Digitization of Library Resources: Challenges and Implications For Policy and Planning

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Abstract

This paper examines the concept of digitization, it's purposes and the process of digitization of library resources. The cognitive flexibility, relational communication and non-verbal immediacy communication theories were used for illustration. It also discusses the challenges often encountered during digitization and the implications for planning and policy. Digitization implies conversion of documents and art works into digital images. Digital images here mean electronic copies of documents. Digitization is a process in which materials are converted from the hard copies to electronic copies. The major purposes of digitalization are: to enhance access and improve preservation of library materials. A number of challenges are encountered in the process of digitizing library materials. These challenges include human and technical problems, which have implications for planning and policy. It was concluded that digitization is an essential task in modern day libraries, because of the current challenges, and the need to go digital, that is, provide online services.

Introduction

The invention of computer and the internet facility seems to have posed new challenges to the practice of librarianship. The application of computer to librarianship tends to be gaining momentum all over the world. It has led to the development of a separate field of study, virtual library, which is now offered in some universities as a course of instruction, even up to doctoral degree level. Library digitization has a lot of influence on the librarianship profession. Library digitization has become part of the work of librarians. Most libraries are involved in digitization. The Institute of Museum and Library Services (IMLS) 2001 survey observed that one third of academic libraries and a quarter of public libraries were involved in digitization of library resources (Liu, 2004). The previous library digital efforts that serve

as samples for others to emulate include: the Getty Research Institute Standards Programme (http://www.edu/research/institute/standards/index.html); American Memory project of the Library of Congress (http://memory.loc.gov/ammem/); the Making of America projects I and II (http://sunsite.Berkeley.EDU/moa2), a cooperative effort by several large university libraries (Hurley et al.,1999); the University of Virginia's Electronic Text Centre (http://etext.lib.virginia.edu/); Harvard University's Library Digital Initiative (http://hul.harvard.edu/ldi/); and the University of Michigan's Digital Library eXtension Service (DLXS) (http:/www.dlxs.org/aboutdlxs.html). The Institute of Museum and Library Services (2001) contains a list of digitization programmes and a framework for building good digital collections. All these institutions had sufficient funding, staff, computer resources and expertise to embark on the digitization projects (Mathias,2003).

According to Liu (2004), most of the libraries involved in digitization projects in the United States were academic libraries. Most of such libraries collaborated with better funded agencies, such as national libraries and museums. This was essential as most of these projects were larger than what the subvention of public and school libraries could cope with. The collaboration was necessary as academic libraries had access to greater resources, historical artifacts, documents and research projects than public libraries. Moreover, public libraries and museums receive regularly federal funds and foundation assistance to contribute to large scale preservation of materials. For instance, the University of Maryland is collaborating with the International Children's Library and the Internet Archive to create an extensive virtual children's library (ICDL, 2003). The project aims at making these books available online in different languages. This will enable access for individuals, schools and libraries that do not have the money to purchase these books.

Prior to 1997 digital projects were associated with large academic libraries (Scally, 1999), but an increasing number of public libraries are now joining in the endeavor. The Alexandria Library in Virginia, United States of America has an online exhibition devoted to local postcards from 1707 to the 1980s and as well as digitized information on historic town buildings and civil war correspondence (Liu,2004). Public libraries in other counties are also digitizing their counties' history with the view to preserving their historic local newspaper articles, photographs, essays, letters and contracts (Graham and Wroth, 2000). The Internet Archive is a non-profit making organization that aims at providing open, free and permanent access to digital collections, particularly of historical and cultural artifacts. The organization stresses the importance of saving records of cultures and civilizations. In other to achieve this, they develop their own digital collections and also encourage others to contribute to this endeavour. Their collections include text, audio and moving images. The main motive for this effort is preservation and granting of global access to such collections. The text collections comprise the "International Children's Digital Library, Project Gutenberg, Arpanet, Million Book Project and Open Source Books" (Liu, 2004). While the Internet Archive audio collection is being made for live musical recordings for posterity. However, the artiste has to agree to permit free public distribution and downloading of his or her material.

