – 2006", TKZN intends to use the following means:

- To increase the hit rate and user rate of the TKZN web site;
- to increase the rate of e-Mail, telephonic, mail enquiries;
- To grow the number of e-mail enquiries by which TKZN's information service deals; and
- To increase the number of telephonic and fax enquiries that TKZN deals with.

Given that ICTs are both new and expensive to the majority of small scale tourism stakeholders in the Durban area, the extent to which SME tourism stakeholders have adopted ICTs is unknown. This makes it difficult for the region's tourism authorities, particularly TKZN, to identify gaps in ICT usage among this significant group to enable them design intervention strategies. Identifying the extent of ICT usage and the challenges faced by this group will enable TKZN to respond convincingly and in the process, be able to realise its ambitious "Tourism Strategy 2003 – 2006".

The objective of this paper was to explore the extent to which SME stakeholders in the Durban region have embraced the concept of marketing tourism destinations with the use of ICTs, the challenges they faced or are facing and the perceptions of these stakeholders towards the utilisation of ICTs in their businesses, in order to establish gaps and make recommendations on the best intervention strategies by interested parties.

Methodology

The study used a structured questionnaire and interview schedules to gather data from 51 purposively selected respondents operating within the Durban city centre. Target population was all SME tourism stakeholders in the Durban metropolitan region. These are providers of lodging facilities, bed and breakfast services and whose capacity is less than 50. The main characteristics of these stakeholders are that they have small market share, run by owners or part-time owners in a personalised way and they can make independent decisions.

The respondents were purposively selected from those listed on the hospitality section in the yellow pages of the South African Telkom Directory of 2004. Further, purposive sampling was done specifically to identify small scale tourism stakeholders offering lodging, bed and breakfast and camping facilities.

The researchers telephoned all the tourism operators listed in the hospitality section 51 which fitted the description of an SME as above. The data obtained was then subjected to statistical analyses using mean perception scores drawn from a four-point ordered category similar to the Likert scale as follows:

- Strongly agree = 4
- Agree = 3
- Disagree = 2
- Strongly disagree = 1

The collected data were then summarised and presented using mean perception scores. In each of the seven categories that were tested, items that carried high mean perception scores reflected the most commonly used ICT or ICT characteristic examined in each category, while low mean perception scores indicated the least used ICT or ICT characteristic examined in each category. Both the high and low mean perception scores reflected the current ICT position among tourism stakeholders in the Durban region.

Findings

Table 1 shows that tourism stakeholders in the Durban area first used their own knowledge (3.29), then business support agencies (3.00) and suppliers (2.88) before consulting the Internet (2.88) when searching for information. Banking information systems (1.59) were the least consulted by tourism stakeholders in this area.

From table 2, ICTs in order of importance were most useful in helping Durban area tourism stakeholders to profile their customers/guests (2.71), sourcing for funding (2.53) and banking (2.24). The same table shows that tourism stakeholders in the same area use ICTs the least for management staff training (1.59).

Table 1: Information Seeking Behaviour of Tourism Stakeholders

Item	Frequency	Mean	S.D
Business support agencies	51	3.00	0.98
Business suppliers	51	2.94	1.04
Internet and related services	51	2.88	1.19
Own customers	51	2.47	1.16
Family and friends	51	2.18	1.05
Payment information systems	51	2.18	1.31
Reservation systems	51	2.12	1.14
Print sources	51	2.86	1.17
CD-ROMs	51	1.02	1.16
Banking information systems	51	1.59	1.15

Table 2: The Importance of ICTs to Tourism Stakeholders

Item	Frequency	Mean	S.D
Guest/customer	51	2.71	1.19
Finance sourcing	51	2.53	1.10
Banking	51	2.24	1.12
Accounting	51	2.18	1.21
Airline	51	2.06	1.17
Staff training	51	1.59	1.04

Table 3: Accessibility of ICTs to Tourism Stakeholders

Items	Frequency	Mean	S.D
Fax services	51	3.82	0.39
Telephonic services	51	3.82	0.39
TV sets	51	3.59	0.85
Mobile phone	51	3.53	0.99
Computers	51	3.35	0.91
Internet	51	2.88	1.14
Email	51	2.82	1.35
Banking	51	2.47	1.30
CD-ROMs	51	2.00	1.25
Electronic journals	51	1.88	1.29
Payment information system software	51	1.71	1.03

The data from table 3 indicate that fax services and telephonic services (3.82) were the most accessible ICTs to tourism stakeholders in the Durban region. Out of the eleven items tested for accessibility in this section, computers (3.35), the Internet (2.88) and e-mail (2.82) were ranked fifth, sixth and seventh respectively. Payment information systems software(1.71) were the least used ICTs by tourism stakeholders in this region.

E-mail (3.76), telephones (3.59) and fax machines (3.53) were considered to be the three most effective ICT tools for dissemination of customer information by tourism stakeholders in the Durban region (see table4). Data from the same table indicates that the least effective customer dissemination ICT tool was the video (1.94).

Table 4: Effectiveness of ICTs among Tourism Stakeholders for Customers Related Information

Item	Frequency	Mean	S.D
Email	51	3.76	0.74
telephones	51	3.59	0.78
Fax machines	51	3.53	0.78
Internet (web page advertising)	51	3.41	0.98
Magazine advertising	51	3.06	0.95
Mobile phones	51	2.76	1.37
TV/Radio advertising	51	2.65	1.47
TV i	51	2.65	1.43
Billboard advertising	51	2.35	1.25
Video	51	1.94	1.17

The data from table 5 indicate that tourism stakeholders in this region were able to independently searched (3.12) and obtained information from the internet and CD-ROM data bases(3.00). However, their computer (2.76) and Internet operating skills (2.41) were found to be insufficient as they regularly sought assistance (2.65) while using the Internet.

Table 5: The ICTs Skills of Tourism Stakeholders

Item	Frequency	Mean	S.D
Searching for information independently from the Internet and CD-ROM databases	51	3.12	1.09
Requiring information from the Internet & CD-ROM data bases	51	3.00	0.92
Adequacy of computer skills	51	2.76	0.81
Assistance in seeking information while searching the Internet & CD-ROM databases	51	2.65	0.98
Adequacy of Internet skills	51	2.41	1.04

Table 6: Frequency of ICT Usage By Tourism Stakeholders

Item	Frequency	Mean	S.D
Email	51	3.71	0.83
World Wide Web	51	3.65	0.84
Tourism-based information gateways	51	2.94	0.95
Internet for work and communication purposes per week	51	2.47	0.78
Tourism online databases	51	2.35	1.04
Tourism electronic journals	51	2.18	0.93
Mailing lists	51	2.12	0.97
Library online public access catalogue	51	1.82	0.93
Discussion groups	51	1.41	0.98
Downloading software	51	1.41	0.78

In their daily operations, most tourism stakeholders in the Durban region used e-mail (3.71) the most closely followed by the World Wide Web (3.65) and tourism based information gateways (2.94) (see table 6). The same data also indicate that the least used ICTs were discussion groups (1.41) and downloading software's (1.41).

Table 7: Effect of ICTs on the Work Environment of Tourism Stakeholders

Item	Frequency	Mean	S.D
Increased work productivity & creativity?	51	3.59	0.61
Communication of tourism facilitated	51	3.59	0.61
Obtaining electronic information	51	3.35	0.91
Communication with customers changed positively	51	3.24	0.43

Data from table 7 above indicate that ICTs have both increased the productivity (3.59) and facilitated the communication of tourism information (3.59), and have at the same time changed (3.24) the way tourism stakeholders in the Durban region communicate with their customers.

Discussion of Findings

As tourism stakeholders in the Durban area first consulted other sources of information before consulting the Internet, this shows that Internet usage is not a major source of information to them, a position TKZN wants to change. TKZN and other ICT service providers need to increase their promotion campaign on the usage ICT as a principle source of information in the tourism sector. Further, as ICTs were found to be most useful in helping Durban area tourism stakeholders profile their customers/guests, source for funding and banking, an approach of constant training and upgrading of software in these areas needs to be adopted.

