IT skills needs for collection development at the University of Botswana Library

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Abstract

The rapid and continuing evolution of information technology has occasioned large stocks of electronic resources in libraries and created pressure for both library professionals and users to continue learning in order to provide effective service and make adequate use of the new information materials. Discusses collection development practices at the University of Botswana Library in an environment of increasing electronic resources of information. Considers the skills needed for librarians to effectively procure and manage such resources and for users to effectively use the resources. Provides an assessment of the performance of University of Botswana Library in this new electronic dispensation, and looks at how the library has faced the challenges of information technology.

Introduction

Over the last couple of years, there has been a significant change in higher education occasioned by information technology (IT). This development has virtually altered the characteristics of the learning environment, paving the way for new learning experiences. This has had an impact on the library and information profession, especially in relation to the continuing education of information professionals. The rapid and continuing evolution of IT has created pressures for both the library and its users to continue learning at their workplaces. Modern trends have affected procedures of library housekeeping activities like cataloguing, collection development and serials management, with the emphasis placed on electronic information resources. This calls for technological literacy and continuous training on the part of the library professional and the user.

Librarians and information professionals in general are compelled to have a broader understanding of how information and technologies can effectively be used to support problem solving in collection development. This has required information professionals to equip themselves with new skills that will enable them to provide effective access to electronic sources of information in their libraries. Collection development and management is one of the areas of the library where procedures using IT are intensive. Library automation increases the volume of electronic information and enhances global access to information via the telecommunications infrastructure.

IT functions at the University of Botswana Library

The University of Botswana Library (UBL) was established in 1971 and operated from a small building in the center of campus. The mission of the UBL is to contribute to the university's vision of being a leading centre of excellence in Africa and the World (University of Botswana, 2003). On the other hand, the overall mission of the University of Botswana is to support the teaching and research needs of the university, contribute to the university's endeavours in the

advancement of learning and academic enquiry (University of Botswana, 2001; Kgosiemang, 1999). Currently, the university has the main library in Gaborone and three branch libraries, namely the Faculty of Engineering and Technology Library in Gaborone, the Centre for Continuing Education Library in Francistown and Harry Oppenheimer Okavango Research Centre Library in Maun. The university library remains the single largest academic library in the country and a major information resource centre, not only for the university, but also for the nation as a whole. The main library in Gaborone is structured into three main divisions namely: customer and extension services; information and research services; and resource management services. Customer and extension services is responsible for circulation, reference, public relations, distance learners, disability support and affiliated institutions. On the other hand, information and research services is responsible for information provision to teaching, learning and research to all faculties. This function is facilitated through subject librarians who are responsible for groups of subjects. The subject librarians perform liaison and collection development roles in their areas of jurisdiction as well as teaching of information literacy skills. Finally, the resource management services is responsible for IT support and other technical areas within the library (University of Botswana, 2003).

UBL holdings stand at more than 300,000 volumes. This collection includes 10,099 books, 13,813 pamphlets, 3,242 reference materials, 1,475 multimedia, several journal titles and 40 different databases on CD-ROM. All CD-ROM databases and other electronic resources are available via the university intranet. The collection also includes microforms, electronic resources, international and local newspapers, as well as the calendars and prospectuses of several universities across the world. The special collections house materials on and about Botswana, as required by the Legal Deposit Act. In June 2001 the library moved to a new state-of-the-art building designed to hold over 50 PCs for students, with a seating capacity of 4,000 readers and shelving space for 850,000 volumes (Rosenberg, 1997). Each floor of the building is equipped with

computers accessible via the campus intranet. The intranet also serves as a gateway to the Internet and to a wide range of computer software. Overall the library is reputed for having one of the leading book stock and electronic databases with a state-of-the-art IT infrastructure in the region. The library is a member of South African Bibliographic Network (SABINET) from which it subscribes to several bibliographic databases and full text journals.