Most school libraries in the United States concentrate on creating digital libraries that establish links with resources on the web, instead of digitizing such collections afresh. This is as a result of time factor and huge cost of digitization. The Lovejoy Library, Southern Illinois University, Edwardsville, USA established digital links with the following databases:

ABELL (1920-2001), Chadwyck-Healey; ABI/INFORM Global, ProQuest; Academic Search Premier, EBSCO; AccessScience, McGraw-Hill; ACM Portal, Association for Computing Machinery; ACS Publications, American Chemical Society; African-American Newspapers: The 19th CenturyDigitization of library resources.doc, Accessible Archives; African-American Poetry (1750-1900) Chadwyck-Healey; Agricola, National Agriculture Library; AIDSearch, BiblioLine; America: History and Life, ABC-CLIO; American FactFinder, U.S. Census Bureau; American Poetry (1600-1900), Chadwyck-Healey; American Poetry (1600-1900), Chadwyck-Healey; ArchivesUSA, Chadwyck-Healey; **ARTFL Project**, University of Chicago; Art Abstracts, Ebsco; ArticleFirst, OCLC; ASCE Online Journals, ASCE; ASME/Technical Journals, ASME; AVS Media Catalog, LIS-SIUE; Bibliography of American Literature (BAL), Chadwyck-Healey; BIOSIS Previews, Ovid; Books in Print with Reviews, CLC; Books@Ovid**,** Ovid;Britannica Online, Britannica Online; Britannica World Atlas, Britannica Online; Business Source Elite, EBSCO; Canadian Poetry, Chadwyck-Healey; **CareNotes System,** Micromedex; Catalog of U.S. Government Publications, U.S. GPO; CCH Tax Research Network, CCH; CEDB: Civil Engineering Database, ASCE; Checkpoint, RIA; Child Abuse, Child Welfare & Adoption Database, BiblioLine; Ciao: Columbia International Affairs Online, CIAO; CINAHL, Ovid; Clase and Periodica, OCLC; Clin-Alert, Sage Publications; Clinical Pharmacology, EBSCO; Clinical Pharmacology**,** Gold Standard Multimedia; Columbia Earthscape, Columbia University Press; Canadian Poetry, Chadwyck-Healey; **CareNotes System**, Micromede;Catalog of U.S. Government Publications, U.S. GPO; CCH Tax Research Network, CCH; CEDB: Civil Engineering Database, ASCE; Checkpoint, RIA; Child Abuse, Child Welfare & Adoption Database; BiblioLine; Ciao: Columbia International Affairs Online, CIAO; CINAHL,Ovid; Clase and Periodica, OCLC; Clin-Alert, Sage Publications; Clinical Pharmacology, EBSCO; Clinical Pharmacology**,** Gold Standard Multimedia; Columbia Earthscape, Columbia University Press;, ContentScan; Communication and Mass Media Complete, EBSCO; Compendex, Engineering Information, Inc.; Compounding Today, IJPC; CQ Researcher, Congressional Quarterly; Criminal Justice Periodicals, ProQuest; Criticism & Reference: Full-Text Journals; Chadwyck-Healey; Current Contents/All Editions, Ovid; Digital Sanborn Maps, UMI; Dissertation Abstracts Online, OCLC; DIV/Online, FIS/Mergent Inc.; Drug Information Fulltext**,** Ovid; ebrary Perpetual Access Collection, ebrary; EBSCO's Encyclopedia of Animals, EBSCO; EconLit, OCLC; Encyclopedia of Pharmaceutical Technology, Taylor and Francis; English Poetry, Chadwyck-Healey; English Poetry (2nd Ed.), Chadwyck-Healey; ENGnetBASE, CRC Press; ERIC, EBSCO; ERIC, OCLC; ERIC, Ovid; Essay and General Literature Index, Ebsco; Evidence Based Medical Reviews; Ovid, Faber Poetry Library, Chadwyck-Healey; Facts & Comparisons 4.0,, Facts and Comparisons; FedStats, 70+ federal agencies;FIRST Consult, Elsevier; Funk & Wagnalls New World Encyclopedia, EBSCO; General Science Abstracts, Ebsco; GEOBASE, OCLC; **Government Periodicals Index;** LEXIS-NEXIS; GPO Access, U.S. GPO; GPO: Monthly Catalog, OCLC; GROVEart, Grove's; GROVEmusic, Grove's; HarpWeek, HarpWeek; Health and Psychosocial Instruments, Ovid; Healthcare Series Online**,** Micromedex; Health Source: Consumer Edition, EBSCO; Health Source: Nursing/Academic Edition, EBSCO; Historical Abstracts, ABC-CLIO; Hoover's Company Capsules & Profiles, ProQuest; Humanities International Index, EBSCO; International Journal of Pharmaceutical Compounding, IJPC; **International Pharmaceutical Abstracts (IPAB),** Ovid; **In the First Person,** Alexander Street Press; IOP Electronic Journals, Institute of Physics; JSTOR, JSTOR; kcdlonline, Kraus; King Guide to Parenteral Admixtures, King Guide Publications, Inc.;