Since fax and telephonic services are the most accessible ICTs to tourism stakeholders in the Durban region, the adoption of marketing and promotion initiatives such as fax on demand systems and telitourist initiatives needs to be encouraged. As e-mail, telephones and fax machines were considered to be the most effective ICT tools for dissemination of customer information, new marketing and promotional approaches that can exploit these tools need to be developed, encouraged and adopted.

Conclusion and Recommendations

Tourism stakeholders in the Durban region were found to use e-mail the most, while the World Wide Web and tourism based information gateways, their computer and Internet operating skills were found to be wanting/insufficient. Thus, tourism authorities in this region (TKZN) need to focus on capacity building in Internet and computer skills, which can be done in conjunction with experts and professionals in these fields.

On a positive note, ICTs were found to have increased the productivity and facilitated the communication of tourism information. At the same time ICTs were found to have changed the way tourism stakeholders in the Durban region communicate with their customers. But more effort is needed to encourage those who have not adopted ICTs in their marketing and promotional efforts to adopt them so as to be able to enjoy the benefits their ICT adopting business partners are enjoying and to promote tourism in the KZN region.

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Afr. J. Lib. Arch. & Inf. Sc. Vol. 15, No. 2 (2005) 141 - 148

Collection Development in an Unstable Economy: A Case Study of the University of Lagos Library

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Abstract

Collection development at the University of Lagos has been a cooperative effort between librarians and the teaching faculty since the inception of the institution in 1962. In the 1970s and early 1980s, acquisition of books and journals enjoyed a boom because the country benefited from the oil boom through which it earned substantial foreign exchange and also had a strong national currency then. But problems emerged in the late 1980s and continued till now. This paper discusses library acquisition during the boom and lean years. Some comparison is made of the acquisition in these years and the problems which the library faces, while the impact of gifts and exchange programmes on library acquisition is highlighted. Continuous problems with regard to funding pose a threat to quality education. Some suggestions on funding are proffered.

Introduction

Collection development is a very important aspect of library service in any academic institution. All the programmes run by the institution have to be covered to ensure thoroughness and facilitate teaching, learning, research and community service. Reference materials that are relevant to the various disciplines have to be acquired and processed. They can then be made available to the patrons. Materials that are on the periphery also have to be acquired. It must also be noted that the librarian has to ensure a balanced collection so that a narrow aspect of each discipline is not developed at the expense of others.

The development of an academic library collection is not just the duty of the librarian, it is a cooperative effort between librarians and the teaching faculty. A deficient collection can have an adverse implication on the institution. It is imperative that the collection must be developed in such a way that it would meet the aspiration of the library patrons.

Various programmes in institutions of higher learning in Nigeria have to be accredited by the appropriate accreditation bodies like the Nigerian Legal Council, Nigerian Medical and Dental Association and others. This imposes more responsibilities on the library which has to ensure that the collection reflects the needs of the institution, as well as the requirements for the accreditation of programmes.

Ifidon (1997) has grouped library collections into the following:

- Quick reference or core collections
- Open access collections
- Research collection including specific collections
- General reading materials
- Documents.

Many librarians follow the grouping in their collection development while others develop their collection in accordance with their specific needs. Lumande and Ojedokun (2005) in a recent study argue that curriculum and collection evaluation should be part of a library collection development process in academic libraries.

Librarians are usually guided by the acquisitions policy. In some libraries they have a written policy, while in others they do not. But there are written and unwritten acquisitions policies which libraries have to take into consideration in their acquisition. Writing further on this Ochai (2001) asserts that:

> In virtually all university libraries in Nigeria, the acquisitions policies stipulate the purchase of one or two copies of a book except in special cases where multiple copies may be acquired. The reason ostensibly is to spread the meager acquisitions budget among as many subject areas and titles as much as possible.

Before the Academic Staff Union of Nigerian Universities (ASUU) came to the rescue of university libraries in the early 1990s, each institution was supposed to spend five per cent of its total budget on the library. Ratcliffe's study, quoted by Edoka (2002), shows that in 1973/74, Ahmadu Bello University spent 4.36 per cent of its total budget on its library, University of Ibadan spent 4.6%, University of Lagos 4.50%, University of Benin 4.9%, University of Ife 4.76% and the University of Nigeria Nsukka, 10.20%. The fact that Nsukka spent more than the others can be explained. The civil war had just ended then and the library had to be rehabihated.

The Academic Staff Union of Nigerian Universities (ASUU) in 1992 reached an agreement with the federal government on library funding. It states:

> It was agreed that the budgeting provision for library services be under a special head of its own and the head should account for 10% of the total regular budget. Federal Government of Nigeria and the Academic Staff Union of Nigerian Universities,1992 (ASUU,1992).

This agreement provided that 60% of this fund should be spent on books and journals while the remaining 40% be spent on staff emolument. This agreement gave birth to the Library Development Fund (LDF) which is usually ten per cent of the university total budget. The ten per cent was made available for some years, but stopped some years ago. The joy of libraries getting ten per cent of the recurrent university budget has been short-lived. It ceased to be operational from 31st December 2001 (Ifidon and Okoli, 2002). Now there is no separate item of library funding in the National Universities Commission warrant sent to universities to intimate them of the grant from the government. Now federal university libraries are at the mercy of their vice-chancellors who distribute the cake as they deem fit. In recent times, in the preparation of the budget, the grant usually falls short by over 10% of what was approved in the previous year. Thus, each department or unit has to absorb ten per cent reduction, or stick to the previous year's approved estimate, notwithstanding inflation and other factors that impact on collection development.

Thus, internal and external factors affect the fortunes of collection development in university libraries. The blame for stunted growth in the educational sector over the years has been put at the doorstep of the military government which ruled the country for most of the years after independence (Amor, 2003). This was one of the external factors that affected universities and library development in particular as the government determined what education should take in the budget.

The travails of acquiring books published abroad through foreign publishers in higher institutions in the country have also been documented. Foreign booksellers who were eager to do business in the 1970s and 1980s have now withdrawn into their shells.

Companies like Richard Abel, Swets, Blackwell Oxford, McGraw Hill, Oceana and others sold books worth several millions of naira in the 1970s when the naira was strong. Many of them are yet to recover all the debts owed. This made them to now insist on letters of credit to be opened through the local banks. All these make direct purchase from booksellers abroad a stupendous task because universities have to pay in foreign currency which is very scarce. Now most libraries buy books through local reputable booksellers.

Oloruntoba (2002) identified high inflationary rate as another external factor that has worsened the plight of the librarians in their collection development efforts. The Nigerian university system has suffered stunted growth and signs of decay and despair are noticeable. All these have adverse effect on collection development and the quality of library collection and service.

Collection Development at the University of Lagos Library

The University of Lagos was established in 1962. It has ten faculties: Law, Arts, Science, Engineering, Social Sciences, Business Administration, Postgraduate School, Environmental Sciences, Pharmacy, Education and College of Medicine. The University Main Library caters for the needs of all programmes except the College of Medicine Library, located some distance away, which caters for all medical programmes. There is an Education library located at the Faculty of Education but books and journals are acquired and processed by the Main Library for the Education Library.

Miss Moys, the first University Librarian, began the development of the library collections with the active collaboration of the academic staff. The tradition has been followed over the years. Thus, the library collection is made up of the books and journals received by purchase, gift and legal deposit.

Under the Publications Law (cap 107) of the Laws of Lagos State of Nigeria, the library became a legal depository for two copies of all books published in Lagos State. The library is also a depository for the publications of the United Nations Economic Commission for Africa (ECA), General Agreement on Tariffs and Trade (GATT), International Court of Justice (ICT) and other selected publications of the United Nations and Food and Agricultural Organisation, (University of Lagos Calendar, 2002).

At the University of Lagos, there is no written policy but the practice over the years has been documented. For all Nigeriana materials, the library can acquire three copies if the prices are not too high. If they are high the library can acquire two copies. For all Africana materials, the library can purchase two copies. For books used as text by large classes the library can acquire a maximum of five copies. Some of these may be placed on reserve so that all the students can have access to them at any time.