The UBL is now fully automated. All the library procedures, namely cataloguing, serials management, acquisitions, circulation, online public access and examination papers are automated. The library was first automated using the TINLIB integrated library system in 1992, but due to teething problems, the system was replaced in the year 2000 by the INNOPAC (online public access catalogue) millennium system. INNOPAC is an integrated library system, which supports the cataloguing, acquisitions, online public access, serials management and circulation modules. The library catalogue called *Medupe* is accessible over the Web (University of Botswana, 2002). The system has the capacity to handle 60 simultaneous users.

The use of CD-ROM databases was introduced in the library during 1992/1993 when a CD-ROM server was installed and became operational in 1995 (Rosenberg, 1997). Currently, the CD-ROM server can be accessed over the university's intranet. The university's examination questions are provided online and the library has full Internet connection with access to various other online databases worldwide.

As a result of the automation of UBL, several training programmes have taken place at the library. For example, in January and February 1991, staff familiarization training with TINLIB was carried out. Other training on the system took place from 12 June to 2 July 1991. The first part of this training was undertaken at UBL. Further training was carried out at the London offices of Information Management and Engineering (IME), the providers of TINLIB. The first part of the training was facilitated by IME staff and covered, among other areas: basic search/edit techniques, catalogue module application, circulation

module, acquisition module, serials module and systems administration.

The management of the library automation system is vested in the systems librarian who heads the automation section of the library. The system librarian reports to the deputy director – resources. Three technicians assist the aystems librarian. Two of the technicians are seconded from the computer centre of the university, while the other is from of the library establishment. The automation section of the library is basically responsible for the maintenance of all the IT related equipment, namely the PCs, the database, the library network and all the peripherals.

Collection development practices at UBL

The collection development policy of UBL is to provide information and information resources needed to support the teaching and research needs of the university. The collection development policy was written as a guide to the selection and acquisition of materials to support the academic and professional fields offered by the university (Asamani, 1998).

The library does not have a section dedicated to collection development. All the matters pertaining to collection development are handled through the respective subject librarians in collaboration with the faculty. Though most materials selected are in print form, there is an increasing amount of other media such as films, computer programs, videodiscs, and cross-media materials. Selection of materials is done online using online catalogues of book publishers. When selecting a journal, the subject librarian will first circulate it to the members of the academic staff for their input. If the journal is accepted, the librarian then does a content analysis of the journal, whose findings he/she presents to the Library Selections Committee for approval.

Other duties of subject librarians include overall responsibility for identifying the target users of CD-ROM databases and needs assessments to establish titles that are suitable for clients. CD-ROM-based materials are generally favoured by the collection development policy as opposed to online materials, due to cost factors. Maintenance of

the library collection is done by the respective subject librarians, who make the decisions on what to weed out, what to bind and what to discard.

The materials selected by subject librarians are forwarded to the Technical Services Department for ordering, purchase, and processing. Ordering is done online by e-mailing the suppliers using the INNOPAC acquisitions module. Raising orders via the acquisition module started in 1993 with two terminals using TINLIB. In 1994, a decision was made to acquire only materials with bibliographic records in machine-readable format in order to speed up cataloguing. Since then, major book suppliers provide materials along with their respective machine-readable records (Adeniran, 1997). The requisitions for payment are made and forwarded to the bursar's department for payment before the materials can be received.

The migration from TINLIB to INNOPAC was smooth. So far, computerization of UBL has had a positive effect on collection development practices in terms of speed of processing orders, accuracy of records, easy retrieval of information about orders, prudent financial management, effective claiming and sharing of information across the library. Once materials are received, they are processed online by generating bibliographic records from the database or downloading the unavailable ones from the SABINET, to which the library subscribes. Other services that the library gets from SABINET include ordering and delivery of the full text documents online, via fax or mail. On its part, UBL sends bibliographic data of its information resources to SABINET for interlibrary loan (ILL) to other libraries.