King James Bible, Chadwyck-Healey; LEXIS-NEXIS Academic Universe, LEXIS-NEXIS; Library Literature & Information Science Index, Ebsco;Liebert Online, Mary Ann Liebert, Inc.; Linguistics and Language Behavior Abstracts, CSA; LISTA, EBSCO; MAS Ultra - School Edition, EBSCO; MathSciNet, American Mathematical Society; MDConsult, Elsevier; Medical Letter on Drugs and Therapeutics, The Medical Letter, Inc.; MEDLINE, OCLC; **MEDLINE – Ovid MEDLINE,** Ovid; Medline Plus, NLM/NIH; **Mental Measurements Yearbook**, Ovid; Mergent Online, Mergent Inc.; Merriam-Webster's Collegiate Dictionary, Britannica Online; Merriam-Webster's Collegiate Thesaurus, Britannica Online; **Micromedex,** Micromedex; Military & Government Collection, EBSCO; MLA Directory of Periodicals, Chadwyck-Healey; MLA International Bibliography, Chadwyck-Healey; Mosby's Nursing Consult, Elsevier; NASW Register of Clinical Social Workers, SilverPlatter; **Natural Medicines Comprehensive Database,** Therapeutic Research; **Naxos Music Library**, Naxos; **Naxos Music Library Jazz** http://proxy.library.siue.edu:2048/login?url=http://vnweb.hwwilsonweb.com/hww/jumpstart.jhtml?prod=GSABNaxos; Naxos Spoken Word Library**,** http://proxy.library.siue.edu:2048/login?url=http://vnweb.hwwilsonweb.com/hww/jumpstart.jhtml?prod=GSABNaxos; Net Advantage, Standard & Poor's; netLibrary, netLibrary; Newspaper Source, EBSCO; Newsstand, ProQuest; Occupational Outlook Handbook, Bureau of Labor Statistics; OCLC: Electronic Collections Online, OCLC; OED Online, Oxford University Press; Oxford Dictionary of National Biography**,** Oxford University Press; PAIS International, CSA; PapersFirst, OCLC; Pennsylvania Gazette 1728-1800, Accessible Archives ;Periodical Abstracts, OCLC; **Pharmacist's Letter,** Therapeutic Research; Philosopher's Index, CSA; Physical Education Index, CSA; PLoS, Public Library of Science; Poets on Screen, Chadwyck-Healey' Primary Search, EBSCO; ProceedingsFirst, OCLC; Professional Development Collection, EBSCO; Project Muse, JHUP; PsycINFO, Ovid; PubMed, National Library of Medicine; Regional Business News, EBSCO; RILMAbstracts of Music Literature, EBSCO; Safari Tech Books Online, ProQuest; Saskia Art Image Collection, CARLI Digital Collections; ScienceDirect, Elsevier; SILC: Illinois Catalog**,** OCLC; Social Sciences Abstracts, Ebsco; Social Work Abstracts Plus, SilverPlatter; **SocINDEX with Full Text**, SocIndex/EBSCO; Sorkins Online, Sorkins Directories; SPORT Discus, EBSCO; Sports Business Research Network, SBRnet; SpringerLink; Springer-Kluwer; STAT!Ref, Teton Data Systems; STAT-USA, STAT-USA; THOMAS, Library of Congress; TLS Centenary Archive, Gale; **Treatment Guidelines from The Medical Letter**, The Medical Letter, Inc. **TumbleBookLibrary,** TumbleBooks.com; TumbleTalkingBooks, TumbleBooks.com; Twentieth Century African American Poetry, Chadwyck-Healey; Twentieth Century American Poetry, Chadwyck-Healey; Twentieth Century English Poetry, Chadwyck-Healey; Union Lists of Periodicals, OCLC; United Nations Common Database (UNCDB), United Nations, United States Government Manual, NARA; USA Trade Online, U.S. Dept. of Commerce; USP-NF Online, The United States Pharmacopeial Convention, Inc.; Webster's Unabridged Dictionary, LION; Wiley InterScience, Wiley; WilsonSelect Plus, OCLC; World Almanac, OCLC; World Factbook, CIA; WorldCat, OCLC; and xreferplus**,** xrefer.