By 1976, the library stock grew to over 130,000 volumes with over 4,000 journal titles on subscription (Olanlokun & Issah, 1987). By the early 1980s the journal subscription was about 5,000 titles but the boom years were soon over and economic depression which hit the country like a bang had an adverse effect on it and all institutions of higher learning. The library could no longer get adequate funds for its basic services. The library as at 2005 had a collection of about 350,000 volumes of books and over 55,000 volumes of journals.

The main objective of the study was to identify some of the factors that impact on collection development (internal and external).

Methodology

Some of the documents and statistics of library acquisition from 2000-2004 were examined and analysed to see the trend of collection development during these years. Comparison was made between the collection development during the oil boom years of the 1970s and 1980s when the country earned substantial foreign exchange and the lean years of the 2000s.

Findings

Books and Journal Acquisition, 1977-81, 2000-2004

The University of Lagos Library acquired books through purchase, gift and legal deposit. Tables 1 and 2 provide information on the library budget for materials acquired between 1977-1981, the boom years and 2000-2004, the lean years. The two tables reveal that a substantial amount of money (US dollars) was allocated each year for the purchase of library materials during 1977-81 compared with the 2000-2004 period.

Table 1: Library Budget for Books and Journals (1977-1981)

Years	₦ Naira	US. Dollars
1977-1978	120,000.00	189,000.00
1978-1979	140,000.00	220,000.00
1979-1980	150,000.00	225,000.00
1980-1981	200,000.00	300,000.00

Source: University of Lagos Library Estimates 1977-1981.

Table 2:Library Budget for Books and Journals 2000 - 2004

Year	Naira	U.S. Dollars
2000-2001	16,089,924	114,928.03
2001-2002	10,297,799	73,555.71
2002-2003	15,000,000	107,142.80
2003-2004	25,000,000	178,071.45

Source: University of Lagos Approved Estimates, 2000 - 2004

Tables 3 and 4 show the vagaries of journal acquisition during the lean period (2000-2004). The number of foreign journals acquired between 2001 and 2004 ranged between 143 and 201 and for local journals between 40 and 77. This clearly shows that the library was not meeting the needs of its users given the fact that during the boom period the library was subscribing to about 5000 journal titles.

Table 3: Foreign Journal Purchased 2000-2004

Year	Number of Journal Title	Value (US Dollars)
2000/2001	-	-
2001/2002	143	US$71,079.90
2002/2003	159	US$ 128,342.70
2003/2004	201	US$ 66,478.57

Table 4: Local Journal Purchased 2000-2004

Year	Number of Journal Title	Value (US Dollars)
2000/2001	40	US$1,720.75
2001/2002	23	US$ 819.13
2002/2003	26	US$ 2404.54
2003/2004	77	US$ 3,518.22

Since the inception of the library, reputable journal subscription agents like Swets/Blackwell, EBSCO and Richard Abel were used. They performed very well but payment for journals became a big problem because of scarcity of foreign exchange and they became very careful in dealing with libraries in the country because of the debt owed. By the early 1980s, journal subscription was over 5,000 titles, but this has nosedived to under 1,000 titles, both local and foreign. The cost of foreign journals recommended for 2003/2004 was $117,028.23 (One hundred and seventeen thousand dollars, twenty and eight dollars and twenty three cents.) When converted into the local currency, the naira, it amounted to over thirty million naira, more than the total library budget. The library had to prioritise and reduce the number of titles on the list to what the resources could handle. The library had to prepay, which is the normal procedure for buying journals. And because the university subvention from government is released monthly, the Vice Chancellor gives priority to paying salaries first.

The library has been lucky because the university management gives primacy to knowledge; books and journals are regarded as important resources. The library was able to pay for half of the journal titles recommended in 2003/2004 for which it got a pro-forma invoice through bank transfer. This was in addition to EBSCO Host, a database which all Nigerian universities have access to for a period, courtesy of a Japanese philanthropist. Databases that offer free search services are courted by the Automation Unit to get some relief for the library patrons.

Books that are purchased are audited before the booksellers are paid and this can take two to three months but the good thing is that the vendors would get their money. Let us take a brief look at the statistics of books purchased in the 1970s and early 1980s.

In the four-year period, 1999-2004, the highest acquisition was in 2002 when 4762 volumes of books were acquired. This is far cry from the boom years of 1970s when over 17,000 volumes of books were acquired in 1977. Over 15,000 volumes were acquired in 1980. The acquisition of the early 2000s to 2004 was very low due to several factors. These included inflation, under funding and scarcity of foreign exchange etc. With the high cost of books and the poor funding which Nigerian university libraries experienced in recent times, the hope of replicating the large acquisitions of the 1970s and 1980s is dim.

Collection development is a hard task for any academic librarian in an unstable economy. New books and journals have to be bought either in book format, if available, or in electronic format. Failure to do this would affect the core mission of the university library - to support teaching, learning, research and community service. Getting funds to support the library programmes depends on what is made available by the university and how the chief executive sees the library.

Donations and Library Exchange Programme

The Library receives donations from several organisations. Some of them unsolicited and the materials are usually very relevant and useful. (The list of some donors appear in Appendix 1). The library has an exchange unit which handles the library exchange programmes. The Gifts and Library Exchanges programme now play a very important role in collection development effort. There are over one hundred exchange partners from all over the world and about half of them are very active. (Some of the active exchange partners are listed in appendix 2).

The library received gifts of journals, some covered over a twenty-year period continuously especially in chemistry and other science subjects from some donors. These are found quite useful by the staff and students. Some of these gifts were facilitated by the teaching staff who interacted with their foreign colleagues and persuaded them to donate their books and other collections to the library.

The Way Forward

An ingenious method of sourcing for funds for acquiring library materials has to be introduced so that library funding would not be at the whims and caprices of government who doles out money irrationally. University librarians develop goose pimples whenever accreditation panels knock on their doors and they have only a few new books and journals to display. University authorities scramble for money to get materials required for the accreditation exercise so as not to be disgraced.

Nigerian university libraries must rise up to the challenge of fulfilling their objectives of supporting teaching, research, learning and community service.

They cannot do this if they are inadequately funded. Their major source of funding are the institutions they serve and the economic crunch has had an adverse effect on them. It is not unusual at the budgetary hearings that departments are instructed to maintain the previous year's budget notwithstanding inflation and other challenges which would make the retention of previous yearly approved budget unrealistic.

To get out of this quagmire, university librarians must continue to put pressure on the authorities to provide adequate funding so that we do not run a university of the nineteenth century in the twenty-first century. Lobbying is a fact of life in politics and even in business. University librarians must play the politics required. They must mobilise faculty members who are friends of the library for support so that whatever is due to them would not be denied them.

The Committee of University Librarians of Nigerian Universities (CULNU) should use its clout to impress it on the National Universities Commission, the Federal Ministry of Education and other agencies on the need to fund university libraries adequately. We had what was called "Library Development Fund" (LDF). This fund was separated from other financial items and was made available to libraries for their development. The National Universities Commission suddenly stopped the payment of LDF and university librarians were shocked. In spite of petitions written for restoration, nothing has been done. University libraries are now at the mercy of vice chancellors who give priority to payment of salaries than buying books and journals for the libraries. The LDF should be restored, at least the librarians would know what is due to them and can then plan to spend this. When the LDF is restored, the fund should be controlled by vice-chancellors, university librarians and the bursars. The university librarians should be signatories to the fund so that they can monitor its use. University libraries should expedite the formation of a consortium that would aid the libraries in sharing their resources and thereby reducing the cost of materials that they acquired.

For some university libraries, it is possible to generate money from external users. There are corporate bodies, multinational companies, individual firms and others who require information from libraries. For example, the University of Lagos charges these high-profile patrons fees. The library makes some money from this which is used for library development. There are law firms which cannot afford the high cost of law reports who want to use the library's resources. Such firms could be charged yearly fees for consultation only and not for borrowing. Libraries can do literature search for external patrons for a fee. The money realised from such should be ploughed back to support information technology applications. Library cooperation in terms of acquisition and loans should be encouraged. This will make more materials available to patrons and reduce overall cost.