IT in collection development

IT has pervaded all areas of library activity today. The widespread adoption of computers and the Internet as communication tools requires libraries to adapt to new demands from its users to make the collection accessible from outside the physical library buildings. As Zhou (1994) stresses, the current trends of advances in computer network connection have compelled libraries to move into a new

technological environment. All library procedures, including cataloguing, circulation, reference, interlibrary loan and collection development, have changed through technology. Collection development practices have changed because of the impact of new electronic formats being used for delivery of information (Gerhard, 2000). The rapid advances in computer storage capabilities, information storage and retrieval techniques and audiovisual technology have provided the impetus for the transformation of collection development. IT and the Internet have brought about a proliferation of formal and informal electronic resources (Zhou, 1994).

Many of the activities in collection development, such as online searching of other libraries' catalogues, have become possible only in the last few years with the expansion of the Internet. Other traditional duties, such as searching publishers' catalogues, verifying bibliographic data, or looking for reviews of a work, can be done in a more timely fashion with the aid of the Internet. Presently, listservs, also known as professional electronic conferences or e-mail groups, are becoming important as means of identifying electronic sources of information. Listservs with a subject focus for librarians are becoming useful in selection as they compare CD-ROM and online products; offer deselected materials; discuss collection policy issues and provide extensive bibliographies. Similarly, many publishers, vendors, antiquarian book dealers, and bookstores have begun to offer their services and publications through the Internet, with new companies appearing each day. In addition to the usual descriptions found in publishers' catalogues, such sites often include reviews of the works listed.

Most integrated library systems with acquisitions modules enable interaction with other system modules. In such systems, acquisitions records are stored in the same database as records for items already in the collection, and especially if an online public-access component is used (Reynolds, 1985). This allows patrons to place requests for the on-order or in-process items. Manual acquisitions systems are extremely labour-intensive and paper-intensive, and usually allow for only a limited range of management information to be compiled. Automated acquisitions systems, on the other hand, substantially reduce the amount of paper shuffling and perform a number of monitoring activities and generate reports that escape most manual systems (Reynolds, 1985). One of the major strengths of automated acquisitions systems is the ability to use the services of bibliographic utilities (vendors) which offer acquisitions components tied to their bibliographic databases, allowing for the transfer of information from existing bibliographic records directly into the order records being created by individual libraries. Titles can be ordered online, a feature that can expedite the receipt of materials, often by several days.

IT in collection development can perform several types of automatic monitoring of activities between the time an item is ordered and the time it is received, and can also facilitate subsequent updating of records and files through a variety of interactive processing features (Reynolds, 1985). Automated acquisitions systems can also handle fund accounting online.

In spite of rapid development in IT that has made collection development work exciting, collection development librarians are today faced with increasing challenges, especially in the areas of journal selection and providing access to electronic resources. For example, selection of new journals presents peculiar problems, particularly in relation to electronic access. Additionally, journal subscriptions are both relatively expensive per subscription and increase in price faster, usually, than the inflation rate. If not checked, journal subscriptions can consume most of the library budget. On the other hand, though selection of electronic resources is similar to other library resources, they pose additional challenges that require decisions to be made in the areas of hardware and operating system specifications; how data file updates are received, e.g. FTP, CD-ROM; choice of client software; decisions on methods of authentication, for example through password; dealing with different costing methods, e.g. per simultaneous user, and site licence; licensing conditions, and making policies on long-term archiving policies. Libraries have also to make choices between print or electronic databases since, like journals, database subscriptions are relatively expensive.

Other challenges that collection development librarians have to deal with include deciding which version to collect, and infrastructure costs to handle the resource and the demand created by electronic journals for printing selected articles (University of Queensland, 2002).

Systems requirements for collection development

The general goal of an automated system is to assist staff, and patrons if appropriate, to do their work faster, better, and more efficiently (Reynolds, 1985). The systems requirements for acquisitions are geared towards achieving this goal and include functional definitions of what the system should be able to do. One of the systems requirements of an automated acquisitions module should be an ordering function able to search for items so as to ascertain if the library already holds a copy. The system should be able to create requests for items to be purchased. It should be able to handle gifts and vendor information to keep track of which vendors are used frequently for what type of order. In addition, there should be a function that handles the different accounts for different items.