The Louisa H. Bowen University Archives at Southern Illinois University Edwardsville collaborated with their Faculty Technology Center to create a series of online exhibits devoted to the Mississippi River Festival. The MRF originated as a partnership promoting regional cooperation in the realm of the performing arts. The festival presented

353 musical events over twelve summers from 1969 through 1980. These events showcased performers in a remarkable variety of musical genres at a unique outdoor concert venue. The online exhibits include; a narrated historical slideshow, two digitized versions of movies covering the 1969 and 1975 seasons, and an alphabetical name index of all MRF artists. In addition the website includes a virtual history museum consisting of a searchable database that includes information about all MRF performances and performers.

In Nigeria, the Kenneth Dike Library, at the University of Ibadan has established digital links with the digital collections of the following: Access to Global Online Research in Agriculture, AGORA; JSTOR; Health Inter Network Access to Research Initiative, HINARI; The Essential Electronic Agricultural Library, LANTEEAL; EBSCOHOST; E-Granary Digital Library; Highwire Archive; INASP Peri: Program for the Enhancement of Research Information; African Journals Online; Arab Social Science Research Virtual Library, ASSR; Biomed Central; BMJ Publishing Group; British Library for Development Studies E-Journals; Directory of Open Access Journals, DOAJ; E-Journal.org; Global Development Network-Journal Services; INASP Health Links; Population Information Online, POPLINE; and Pubmed Central Research Papers in Economics, PEPEC. Even though preservation of materials is the ultimate goal of all digitization efforts, provision of greater access is another noble reason for digitizing library collections.

The Problem

The manual system of searching for information and materials in the traditional library does not permit multiple use of the same material by different library users unlike the online library services. It is inefficient and time consuming, hence the need to exploit the advantages of the digital library which enables provision of online library services. However, there are a lot of challenges facing the setting of a digital library or conversion to digital status. Digitization is time consuming and it is also a very expensive endeavour.

Most third world libraries depend on books from Europe and America, and these books are very expensive for them to procure. According to Bekele (2002), there is a persistent shortage of periodicals and other technical literature in research institutions, universities, and technical schools in the developing world. Thus, making students, scientists, administrators and other information seekers to have limited access to innovations made outside their domain. Available local materials may not be relevant in the context of the developed countries. Creating a digital library is a very good solution to these problems.

However, there are a lot of challenges. There is a need to undertake a psychological preparation of the employees, so that they will not resist digitization of the library resources. There is also a need to retrain the workers. Creating a digital library is a very expensive venture which requires adequate planning and monitoring. The major problem is lack of technical-know-how; hence most digitization projects often run into problems. There is a need to design flexible and compatible programs. In addition, the interface should be user-friendly, so that users can search for information with ease. It is not all electronic copies of documents that will suit the application format, hence the need to take this into consideration during conversion or digitization exercises.

Data entry can be very rigorous and expensive, hence it is easier and cheaper to provide online links to existing digital libraries, rather than start a digital library afresh. This has its own limitations. It does not take care of local materials. Developers need to bear in mind copyright laws, while digitizing or scanning. There is a need for permission from the publishers of materials to be digitized. This paper addresses this problem and also examines the implications for policy and planning.