One of the most significant sources of funds for library development could be to charge students library fees. There is however a tradition of students resistance to paying any new special fee. Some university libraries have added library fees to their bill and this can reduce some of the burden of such institutions. Dialogue can be initiated with student bodies on the need to upgrade library facilities and have current books and journals, and the desirability of paying token library fees. Persuasion, dialogue and diplomacy on the part of the university authorities can assist in making students realise that quality education is not cheap and everybody has to make some sacrifice. All the stakeholders have to cooperate to ensure a virile collection development. These are the government, governing councils, vice chancellors, alumni and friends of the library. There has been a lot of discussion on autonomy. When the universities achieve autonomy they might be able to charge fees, including library fees, without running into much problem.

The university authorities should ask potential philanthropists to fund some resources and services in the library. If some agree to fund just twenty titles of journals as an endowment, this would go a long way to lessen the financial burden of journal subscription. The universities themselves can agree to give ten per cent of all their monetary donations from endowment to their libraries.

The university libraries should work in concert with the alumni association offices. The libraries should send them information on their libraries and seek their help for further development through funding or donation.

Conclusion

Some people have referred to the university library as the heart of the institution. The heart needs constant pumping of blood to all parts of the body to make it function effectively and efficiently. The library needs funds for books, journals and other materials. Deny the libraries all these and the result will be like that of a child who is malnourished and has kwashiorkor. University librarians must be very active in sourcing for fund for their libraries. Some of the suggestions provided above can be tried.

Internally generated revenue, normal budgetary allocation, formation of a consortium, endowments, library fees and payment for special services can provide university librarians some leeway to provide quality service and help in the enhancement of education and the extension of the frontiers of knowledge.

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Appendix 1: List of Some Donors

1. British Council
2. Ford Foundation
3. Carnegie Corporation.
4. Nordiska Afrikanistitutet
5. Council for the Development of Social Research in Africa
6. National Centre for Economic Management
7. Centre for Social Science Research and Development.
8. Lucis Trust
9. Unicef
10. National Population Commission
11. World Bank
12. ZED Books
13. Consulate General of the United States of America.
14. United Nations
15. Arts Council of the African Studies Association
16. Switzerland Embassy

17. International Labour Organisation
18. Rotary Club of Victoria Island
19. Leadway Assurance Company Limited

Appendix 2: List of Active Exchange Partners

1. University of Pittsburgh Libraries U.S.A.
2. Foreign Materials Acquisition Division
National Diet Library, Tokyo, Japan.
3. African and African America Collections, University of California at Berkeley, California.
4. Al Kegan African Studies Bibliographer, Library Administration, University of Illinois Library, Urbana, 61801, USA
5. Josie S Flores
Gift & Exchange Division Stanford University Libraries Stanford C. A. USA.
6. Serials and Exchanges
Main Library
University of the West Indies
St. Augustine Trinidad
Trinidad & Tobago.
7. Indiana University Main Library E-660
Indiana University Main Library
Bloomington IN, USA.
8. The Library of Congress
Africa/Asian Acquisitions and Overseas Division
Washington, D. C. U.S.A.
9. Columbia University Libraries
Exchanges Department
108 Bottlers Library
N.Y., U.S.A.
10. IDRC/CRDI International
Development Research Centre Ottawa
Ottawa ON KIG Canada.

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Short Communication

Studies on Internet Access and Usage by Students of the Federal University of Technology, Akure, Nigeria.

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Abstract

The focus of this paper is Internet access and usage by the undergraduate students of the Federal University of Technology, Akure. It investigated the adequacy of provision of access to the Internet for the students and general usage of the Internet. It also studied the problems encountered by the students in their use of the Internet. The findings revealed that there were inadequate computers with Internet facilities for the use of the students and there were inadequate points of access inside the University campus. Students acknowledged the benefits of the Internet to academic studies but due to lack of adequate searching skills, full knowledge of the use of Internet applications and cost of access, some could not maximally utilise the resources of the Internet. Generally, the University had a great positive influence on the students' use of the Internet.

Introduction

The Internet, simply put, is a worldwide collection of networks, gateways, servers and computers using a common set of telecommunications protocols to link up. It provides worldwide access to information resources. The Internet has become the symbol of the information age and a means of accessing and sharing information now extending throughout the whole culture of human beings (Song and Khong, 2001). In terms of usage, studies reveal that the major uses of the Internet are for surfing the World Wide Web (WWW) and electronic mail. The studies conducted by Ojedokun (2001) revealed that most students acquired skills in Internet access and usage through friends. About 23% of the respondents said they never used the Internet. It was also discovered that the highest percentage (37.8%) of respondents used the e-mail for communication with friends and relatives, and Yahoo seemed to be the users' favourite search engine (25%).

As a result of the astronomical development in the information technology world, various educational institutions, especially universities, are adopting different policies and taking new steps in order to face the challenges ahead. The Federal University of Technology, Akure in the light of this, provided the University community access to the Internet through the University Cyber Café. However, there are some other cyber cafes around the campus.

The Federal University of Technology, Akure (FUTA) came into existence in 1981, but commenced full academic activities on 29th November, 1982. Federal universities of technology, including FUTA, have been set up in Nigeria to give prominence to technological training and provide the much required impetus for rapid technological and industrial development (FUTA Calendar 2003 – 2005). The attainment of this goal will without doubt be enhanced if there is access to current research and happenings globally.

This paper is aimed at studying the adequacy of provision of access to the Internet, general usage, and the problems encountered by the students in its use.

Methodology

The undergraduate student population for the study year was 5296 (FUTA enrolment statistics, 2003/2004). A total of 630 respondents were selected out of the total population. This constituted 12% of the population. The random sampling technique was used to select respondents across the schools in the university. Data were collected from the students using the questionnaire as the main data collection. The questionnaire was designed to identify the important variables to be measured. These included access to the Internet, usage of the Internet and the problems the students encountered in the course of accessing and using the Internet. It was also designed to elicit some other views relevant to the study. Copies of the questionnaire were distributed and collected across all the departments under each of the five schools (Science, Agriculture and Agricultural Technology, Engineering and Engineering Technology, Environmental Technology and Mining and Earth Sciences) available in FUTA. The return rate was 590, representing 93.6% of the total number of respondents selected. The study dealt with only undergraduate students.

Results and Discussion of Data

Internet Access

The study showed that 20 (3.4%) of the respondents were not using the Internet, as they indicated 'not applicable' in the questionnaire to all the eight questions on 'access to the Internet. The study also showed that the students accessed the Internet from a variety of sources as revealed in table 1. Most of the students accessed the Internet through the cyber cafés at the campus gate. It was discovered that students felt more comfortable using the cyber cafés at the FUTA gate than using the University Cyber Café. This could be as a result of the inconsistency in the discharge of services to users at the University Cyber Café and inadequate computers with Internet facilities there.

Table 1: Place of Internet Access

Point of Access	Number of Respondents	Percentage
Cafes at FUTA gate	405	68.6
University Cyber Cafe	72	12.2
Home	33	5.6
Category not using the Internet	20	3.4
Town	13	2.2
Others	47	8.0

N= 590

The study also revealed the fact that a large number of the students had been using the Internet for over 24 months (69.7%). Only 4% of the respondents had used the Internet for less than six months.

The study sought to know how those who used the Internet came to learn to use it. Four possible learning sources were suggested, but respondents were asked to indicate other sources of learning to use the Internet. Table 2 provides the frequencies of use of the different resources. Students acquired skills in the following order: teaching by friends (67.9%), self teaching (39.3%), reading of books (20.7%), while observing people carried the lowest percentage of 9.3. Many students could still acquire more knowledge about the Internet if there is provision of learning sources such as seminars on the use of the Internet, incorporating studies on Internet in the academic curriculum and encouraging students to get familiar with the Internet.