Receipting is another important function of an automated acquisitions system in a library. When materials arrive, the system should be able to provide receipts and be able to automatically distribute received copies among the various locations, if a library has more than one branch. In receipting, cheque requests may also be printed by the system to avoid paperwork. The system should make provision for claims in respect of items not received after the estimated delivery date, or unsupplied orders. The system should also be able to produce different types of accounts, such as budget accounts and financial accounts, and be able to display online the amounts committed and spent and give a balance. The acquisitions module should be able to deal with different types of library materials, such as books and periodicals. Other requirements for an automated acquisitions system are report generation, such as statistics on orders, vendors and budgets.

In addition to functional requirements, the library must also establish its system capacity and performance requirements. Capacity requirements determine the quantity of data that a system will need to handle. According to Reynolds (1985, p. 242), too many libraries have purchased systems which are adequate for current needs, only to encounter major obstacles soon afterwards when expanding files or increasing levels of activity reach the system's capacity. It is more meaningful to state that a system must be able to process a certain number of bibliographic records of certain lengths.

IT skills needs for collection development

The current electronic dispensation calls for experience and knowledge on the part of the library professional in solving problems relating to electronic information. The proliferation of both commercialized electronic information products and the electronic resources available over the Internet requires selectors to extend their traditional expertise to include knowledge of various electronic resources and acquisitions skills using computer-facilitated tools and procedures. Collection development librarians are therefore faced with the challenge of continually increasing their knowledge of technology and its effects on applications to library resources and services (Zhou, 1994; Ogburn, 1998).

Emphasizing the need for acquiring IT skills in collection development, Wilson, as quoted by Heeks (1987, p. 119), argues that overwhelming evidence shows that an educated workforce tends to exploit technology, whereas an ignorant one tends to be victimized by it. This is the reason why staff must be equipped with skills that will enable them to exploit the benefits of IT in a more confident manner. Just as librarians were required in the past to assist in retrieving information from libraries, they are today required to help people use newer, complicated tools for finding and retrieving information. In order to do this they must, however, be trained in the new tools (Moahi, 1996).

An understanding of the potential of electronic resources is very important to the academic collection development librarian. Training in appropriate technology needs to be extended to all collection development

librarians. Librarians must educate themselves in the use of electronic resources and technology, and also study users' needs in order to build relevant collections. The need for new competencies for selectors of library materials, including knowledge of multiple formats, flexibility, openness to change, and Internet skills, cannot be over-emphasized. Selection of electronic resources requires that the selector understand the hardware and software needs involved and is able to assess the best level of platform for the particular product (Gerhard, 2000). Generally the selection process for electronic products requires a test of the product. Selectors of computer-based formats therefore need to become competent users of microcomputers for word processing, database and file management, online searching and use of local area networks (Demas, 1989).

Skills are needed to make intelligent decisions about the use of electronic publications, the evaluation of hardware, telecommunication options, installing computers and networks and keeping them healthy, and programming interfaces for a variety of locally mounted files (Demas, 1989). To evaluate machine-readable publications, knowledge of how to configure a wide range of microcomputer software and CD-ROM products is important. Furthermore, issues of copyright, control of scholarly communication systems and ways in which electronic resources may be integrated into universities' educational programmes need to be fully understood. Suffice to say that the key to success in this area is keen negotiation skills, the ability to develop and understand contracts, an entrepreneurial spirit and strong systems skills. Librarians responsible for collection development need to add electronic information navigation skills to their repertoire of skills in order to substantially increase information access opportunities for clients.

Collection development is one of the key activities of librarianship. The efficiency of library services is governed largely by the strength, value and utility of the library collection. With the explosion of knowledge caused by the fast growth of the World Wide Web, patrons, students and scholars need mechanisms to manage the data and to seek high quality information and knowledge. Diamond (1996) opines that librarians should become actively involved in managing this formidable body of information and knowledge by using collection development skills to search, acquire, evaluate and categorize digital data. This is important in order to present a quality, logically arranged collection of hyperlinks in Web pages. This means that librarians responsible for collection development must be able to acquire skills such as Web authoring, Internet searching and skills to select and manage electronic information.