Theoretical Framework

The title of this study is: 'Digitization of library resources: challenges and implications for policy and planning'. The key variable is digitization, which implies conversion of documents and art works into digital images. Digital images here mean electronic copies of documents. Digitization is a process in which materials are converted from the hard copies to electronic copies. Digitization does not always mean scanning. Digitization can involve simple data conversion from catalog cards or paper to digital form, video and audio migration to digital form, and so on. According to the tcom 101 website, digitization which is also called computerization, refers to the shift to a society where computers are ubiquitous, or everywhere. Digital refers to the language used by computers. To paraphrase, digitization means that computers are becoming more and more integrated into all parts of the society that is, moving towards a society where computers will be involved in most, if not all, aspects of everyday life.

Two streams of theories will be used to illustrate this study. These are: the cognitive flexibility and the communication theories. The library users consult library materials with the hope of learning from them; hence the cognitive flexibility theory is very suitable for illustration, as it is a learning theory. The communication theory is also suitable for illustration, because both relational/verbal and nonverbal communications take place when library users consult the library materials.

(i) *The cognitive flexibility theory:* The cognitive flexibility theory will be used to illustrate this study. The goals of this theory are:

(1) To help people to learn important, but difficult subject matter;
(2) To foster adaptively flexible use of knowledge in real-world settings;
(3) To change underlying ways of thinking, that is, epistemological beliefs and habits of mind; and
(4) To develop hypermedia learning environments to promote complex learning and flexible knowledge application (Spiro, Collins, Thota & Feltovich, 2003).

The *cognitive (learning) flexibility theory* had its origin in the mid-1980s (Spiro, Vispoel, Schmitz, Samarapungavan & Boerger, 1987; and Spiro, Coulson, Feltovich & Anderson,1988). Prior to this period, 'Schema theory' was the dominant model of learning (Anderson, Spiro and Anderson,1978; Ausubel,1968; Bartlett, 1932; Bransford, Nitsch & Franks, 1977; Minsky, 1975; Schank & Abelson, 1977; and Spiro, 1980). The Schema approach placed too much premium on using organized packets of knowledge in memory, referred to as schemas or schemata, after Kant. It is sometimes called frames or scripts. It was a basis for understanding and applying knowledge. However, the fact that one can have a pre-stored schema for everything remains a problem (Spiro & Myers, 1984). There would be a difficulty in producing "transfer"; and reconfiguring use of old knowledge in new situations that differ from the initial contexts and learning.

The cognitive learning theory came to fill this gap. It could replace the rigidly prepackaged knowledge structures with more open and adaptable ones. Such knowledge could be applicable across the wide range of situations in which it might be required. The cognitive learning theory employs the multiple knowledge representations approach (Spiro et al.,1987,1988; Spiro, Feltovich, Jacobson & Coulson, 1992a,b). The non-linear and multi-perspective nature of the digital library makes this theory to be very suitable for illustration. Several users can use the same library material the same time and in different locations, without disturbing each other. The use of the digital library is also very flexible. Library users are not restricted to the official library hours of a conventional library. The digital library permits random access to library materials. This enables learners to consult wide variations of learning materials at their convenience, thus making learning easy.

(ii) *The Communication Theories*

Communication can be defined as the exchange of information between at least two people. It may be by means of speaking, writing, or a common system of signs or behavior. It is the delivery and acquisition of information. Library is a storehouse of information, while librarians are custodians of information. Librarians communicate frequently with library users. All forms of communication takes place in the library every moment. The interpersonal communication between the librarian and library user has become very complex, just as the library information technology is becoming increasingly complex. The diversity amongst library users is also increasing rapidly. Some of the users cannot use any of the existing search technologies, whether manual or electronic. It is the responsibility of the librarian to guide these users, so that they can make optimal use of the library resources. In view of this background the relational communicational and non-verbal immediacy theories are suitable for illustrating this study.

The *relational communication theory* has its basis in the work of Waltzlawick, Beavin and Jackson (1967), in their book: 'The Pragmatics of Human Communication. They explained that "every interpersonal message has dual dimensions: the content dimension, which deals with the information exchange, and the relational dimension, which signifies the feelings and attitudes of the participants in an interaction that defines their relationship" (Radford, 2001). Librarians need to relate well with users. Radford (1999) argued in support of the development of a model of librarian-user interaction that recognizes the importance of interpersonal-relational messages of empathy, interest and attitude. It is the responsibility of librarians to assist library users in their bid to search for materials either manually or electronically.