Table 2: Means of learning Internet Use

Means of learning Internet Use	Number of Respondents	Percentage
Teaching by friends	387	67.9
Self Teaching	224	39.3
Reading of Books	118	20.7
Observing people	53	9.3

N = 590

It was interesting to discover the applications mostly used on the Internet by the students. This was done by making a few suggestions. The students were asked to indicate the regularity of the use of: E-mail, chat facilities, web browsing, newsgroup, discussion groups and File Transfer Protocol (FTP) using a scale of 1 to 3 (1 = frequently, 2 = rarely, 3 = never), and then the final average was the sum of all the ratings multiplied by the number of respondents for each rating and divided by the total number of respondents. The lower the average obtained, the higher the frequency of use, since frequently was ranked 1st, and never 3rd. It was found that electronic mail facilities were mostly used on the Internet. This had an average rank of 1.09. Chats and web browsing followed, and FTP facilities, newsgroup and discussion groups found lesser use by the students as shown in table 3. This could be because many students did not know the use of these applications. This lack of knowledge also limited the amount of information students acquired in their course of study. Discussion groups in particular can be helpful to students in getting information and acquiring knowledge about specific topics, but the study showed that many students were unaware of this and this may be the reason why a lower proportion of the respondents used it.

Table 3: Use of Internet Applications

Applications	Frequently (Rank =1)	Rarely (Rank =2)	Never (Rank =3)	Average Rank
E-mail	516	54	0	1.09
Chat	325	162	88	1.60
Web Browsing	238	320	12	1.60
Newsgroup	17	199	354	2.59
Discussion groups	6	102	462	2.80
FTP	-	9	561	2.98

N= 590

Internet Usage

Respondents who had access to the Internet were asked to indicate their specific use of Internet applications such as the electronic mail and the World Wide Web (WWW), as well as how they were using the applications. For electronic mail, five potential uses were suggested (communication with friends and relatives, communication with colleagues (students), communication with lecturers, seeking help in research work, and participation in discussion groups). Respondents were also given the option of indicating non-use of e-mail and to specify other uses. As can be seen in table 4, 522 (91.6%) of the respondents rated e-mail communication with friends and relatives as their first major use. Very few (5.8%) used e-mail for seeking help for research work, none of the respondents used e-mail to communicate with lecturers (this could be because FUTA is not on-line and Internet facilities have not been provided in any of the departments). The result also showed that none of the students specified other uses and 3.5% used the e-mail to participate in discussion groups. It is obvious from this point that many students did not optimally use these applications of the Internet. It is therefore necessary for students to be well informed and given better orientation about the services that the Internet provides especially for learning and research.

Table 4: Use of Electronic Mail

Use	Number of Respondents	Percentage
Communicating with friends and relatives	522	91.6
Communication with colleagues (students)	46	8.1
To seek for help in Research work	33	5.8
Participation in Discussion Groups	20	3.5

N = 590

Of the six potential uses suggested for the World Wide Web (WWW), sixty seven (11.8%) respondents rated access to entertainment and sports as their major use of the WWW, 39 (6.8%) respondents rated access to the news as their major use. A lower proportion 2 (5.6%) of the selected respondents did not use the WWW. The study showed that the majority of the respondents used WWW to search for academic materials; this constituted 508 (89.1%), indicatting a better use of the Internet. Three hundred and twenty-one (56.3%) used it for general browsing while 58 (10.2%) used it to visit other university sites as indicated in table 5. It is interesting to discover that no respondents indicated the use of the WWW for other things such as downloading computer games, audio files, pornographic-related materials and music files. This could be attributed to serious- mindedness on the part of the students and their knowledge of the benefits of the Internet to academic studies. It might also be as a result of lack of adequate knowledge by students of how those things could be obtained.

Table 5: Use of WWW

Use	Number of Respondents	Percentage
To search for academic materials	508	89.1
General browsing	321	56.3
Entertainment and sports	67	11.8
To visit other University sites	58	10.2
To receive news	39	6.8
Non-use of WWW	32	5.6

N = 590

Favourite Search Engines

The students were also asked to indicate their favourite Internet search engines. A variety of search engines were suggested. Table 6 shows that a large number of students were not aware of various search engines like Dot Com directory, Yell, Hotbot, Lycos, Directhit, Dejanews, etc, because none of the respondents indicated each of these. Yahoo seemed to be the favourite tool of many students with 150 (26.3%) of respondents, followed by Excite and Google, while, the majority had no favourite search engine. This constituted 267 (46.8%). A good understanding of these search engines and their use is necessary in order to get quality information when searching.

Table 6: Favourite Search Engines

Search engine	Number of Respondents	Percentage
No Favourite Engine	267	46.8
Yahoo	150	26.3
Excite	110	19.3
Google	31	5.4
Infoseek	7	1.2
Altavista	5	0.9

N = 590

Problems Encountered in the Use of Internet Facilities

When respondents were asked to state the major problem they faced in their use of Internet facilities, the major problems mentioned were too few computers with Internet facilities, too little training in the use of the Internet facilities and the slow Internet connection.

Suggestions and Comments from Respondents

This study further sought suggestions from respondents on how best the problems encountered could be solved. Some issues clearly emerged, which are stated below:

(i) There should be training on the use of the Internet facilities.

(ii) The University should introduce information technology courses into the various departments.

(iii) Computers with Internet facilities should have very fast connection speed.

(iv) The University should provide more access points to the Internet.

(vii) There should be a good and experienced network administrator for effective management of the server in the University cyber café.

(viii) The University should reduce the price of browsing at the cyber café.

Conclusion and Recommendations

The study clearly revealed there was a reasonably high level of awareness and utilisation of the Internet by the students for several purposes. Most of the respondents had more than one year experience in the usage of the Internet. However, it was discovered that a large number of the students accessed the Internet outside the campus, and this was due to the fact that computers with Internet facilities for the use of students at the University cyber café at the time of the study were inadequate. In addition, there was only one point of access, hence students had to travel long distances from some of the hostels or personal residences outside the campus to visit the café.

In view of the huge academic resources available on the Internet and its usefulness to learning, teaching and research, it is recommended that:

- The University Cyber Café be properly managed to ensure effective operations, fast connection and provision of services at affordable prices to make students patronise the place more.
- The University increases access points by locating cyber cafés in places like faculties, students' hostels , Students Affairs Unit and the Library. This would go a long way to create more enlightenment, foster access and usage of Internet facilities within the Campus community and help students to benefit maximally from the facilities.
- Training, seminars and lectures on the use of the Internet be organised for the students to enlighten them on the immense benefits that the Internet offers and how to access them.

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Book Review

African Posters: A Catalogue of the Poster Collection in the Basler Africa Bibliographien. Edited by Giorgio Miescher and Dag Henrichsen. Basel: Basler Africa Bibliographien, 2004, 200p., ISBN 3-905141-82-5.

Essentially, this book is a catalogue of posters collected by the Basler Africa Bibliographien (BAB) Namibia Resource Centre and Southern Africa Library. The catalogue begins by introducing the term "poster" which the authors define as "notices informing a population or a segment of it about something." The authors acknowledge the role of posters in the society, but are also quick to point out that posters tend to lose their value soon after the event for which they were produced has passed. The volume is divided into the following sections: introduction, liberation movements and exile, solidarity and anti-apartheid, elections, nation building, awareness and health, economy, knowledge, information and beliefs, leisure and pleasure. Each section begins with a simple introduction that sets the tone and scope of the posters. Each poster contains sufficient information concerning the designer, the date the poster was created and the location where the original poster can be viewed.

This book is an essential reading for anyone interested in not only the socio-economic and political history of Namibia but also in the history of the Southern African region as a whole. It is obvious from the introduction that the collectors of these posters were greatly involved in the activities that took place and were eager to preserve the documentary heritage which in normal day to day activities would otherwise be lost. The poster collection is one of the several special collections in the Basler Africa Bibliographien (BAB) Namibia Resource Centre and Southern Africa Library. They contain posters covering pre-independence Namibia collected by Call Aschettwein (Basel) prior to 1990, and posters covering the transition to Independence, 1989/1990 collected by Resi Hnerichsen. Additional posters contained in the collection relate to the 1994 elections in South Africa and those relating to the disbanding of the Swiss and German Solidarity and anti-apartheid committees.

The section on liberation movements and exile reveals the struggle for independence and brings back painful memories of the sacrifices made to attain political independence. This indeed is a wonderful collection that captures the struggle for independence not only in Namibia, but also contains posters on the struggle for independence in neighbouring states such as Angola, Eritrea, Mozambique, South Africa and Zimbabwe. The role of women in the struggle for independence also features prominently in the section on liberation movements and exile.