Training for librarians in collection development should include, among others, aspects such as search engines, universal resource locators, electronic resources, Internet searching and connectivity, e-mail, software and hardware troubleshooting. Librarians must extend their traditional expertise to include knowledge of various electronic resources and acquisitions skills using computer-facilitated tools and procedures. Librarians need to acquire skills that will enable them to create and manage information in electronic format. According to Chuene (2001), staff need to have a reasonable knowledge of information systems design for the effective communication of problems and needs with the systems acquired.

In addition to library and IT skills, collection development librarians need business and management skills. More and more areas within the library arena are controlled by contracts. These contracts are governed by institutional structures such as the bidding and negotiation process, which call for librarians to be equipped with business skills. They need such skills to deal successfully with the parent institution, the library itself and the contractor. Librarians need management skills since they are already familiar with the need to express library goals in ways which are meaningful to administrators working in the fields of purchasing and accounting. Administrators need articulate librarians who can work with institutional officers to outline the requirements and needs of the library (Diedrichs, 1998).

Human factors in collection development automation

Human reactions to technological change usually determine the success or failure of

technology. In thinking of automating collection management or any process of library and information provision, the human resource implications must be considered. It is important to recognize the role of staff that will be involved in the implementation and management of the new technology. Participation of staff in change process brings richness of ideas to management of the project and facilitates communication. Bawden and Blackeman (1990) support a consultative process during change and argue that inadequate planning for IT and the failure to involve users results in user frustration. New technology designed and introduced without an appreciation of the needs and reactions of those who would use and be affected by the technology stand minimal chances of success. IT planners must empathise with staff for them to be able to assess the appropriateness of the technology they are introducing in the organization. An approach to change that takes into account people, the technology, and environment stands better chances to succeed.

Studies by such authors as Morris and Dyer (1998) show that a greater strength of reaction occurs when change involves technology. The spectrum of responses will vary from mild apprehension to fear. A number of reactions like stress may manifest themselves as opposition to the new system (Morris, 1998). There can also be resistance to the introduction of IT which, according to Döckel (1992) as quoted by Morris (1998), will show in gossip, slow-down, or even refusal to learn a new skill. The introduction of technology can also cause fear in the people. Fear usually manifests itself in forms of being uncertain or being afraid of the unknown.

An understanding of the complex and varied attitudes that people have towards change, and to technological transformation in particular, will help in its management. Use of multiple systems to perform routine functions requires greater understanding of the interrelatedness of library units and the connectivity of technology. Shifts in workloads and workflow, requiring staff with different skill levels and backgrounds, have resulted in reallocation of human resources in libraries. Retraining of the information professional, especially in IT, must be ongoing. Training and communication are the keys to managing change and successfully alleviating anxiety in the workplace.

Systems approach to management of change (Underwood, 1990) reminds managers of change that, having analysed at the micro-level, it is necessary to return to the macro-level and check that what was considered workable at micro-level will also be workable at macro-level. This position is also echoed by Lucy (1997), who emphasises that not only is it necessary to examine and analyse the individual parts of the system or organisation during change, but it is also vital that the system is viewed as a totality where the whole is greater than the sum of its parts. This is accomplished first by spending time in identifying those who have some interest or concern for the service and the project, and then considering the relationship between the service and environment in which it has to operate. The need to seek and reconcile views and opinions of stakeholders during change cannot be over-emphasized. Participation of staff in change process brings richness of ideas to management of the project and facilitates communication

Conclusion

With the rapidly changing technologies and the availability of new options, the electronic age brings with it many challenges for collection development librarians. Collection development of electronic resources presents added dimensions to the traditional library collection development model of printed materials. This requires increased collaboration and a broadening of the skills and experience of collection development personnel. The World Wide Web has created new opportunities and potential challenges for its users.