The *non-verbal immediacy theory* was propounded by Mehrabian (1967), who argued that perceptions of non-verbal behaviors are very crucial in decisions as to whether or not to initiate interactions with others. This implies that the non-verbal behaviors of librarians will determine whether library users will seek for assistance from them or not. Librarians have to be of good disposition to library users always. This will encourage the users to relate freely with the librarians and in the library. Some of the users that have problems may not request for assistance. It is the duty of the librarian to detect their problems and offer assistance.

Purposes of digitization of library resources

There are three major reasons for digitization endeavours: (i) there is a need to preserve endangered library resources, (ii) improvement of the efficiency of information search mechanisms, and (iii) digitization improves access to library resources. Most libraries are digitizing materials which might be lost in the future, such as old manuscripts, research projects, photo images, analogue maps, non-live musical recordings, government official gazettes and several other historical records. Digitization is useful in preserving precious materials. Making high-quality digital images available electronically will reduce wear and tear of fragile items. However, digital copy should not be seen as a replacement for the original piece, therefore original document should be cared for even after digitization. Preservation remains a secondary benefit of digital projects.

Pinnell-Stephens (2005) reported the digitization of two oral history resources in Alaska, USA to ensure preservation and greater access. The resources comprised the Alaska Native Interviews, which came from a grant from the Alaska Federation of Natives; and a second one being a collection of 'Songs and Legends: Alaska Native Oral Literature, which was sponsored through a grant from the Alaska Library Association. These projects were coordinated by the state library. Over 800 selections of stories, songs, descriptions of traditional activities and beliefs, histories of villages, and accounts of political developments in the native communities were generated from the two projects. About 175 speakers were involved in the exercise. Most of these speakers were noted elders from 40 villages. Many of them are now deceased. The recording was in 10 languages, including a language with less than five remaining speakers.

Liu (2004) reported that libraries usually digitize the archives of newspapers, artifacts, maps, coins, art, music, children's literature, historical records and images of international and cultural interests. The Harvard Law School Library digitized 82,000 documents from the Nuremberg war crimes trial with a view to preserving them for posterity. Mehegan (2003) and Broncolini (2000) argued that the project will serve an important function of confronting deniers of holocaust, whose influence could grow when eyewitnesses had all died. Such digital collections will allow the public and researchers to view, read and hear the photographs, speeches and documents.

The search mechanisms for information in the traditional library set-up are very slow and inefficient. Libraries in most third world countries are dispersed and uncoordinated. This makes accessing materials in these libraries to necessitate physical contact by users. If these libraries become digitized, such library resources can be assessed online without stress. Online links can be made to existing digital libraries; this will enable users to use materials that are not available in the local library. Infact, it will enable inter-library loan.

Digitization improves access to library resources. By digitizing library collections, information will be accessible to all instead of a group of researchers. Digital projects allow users to search for collections rapidly and comprehensively from anywhere at any time. Digitization makes the invisible to be visible. Several users can access the same material the same time without hindrance. It also removes the problem of distance, as users do not have to travel to libraries that possess the hard copies of library materials before they can access and use such materials. A digital library can be made to serve a region. For instance, the Southern Oregon Digital Archives, which provides a wealth of research materials on the

regional ecology and indigenous peoples of Southwestern Oregon and Northeastern California (McCook, 2004). The project was funded by a grant from the Institute of Museum and Library Services. It contains more than 1,500 fully searchable documents, books and articles. Hirtle (2002) argued that the biggest benefit of digitization is the tremendous increase in the use of digitized material. He used the cases of the Cornell University and the University of Michigan as examples. In Cornell, prior to digitization, a few volumes of the hard copies circulated each year. However, with digitization, the views per month are above 4,000 web pages. Michigan has over 5,000 web page views per day. Michigan started earlier than Cornell.