The section on solidarity and apartheid captures various campaigns launched locally and internationally by various pressure groups including boycotts of certain products and services. Posters on campaigns to free Nelson Mandela from prison also feature prominently.

The section on elections includes election posters, ballot papers, party symbols, manifestos, portraits of presidential, parliamentary and local authority candidates, educational campaigns to educate the electorate and posters calling for unity in the first independence elections in Namibia. The section also contains posters on the election of ZANU PF candidates in Zimbabwe, portraits of some of the major candidates, party symbols, and manifestos and slogans involved in the first democratic elections in South Africa in 1994.

The section on nation building covers a wide range of topics. The section introduces its viewers to past crimes committed during the struggle for independence with a warning to the nation never again to be taken to the dark days of apartheid. It features posters on independence celebrations, posters on commonwealth leaders, ZANU PF central committee members, portraits of SADC Heads of Government, posters covering US President Clinton Visit to Nigeria, August 2000, photographs of the Board of Directors of Debtswana Diamond Mining Company (of Botswana), posters on the protection of children and women's rights, prevention against crime, posters on insects and nature, health and safety issues such as HIV/AID awareness campaigns. Issues attracting world attention as a whole also feature in this section. These include World Environment Day campaigns, World Ozone Day, protection of water resources in Namibia, health and motherhood, and safe disposal of waste materials.

Portraits on the economy include a wide range of products, particularly those produced locally in the Southern, Eastern and North Africa. The selection of posters has carefully been done to include everyday activities such as travel and leisure, hairstyles, dressings, local brews, posters on various Namibian trade unions and workers rights, fighting HIV/AIDS in the workplace, trade fairs and productivity campaigns in Botswana and South Africa. One of the most exciting sections relates to knowledge, information and power. Posters depicting the fight between Jesus and Satan introduce the viewer to a wide range of issues impacting the nation. The section contains posters on literacy programmes, African writers, social transformation and the role of the Christian Church and Islam in the society. Finally, the posters on leisure and pleasure capture everyday activities in the society and particularly aspects of modern social life of the youth. Portraits on soccer matches and popular football stars also feature prominently.

I would recommend this poster collection to anyone who would like to know more about the struggle for independence in Namibia and the Southern African region as a whole because it provides a vivid memory of the events that took place in this region. However, it must be remembered that this poster collection is focused more on the black people's struggle against injustice. The collection would have been balanced if it had contained some portraits depicting other races as well, which, today, constitute African societies even though of non-black descent.

The great strength of this poster collection is that it was brought together by people who lived through the period when the events took place. Its mixture of white and black portraits as well as the inclusion of colour photographs and portraits makes the book very attractive to the viewer. This poster collection is a valuable addition to sources of information especially on visual arts in Africa. The curators of this collection must be congratulated for gathering such a wide range of posters, bearing in mind that the value of posters diminishes very fast soon after an event has taken place. Moreover, posters are rarely published and therefore unavailable through the normal publication outlets such as bookshops. The book throws a major challenge to other information providers to collect, preserve and publish similar works in their respective countries as posters constitute part of our societal memory.

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The Librarianship of Developing Countries: the Librarianship of Diminished Resources by O. O. Ogundipe. Lagos: Ikofa Press, 2005. 353p (ISBN: 978-37579-1-6). Price: N1, 500.

The author's aims as set out in the introductory chapter can be summarised as sharing his over five decade's wealth of experience as a librarian in different developing countries. Through this book the author has contributed to the literature of librarianship, especially in developing countries, by providing in depth reviews of the practice of the library profession in Sierra Leone, Zambia, Trinidad and Tobago, the Caribbean and Nigeria.

The author views the librarianship of developing countries as basically a librarianship of "diminished" resources. The term "diminished" describes the state of libraries in terms of provision of resources in the developing countries where he had practised as a librarian for 50 years. Libraries in developing countries are grossly neglected by their various governments. According to the author, the "diminished" nature of librarianship makes it possible for the library budget to always be the first to be slashed anytime there was a downward review of an organisation's budget.

The author articulated in three parts the experience he gained in the field of librarianship. He started with an introductory section based on general topics and issues in librarianship applicable to developing countries. He adopted a logical approach by dealing with the roles and objectives of libraries in developing countries focusing on constraints, challenges and opportunities. The author sets the 16 chapters in this section in a logical style, treating the development of librarianship, economic gloom as it affects the libraries, the importance of journals to academic community, and concepts and approaches of librarians to library management. Part two of the book focused on the need, problems and other issues involved in establishing and practising librarianship profession in developing countries such as Sierra Leone, the Caribbean, Zambia, Trinidad and Tobago.

The author devoted the entire part three of the book to the growth and development of librarianship profession in Nigeria. He elucidated the problems encountered and successes achieved by the Committee of University Librarians of Nigerian Universities (CULNU). The roles and functions of libraries in higher institutions and their attendant problems such as funding, staffing and professional development for library professionals were also examined. He recommended the need for an effective legal support system as one of the ways out for improving the diminishing resources in the libraries in Nigeria.

A major concern about the book is the absence of an index. This the author should have added at the end of the book as a veritable tool for retrieving information from the text. The use of running titles would have enable readers know which topic they are reading at any point in time. The author, in spite of including references at the end of each chapter (though some did not have while others combined it with bibliography) should have included a comprehensive bibliography at the end of the book. The bibliography would have impacted positively on the use of the book as a reference material by readers.

The author also made no attempt to give a rating on each country and did not compare the level of development of librarianship in the developing countries covered in the text. This kind of comparative analysis would have been useful in determining the level of development of the profession in such countries. The author left out the issue of library automation in the book. One would have expected the book to have at least a chapter on the use and impact of information technology on library services in developing countries.

In spite of these shortcomings, the author has succeeded in providing useful information on development of librarianship in developing countries in the face of diminishing resources. The book is well printed with glossy cover and is one of the few good books available on librarianship in developing countries bearing in mind the dearth of books in this field. It is recommended for every librarian (trainee and practising) in Africa.

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Personality Interview with Jean Smith, General Manager, EBSCO Regional Office, South Africa

Introduction

Jean Smith is the General Manager of the EBSCO Regional Office serving Southern Africa. Jean Smith qualified as a teacher specialising in librarianship and worked in a school library and the research library of a large chemical manufacturer before joining EBSCO. She has been with EBSCO since 1992 and was responsible for the establishment of the European Service Centre.

EBSCO Information Services is a worldwide leader in providing information access and management solutions through print and electronic journal subscription services, research database development and production, online access to more than 100 databases and thousands of e-journals, and e-commerce book procurement. EBSCO's International headquarters is in Birmingham, Ala, USA. It provides its services to the world through its 33 regional offices and EBSCO representatives located in 12 countries. One of the regional services is the regional service based in South Africa which is headed by Jean Smith.

There is no doubt that EBSCO has contributed immensely to library and information development in Africa. We are pleased to share some thoughts with Jean Smith, the General Manager of EBSCO Regional Office, South Africa.

EBSCO has representation in only two of the 54 countries in Africa; the regional office for Africa, based in Johannesburg, South Africa and a token representation in Lagos, Nigeria. Is this suggestive of volume of patronage in Africa?

EBSCO's reach extends from the home office in Johannesburg, established in 1985, to more than 27 of the 54 countries in Africa. We also maintain relationships with numerous African publishers.

Our sales representatives based in Nigeria and Saudi Arabia regularly visit libraries in the Central, Western and Northern parts of the continent, while individuals based in Johannesburg work closely with major libraries in Southern Africa. EBSCO's regional office in Villebon, France serves French-speaking countries within Africa to eliminate the language barrier.

EBSCO currently has a large number of database subscribers all across Africa. To help support and facilitate such subscriptions, EBSCO has organised and provided numerous on-site training sessions for libraries. Many representatives from EBSCO Publishing have personally visited libraries and other institutions in dozens of African countries. Additional support is provided by many dedicated representatives who are able to assist subscribers via phone and e-mail. In addition, EBSCO provides local representation in many regions of Africa and is currently working on expanding such coverage to include additional regions. The only areas where we do not have business are those where political conflict within the country has restricted trade with the outside world.