The introduction of IT in the UBL has brought challenges to the librarians responsible for collection development. IT use in the library is relatively modest compared to other similar libraries in Africa. The acquisition of materials is no longer done manually, but through sending online orders to book suppliers. The capabilities of the INNOAC integrated library system make possible the tracking of materials which are on order or in process. This feature is also useful to clients who are able to put a book

on hold even before it is available in the library. The library has measured up well to the opportunities of selecting materials through the Internet and other bibliographic databases like SABINET. However, the library has a lot to do to fully utilize the potential of technology. Librarians at the UBL, therefore, need to continue expanding their skills in searching, acquiring, evaluating and categorizing digital information. They are further expected to have high-level skills to handle electronic sources. It is important that knowledgeable people should conduct training both in-house and outside the library. Skills can also be obtained through exchange programmes with other libraries, workshops, seminars and short courses. In this way the library can stay abreast of developments in IT and continue to provide an effective service that is relevant to the needs of modern library users.

References

Adeniran, O.R. (1997), "Computerization efforts in Botswana libraries: a state of the art review", *African Journal of Library, Archives and Information Science*, Vol. 7 No. 2, pp. 125-35.

Asamani, J.O. (1998), *Collection Development Policy of the University of Botswana Library*, 2nd ed., University of Botswana, Gaborone.

Bawden, D. and Blackeman, K. (1990), *IT Strategies for Information Management*, Butterworths, London, pp. 154-96.

Chuene, M.M. (2001), "The effect of information technology on library acquisitions: experiences at the University of the North, South Africa", *African Journal of Library, Archives and Information Science*, Vol. 11 No. 1, pp. 25-38.

Demas, S. (1989), "Mainstream electronic formats", *Library Acquisitions: Practice and Theory*, Vol. 13, pp. 227-32.

Diamond, T. (1996), "Librarians and the digital frontier: drivers, passengers, or hitchhikers?" *LLA Bulletin*, Vol. 59 No. 1, pp. 6-12.

Diedrichs, C.P. (1998), "Acquisitions: so what and where?", *Journal of Academic Librarianship*, Vol. 24 No 1, pp. 74-9.

Gerhard, K.H. (2000), "Challenges in electronic collection building in interdisciplinary studies", *Collection Management*, Vol. 25 No. 1/2, pp. 51-7.

Heeks, R. (1987), *Computerization in Academic Departments: A Survey of Current Practice*, Taylor Graham, London.

Kgosiemang, R.T. (1999), "Libraries and library services in Botswana", *Information Development*, Vol. 15 No. 2, pp. 83-9.

Lucey, T. (1997), *Management Information Systems*, 8th ed., Letts Educational, London, p. 4.

Moahi, K. (1996), "Training African librarians for the information age: progress in Botswana", *Information Development*, Vol. 12 No. 2, pp. 91-5.

Morris, A. and Dyer, H. (1998), *Human Aspects of Library Automation*, 2nd ed., Gower Publishing, Vermont.

Ogburn, J.L (1998), "Acquisitions: so what and where? Perspective 2", *Journal of Academic Librarianship*, Vol. 24 No. 1, pp. 76-7.

Reynolds, D. (1985), *Library Automation: Issues and Applications*", R.R. Bowker Co., London.

Rosenberg, D. (Ed.) (1997), *University Libraries in Africa: A Review of their Current State and Future Potential, Vol. 2, Case studies*, International African Institute, London.

Underwood, P. (1990), *Managing Change in Libraries and Information Centres: A Systems Approach*, Bingley, London, p. 11.

University of Botswana (2001), *2001/2002 University Calendar*, Printing and Publishing Company Botswana, Gaborone, p. 43.

University of Botswana (2002), *Welcome to Library*, available at: http://medupe.ub.bw (accessed 15 January 2003).

University of Botswana (2003), *University Calendar 2002-2003*, Printing and Publishing Company Botswana, Gaborone, pp. 52-3

University of Queensland (2002), *Collection Development Policy*, available at: www.library.uq.edu.au/iad/copyright/ (accessed 15 January, 2002).

Zhou, Y. (1994), "From smart guesser to smart navigator: changes in collection development for research libraries in a networked environment", *Library Trends*, Vol. 42 No. 4, Spring, pp. 648-60.