Process of digitization of library resources

The setting up of a digital library entails the following stages:

(i) *Policy enactment:* A policy is a guiding statement. The top management should enact a policy on the project. Such a policy will serve as a reference point and guide for implementing the project. The policy should contain the goals of the digitization project. Good goal setting is important for any new initiative, and digitization is no exception. The goal 'To make our materials more accessible on the web' is not specific enough. There is a need to be specific, particularly on the categories of users that will access the collection, the type of material they may be interested in, how they will use it, how many people are envisaged to use it, the planned procedure for it's advertisement, and the benefit of the material to users and institutions. Contacting current and potential users is an excellent way of having clues to all these issues. One may consider sending out a survey to the project's intended audience in order to learn how they are currently using the material, and how they might use it differently if it was digitized. It may be helpful to contact other institutions that have digitized similar collections and learn from their successes and failures.

(ii) *Policy approval*: The policy should be approved by appropriate authorities before project implementation. For instance, a university library may need the approval of the university management and other funding agencies before any digitization project can be embarked upon.

(iii) *Planning, budgeting and monitoring*: This is a very essential stage. It is desirable to set up a planning committee that will draw the plan and budget for the digitization exercise. Budgets for digitization projects should include the following categories: (a) salaries, wages and benefits (likely to be about 50% of the project cost); (b) staff training; (c) equipment and supplies; (d) services, contracts and legal fees; (e) overhead and indirect costs (including offices and workspace); (f) maintenance, licenses, and communications charges; and (g) contingency (setting aside about 10% of the total project budget for unexpected expenses).

The purposes of the digitization project, the source of fund and the amount available for the project should also be taken into consideration. At the regional or national level, effective planning for digitization can bring together all types of libraries, museum, academic/professional societies, historical societies and archives to take advantage of the exercise. In USA, the planning for digitization in the Central New York brought together all types of libraries, museum, historical societies and archives which took advantage of expertise and content. The Central New York digitization project was supported by a Library Services and Technology grant provided by the New York State Library.

(iv) *Acquisition of appropriate technology*: The plan drawn for the project will determine the appropriate technology to acquire. Technology here refers to all the equipment/hardware and software that are needed.

(v) *Administrative decision on the procedure to be adopted*: Decision has to be made on the mode of operation, whether to just establish links with existing digital libraries or to digitize in-house or to contract it out. There is a need to establish time limit for the project.

(vi) *Sensitization, psychological preparation and retraining of staff*: In most places the staff will like to resist the digitization project. It is a common thing for people to resist change, just for the fear of the unknown. The library staff may fear that the success of the project may affect their jobs adversely. Those who are not computer literate may not be willing to adjust. All these categories of people have their genuine reasons to resist. It is the responsibility of the library management to educate them and allay their fears.

(vii) *Copyright permission*: Violation of the copyright laws should be avoided. It is not necessary to obtain copyright permission for materials published before 1922. Copyright permissions have to be obtained for materials to be digitized, particularly those that are not available in the government domain. When the copyright permission is granted, it is essential to enter the date of approval and the name of the person who granted the permission into the database. If an item is still under copyright, it can be digitized for in-house use only. Usually, copyright statements permit educational and non-commercial usage. Seeking copyright permission may even be another way of establishing collaborative and cooperative relationships. McCook reported how copyright permission was obtained for every material that was digitized. Even materials which some tribes held the copyright, permission for such was obtained from the Confederated Tribes of Warm Spring Reservation of Oregon. An introductory note was inserted in the database for this showing the source of the material and the person who granted the permission.

(viii) *Implementation and trial testing*: At this stage it good to start with trial testing, using a few materials as samples. This will enable us to know whether the format and fields are flexible and suitable. Adjustments can be made. A pilot digitization project should start with a manageable collection. Focusing on items with consistent or standard formats (photographs of all one size or type, documents from one collection, etc) provides the best chance of success. If the trial testing is successful, the project can be commenced. Data entry is rigorous, time consuming and very expensive. Existing materials can be scanned. Modification of scanned and digitized documents is very essential, so as to minimize errors. This will enable developers to put them in appropriate formats.