We are active participants in all major library conferences, often sponsoring a select number of conference delegates who would otherwise be unable to attend. In addition to the financial support we provide for conferences and regularly participate in various philanthropic projects, to date having partnered with the European Union, the British Council, the Soros Foundation and UNESCO, among others.

Of our 13-member staff, seven are professionally-trained librarians. We understand the particular challenges faced by librarians in Africa and offer a uniquely personal level of service to the customers we support.

Most journal publishers in Africa have complained that subscriptions made by EBSCO on behalf of libraries are always sent to publishers piecemeal. Why can't subscriptions made on behalf of libraries be consolidated?

As one of the world's largest subscription agencies with more than 60 years experience in the information services industry, we have learned what works - and what doesn't. In the role which we fulfill as "middleman" between the publisher and library, we aim to serve the needs of both. We place orders as material is required by numerous libraries throughout the world accommodating both their fiscal and academic calendars.

We have many time-tested procedures in place to expedite the serials ordering process, including placing a pre-paid order with the publisher in the currency of their choice. Our order forms provide clear details to enable easy downloading of publisher records.

Rather than being "piece meal," the approach helps libraries maintain accurate collections for their patrons and reduces the need for library staff to spend time handling claims so they can turn their attention to other tasks. This is just one of many values from EBSCO. Other benefits include detailed invoicing, ILS loads for payment and ordering information, consolidated reports, localized customer service, assistance with e-journal registration, holdings analysis, e-journal auditing and much more.

Does EBSCO*host*® include local electronic journals produced in Africa although EBSCO*host* covers more than 150 databases? Are databases specifically geared towards Africa included?

To be clear, EBSCO offers two distinct forms of digital access to journals, via aggregated full-text databases and as individual e-journal subscriptions.

EBSCO*host* databases feature a number of full-text journals from African countries including Egypt, the Sudan and South Africa. Linking from EBSCO*host* databases to local e-journal subscriptions is facilitated through EBSCO *SmartLinks*™ and CustomLinks™. E-journals may also be accessed via EBSCO*host* Electronic Journal Service (EJS). EJS Enhanced handles electronic journal access and management needs such as tracking the registration status of e-journals, authentication assistance to facilitate both on-campus and remote access to e-journal content, automatic management of e-journal URLs and much more. EJS Enhanced serves as a consolidated gateway that allows users to search and link to more than 12,200 Open URL supported journals and 6.3 million articles. EBSCO provides durable URLs for every journal, table of contents and article in EJS Enhanced. No URL maintenance by the library is required.

Most EBSCO*host* databases are not geared toward specific geographic regions, but are instead focused on the important subject areas required by researchers in most countries worldwide. Complete lists of available databases and the journal titles included in them are available at www.epnet.com.

Averagely, how many libraries and information centers subscribe to EBSCO*host*? How many are in Africa? Do they receive any technical support from EBSCO*host*?

EBSCO Publishing has tens of thousands of EBSCO*host* subscribers worldwide with hundreds in Africa. In fact, many African countries have nationwide access to numerous EBSCO*host* databases. All EBSCO customers receive complimentary, unlimited technical support and training for the duration of their subscription period.

Is there a way in which licensing agreement fees for EBSCO*host* can be subsidised for African libraries so that more researchers can have access to EBSCO*host*?

Libraries in many regions are often able to take advantage of discounted (and sometimes subsidised) pricing through national and regional consortia. EBSCO Publishing is proud to work with many such consortia worldwide, including eIFL (Electronic Information for Libraries) and INASP (International Network for the Availability of Scientific Publications) that serve the countries of Africa. We encourage any interested libraries to contact us at information@epnet.com for details.

Although yours is a profit-making organisation, is there any way you can assist local journals produced in Africa in terms of training, advertisement, etc.?

In addition to licensing journal content to EBSCO Publishing for inclusion in our full-text and secondary databases, publishers may also promote journal titles in our 10 market-specific serials catalogues or through EBSCO's Sample Issue & Book Program.

EBSCO's serials catalogues keep library patrons up-to-date on available titles. They contain thousands of titles listed both alphabetically and by subject classification. *The Librarian's Handbook*, used primarily by academic libraries, is our most extensive catalogue with nearly 75,000 serial title listings. Other serials catalogues contain listings from the Health Sciences, School, Public, Law and Business disciplines.

EBSCO's Sample Issue & Book Program presents publisher titles to thousands of potential customers at major U.S. and non-U.S. library conferences. The publisher provides EBSCO with a copy of their publication(s), and EBSCO provides the publicity for it. By taking advantage of this service, the publisher doesn't have to spend valuable time traveling to and from the conference, nor do they have to absorb the cost of purchasing booth space on the conference show floor. EBSCO prominently displays the publisher's title in our booth at all major library conferences, promoting the title(s) to conference and booth visitors on the publisher's behalf. To learn more about this programme and other opportunities for publishers to promote their titles through EBSCO, please visit http://www.ebsco.com/publish/

As aforementioned, another way for publishers to work with EBSCO to increase exposure and readership is through participation in aggregated full-text databases (such as *Academic Search™ Premier*). Such exposure would not be limited to the continent of Africa but would actually extend worldwide to all relevant EBSCO*host* subscribers.

By introducing local African publishers and the value of their respective journals to researchers around the globe, those same publishers would be able to reach a greater number of potential readers than would have previously been possible.

As EBSCO is always willing to speak with potential publishing partners, interested journal publishers should feel free to contact the company regarding their possible participation in existing or forthcoming database initiatives.

Is there any collaboration between your organisation and INASP [given the prominent role of INASP in making African journals accessible to researchers in Africa]?

EBSCO is an ongoing partner in INASP's PERI (Programme for the Enhancement of Research Information) project, providing access to four of the world's largest scholarly full-text databases, additional general and subject-specific full-text databases, as well as popular bibliographic databases to participating organizations in Ghana, Kenya, Malawi, Mozambique, Tanzania, Uganda and others. All researchers, academics, scholars, affiliated professionals and librarians in these countries have gained access to thousands of full text, scholarly journals through this project.

In your business with local journal publishers in Africa have you encountered situations in which local publishers are not able to deliver journals to your subscribers? If so, how have you solved the problem?

EBSCO provides a Journal Expediting and Technical Services program named JETS. JETS provides fast, reliable delivery of non-domestic journals. Journals are collected at common sites and packed for shipping. This has proven to be more reliable than conventional mail in many locations, and journals processed through JETS often arrive days or weeks sooner than journals sent through normal publisher distribution channels. JETS customers can use the online EBSCONET® serials management system to access check-in records, claim histories, shipping records, special reports and order details. EBSCO also encourages delivery via courier service as is practical to avoid problems with inferior postal services.

One of your services, EBSCO Book Services, is only available to U.S. institutions. When do you intend to extend this service to other parts of the world, especially Africa?

Books require prepayment (the preferred means of payment is via credit card). This facility is not available to many in Africa. Further, delivery into Africa can be a problem because of expense and timing issues. Local postal services often are unable to deliver materials in an acceptable timeframe and the cost of delivery via courier service is not suitable for all libraries. That said, we are presently working on a system to extend the EBSCO Book Services programme to African libraries and information organizations.

EBSCO*host* is a partner in eIFL Direct. How can libraries in Africa benefit from this consortium?

As part of the original eIFL initiative, libraries in 39 countries (mostly in Africa) gained access to a wealth of electronic full-text scholarly journals when eIFL consultants unanimously selected EBSCO's full-text databases as the "most comprehensive service available on the market."

At that time, the databases contained 3,000 full-text periodicals, with coverage back to 1990. Today, the collection has grown to include more than 10,000 full-text serials with hundreds of those same titles providing coverage dating back in some cases more than 40 years.

This archive expansion was part of an unprecedented back file initiative undertaken by EBSCO in 2000. Institutions that do not already benefit from membership in eIFL are encouraged to contact the consortium at www.eifl.net for more information.

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Professional News and Events

NISC takes over the Management of AJOL

The African information and research community received a major boost as the National Inquiry Services Centre (NISC) South Africa takes over the management of African Journals OnLine (AJOL). Launched in 1998, the online aggregation of published African academic research has previously been run by the International Network for the Availability of Scientific Publications (INASP) in the United Kingdom, but has now moved to African management.