(ix) *Evaluation of project*: The top library management needs to be making periodic evaluation of the project. This will reveal lapses that have to be addressed. Evaluation is an oft-neglected aspect of digitization projects. Project evaluations should not just be easily quantifiable figures or an attempt to determine program's impact on the user. Several digital projects are judged by the number of items they digitize. This is really one of the least useful measures of a project's success. The number of images digitized means nothing, if they are of low quality, hard to locate in a database, or not interesting to the public. Assessing how users are using digital materials provides a more effective evaluation tool. At the bare minimum, projects should be formally evaluated based on the set goals.

Challenges of digitization of library resources

Digitization of library resources poses a great deal of challenge to the major stakeholders, that is, the library management, employees and library users. The library management has to source for fund for the digitization project. It is often easy to get sufficient fund for the project, as the required fund can be enormous. There are several donor agencies. In United States of America (USA), in 2000, the Institute of Museum and Library Services provided the Ewell Sale Stewart Library of the Academy of Natural Sciences a grant to digitize the early works of the academy; and make them accessible to the public.

Most academic libraries face unmanageable budgetary demands. The financial constraints have to be taken into consideration. This is essential so as to be able to continue with the digitization exercise after the conversion program. Clear cut decisions have to be taken on the form of digitization to adopt. Where the fund available is grossly inadequate, the library can be linked to existing digital libraries. It is also possible for t library to select and digitize additional materials. The proportion of the additional materials to be digitized will therefore depend upon the available fund. The problem of most digitizing efforts is that of inadequate fund and not that of technology. There should also be continuous flow of fund so that the project can be functional. Stefano (2001) advocated for allocation of adequate fund for the digital conversion by the appropriate authorities. The importance of the project makes this a very good suggestion. The academic libraries are often located in research environments, where students, faculty and other researchers will depend on the library for timely information.

Management of the digitization project entails policy initiation, setting priorities and planning. These are challenging tasks for the management. The library management needs to consult libraries that had digitized their materials so as to learn from their experiences. This will guide a lot while formulating policies on the digital project. A planning committee has to be set up. It is the responsibility of this committee to draw plans and budget for the project. The library management will also need to prioritize the different activities involved and assign each task to a committee. Time limits should be assigned for completion of each task.

The task of carrying along all the staff and guiding library users can be challenging. Some of the staff will like to resist change, particularly those that are not computer literate. It is essential for the library management to explain the essence of the project to them and arrange to retrain the employees so that they can participate in the project and remain functional in a digital library. Some of the library users will definitely find it difficult to search for materials in the digital terrain. It is good for library assistants to be available to render assistance. Orientation programs can be organized for these library users from time to time. This is very essential in academic libraries where the users can be many and are also regular users.

Implications for policy and planning

This paper has a lot of implications for policy and planning. In view of the importance of digitization, a special annual vote or financial allocation ought to be made for it. This is necessary, because it is not a one time activity. Libraries keep on acquiring materials, some of which have to be digitized. In Nigeria, ten percent of all financial allocations to the university are meant for the university library. Such practice should be extended to digitization exercise.

Orientation programs should be organized for the staff. This will enable them to understand the purpose and importance of the exercise. Those of them that lacked the required computer skills should be retrained. The services of appropriate technical personnel should be employed. This will reduce the flaws in the exercise. If there is inadequate fund for digitization, the library authority can manage the available fund to create digital links with existing digital libraries. This will enable library users to access library resources in such digital libraries.

Digitization has to be treated as an emergency situation in libraries that are just starting the conversion of their library resources to digital form. Huge allocations of fund, time and personnel have to be devoted to the exercise, as it is very expensive, tedious and time consuming. Special policies and plans have to be formulated to guide the exercise. It is advisable to adopt the committee system for its execution, so as to guarantee efficiency. A committee ought to be assigned to each aspect of the exercise. There should also be a monitoring committee to monitor and evaluate performance.

Conclusion

This paper has established that digitization is an essential task in modern day libraries. If a library is to live up to current challenges, it has to go digital, that is, provide online services. This will enable it to preserve endangered library resources, improve the efficiency of information search mechanisms and enhance access to library resources. It is essential for the library management to provide policy guidelines and articulate plans for the exercise. Digital library, otherwise known as virtual library, has grown to a special field of study. Courses of instruction and research opportunities are now made available in this area of specialization by some university.

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