The primary aim of AJOL is to increase the visibility of African journals amongst the global research and librarian community by providing an online catalogue and current awareness service for members. Funded by UNESCO, the National Academy of Sciences (USA), the Norwegian Agency for Development Cooperation (NORAD), the Swedish International Cooperation Agency (SIDA) and the United Kingdom Department for International Development (DFID), AJOL has grown from 10 science and 4 medical titles to hosting almost 200 journals from 21 countries. There are currently more than 13,000 article abstracts available on the website.

AJOL is non-commercial and exists to benefit participating journals, editors and publishers. There is no charge to the journals for their participation, and AJOL only charges for document delivery requests from developed-country librarians and researchers. The online service is dedicated to supporting African scholarly publications, and was built with the objective of eventually moving it to African management. Following a rigorous tender process, NISC was selected to spearhead further development and foster collaboration within the continent.

NISC has offices in the United States, India and South Africa and it publishes over 70 world information databases. A variety of specialist journals and books available in print, online and on DVD. NISC is a company in the public interest, with a commitment to developing African research through the use of powerful, user-friendly technology, and has formed a not-for-profit company which will manage the affairs of AJOL. For more information, please visit www.nisc.co.za. The contact person for NISC is: Margaret Crampton info@nisc.co.za; tel +27(46) 622 9698; fax +27(46) 622 9550.

The Informed Librarian Online takes off

The Informed Librarian Online (www.informedlibrarian.com) has launched ILOSearch, a powerful new database. It is a monthly current awareness service that helps information professionals to keep up with professional reading in an easy, timesaving way. Each month, it brings, in one compilation, the tables of contents of all the library journals, e-journals, magazines, e-zines, newsletters and e-newsletters that hit their electronic newsstands during that month. The index now contains 36,600+ documents dating back to January 2003, from over 300 different library journals, newsletters, magazines and webzines. The indexing is current through the last day of the previous month, which makes it the most up-to-date library periodical index. Searches can be limited to an individual title, a particular subject collection of journals, or a date range. For more information visit http://www.informedlibrarian.com/ilofreesubscribe.cfm and key in your e-mail acount or contact Arlene Eis, (866) 529-8746.

Another Librarian becomes Dean of Education at the University of Ibadan

The Faculty of Education, University of Ibadan, Nigeria has elected Professor Gabriel Bunmi Alegbeleye of the Department of Library, Archival and Information Studies as the Dean of the Faculty of Education. He succeeds another librarian, Prof D.F. Elaturoti. Prof. Alegbelelye was once the

Chairman of IFLA Africa Section, President, Association of Commonwealth Archivists and Records Managers and Editor of Journal of Librarianship and Information Science in Africa. He attended the University of Ibadan, Nigeria, Case Western Reserve University, USA and the Catholic University of America. He holds B.Ed Education degree, Postgraduate Diploma In Librarianship, M.S. L.S, M.L.S and PhD degrees.

Forthcoming Conference

Improving the Quality of Library and Information Science Journals in West Africa: A Stakeholders Conference, Ibadan, Nigeria 7-8 December , 2005.

The conference, organised by the African Journal of Library, Archives and Information Science (AJLAIS) and the West African Association of Library and Information Science Journal Editors (WALISJE) is sponsored by the International Network for the Availability of Scientific Publications (INASP), Oxford, United Kingdom. The theme of the conference is:

Sustainability of Library and Information Science Journals and Promotion of Research in Africa. The sub themes are:

- Management of Library and Information Science Journals in Africa
- Funding Agencies and Library and Information Science Journals in Africa
- Improving International Visibility of Library and Information Science Journals in Africa
- Peer Reviewing and Quality of Library and Information Science Manuscripts
- Online Publishing and Library and Information Science Journals in Africa
- Marketing and Distribution of Library and Information Science Journals
- Authors and Library and Information Science Journal Publishing in Africa

For further information contact the following persons: Prof. L.O. Aina, Chairman International Organising Committee, ainalo@mopipi.ub.bw and Dr. Iyabo Mabawonku, Chairperson, Local Organising Committee, imabawonku@yahoo.com

Report of a Meeting

Council of Science Editors Meeting, Atlanta, USA 21-24 May 2005

The Council of Science Editors (CSE) meeting was held from 21-24 May, 2005 in Atlanta, Georgia, USA. The meeting attracted different types of people involved in publishing, such as editors-in-chief, associate editors, managing editors, production managers, business managers, publishers, printers, librarians, authors, scholars and researchers. There were 331 participants from 20 different countries. There were seven participants from Africa: Botswana (1), Ghana (1), Malawi (1), Mali (1), Nigeria (2) and Uganda (1).

Papers were presented on different aspects of journal publishing. In all, thirty two papers were presented at the meeting. These include *Direct to the Source: What we learned from recent major research surveys of readers, authors and publishers; editing for the online environment; scientific authorship and editing in the developing world; and evolving roles of aggregators and abstracting and indexing services.* There were also short courses such as publication management, electronic publishing solutions, and statistics for editors, etc.

Many exhibitors came to display their various products, however, the highlight of the exhibition was the demonstration by the various vendors of tracking software programs that would track manuscripts right from submission stage to when decisions are made on manuscripts. With the availability of these software programs it is now possible to reduce considerably the length of time it takes from when a manuscript is submitted to an editor to the time a decision is conveyed to the author. These software programs would enable authors, reviewers, editors to have access to the manuscript online and follow the stages of processing. The Editorial Director of *Annals of Emergency Medicine* presented a paper on how the journal has employed these software programs to track the over 1000 manuscripts received in one year. The decision time has considerably been reduced to 11.7 days. This is a significant development because most journals published in Africa could take as long as two years.

The participation at the meeting of the Editor-in-Chief of the *African Journal of Library, Archives and Information Science* was made possible through the sponsorship of INASP and CSE.

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AIMS AND SCOPE

African Journal of Library, Archives and Information Science is established mainly to provide a forum for librarians, archivists, documentalists, information scientists and other information related professionals in Africa to report their research findings but with emphasis on African setting. The Journal is refereed by distinguished scholars. Emphasis is on empirical research; however, manuscripts of high quality on theoretical aspects of the three information related disciplines will be considered for publication.

MISSION

To provide on a regular and sustainable basis an excellent scholarly journal for reporting empirical research findings in the information profession in Africa

VISION

To be the main resource base for library, archives and information science research in Africa

NOTES TO CONTRIBUTORS

Contributors are to submit the manuscript by e-mail file attachment using MS word and a hard copy, typed double space on A4 paper. Ample margins should be provided. The title, author's name, position and place of work should appear on the first page. Subsequent pages, not more than 15, should include an informative abstract of not more than 100 words. A manuscript will be considered only if it has not been published elsewhere.

References and notes should be indicated in the text by names of authors and date of publication in brackets. The list of references should be listed in an alphabetical order at the end of the text.

References to journal articles should be in the following order: Author(s), date, title, journal's name, volume number, issue number and pagination, inclusive e.g.:

Mazikana, P.C. (1987) Archives and Oral History: Overwhelming Lack of Resources. *Information Development*, 3 (1) 13-10.

References to books should be in the following order: Author(s), date, title, place of publication, publisher, pagination, e. g.

Aboyade, B.O. (1989) *The Provision of Information for Rural Development*. Ibadan: Fountain Publications, 104 p.

References to contributors in collected works should be in the following order; authors(s), date, title of contribution, name of the editor, title of the collected works, place of publication, publisher and pagination, inclusive e.g.:

Neill, J.R. and Kotei, S.I.A. (1981) Towards a National Information System for Botswana. In: Inganji, Francis (ed.) *Use of information and Documentation for Planning and Decision Making*. Gaborone: NIR, pp. 36 – 53.

No charge is made for publication. Fifteen copies of reprints of each major article will be supplied to the principal author.

Manuscripts and other editorial materials should be directed to the Editor in Chief, Professor L.O. Aina, Department of Library and Information Studies, University of Botswana (e-mail:ainalo@mopipi.ub.bw) or any member of the editorial board nearest to you.