LIBRARIES ARE INTELLIGENT FUNCTIONAL BUILDINGS

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ABSTRACT: In the 21ª century, librarians must play a more proactive role in the planning of library buildings. The paper argues that librarians must be knowledgeable about current and future space requirements to accommodate a wide range of activities and functions including information and communications technologies. In view of financial constraints, librarians must also be knowledgeable about available options on how to create space in order to ensure provision of effective library services to users. Advancements in new information technology and communication technologies must also be borne in mind when planning functional and intelligent library buildings of the 21ª century.

INTRODUCTION

Buildings reflect power. The external structure of a building, its appearance, location and size also represents the symbolic goals of an organization, its identity and a specific message. For example, the external structure may show whether it is user-friendly, inviting or intimidating, humanizing, energizing or impressive. It can also have an inspirational effect on its users the moment they set their eyes on it. Moreover, the design and structure also tells us at a glance what the building is all about and what its clients expect out of it (Metcalf, 1986 and Boyd, 1994). The site location, shape, size and image of a building also determines and influences how it is used by its clients. For example a functional library building reflect its specific purpose and the types of materials or resources housed or stored in the building.

Involvement of librarians, architects, University administrators and even users and consultations between librarians and architects during the initial planning stages is crucial in order to alleviate or minimize future problems and ensure acceptability when changes are effected. Involvement particularly of librarians is of crucial importance because they are more knowledgeable about library space requirements, needs and functions because architects may not be familiar with these needs.

Therefore the librarian must be there to point out what aspects are important for a functional and comfortable library.

LIBRARY BUILDINGS

Library buildings are information power bases and knowledge accumulating and consolidation structures. As such they cannot be separated from their functions, which go beyond shelter. Therefore, when library buildings are planed and designed, they should be designed to human scale. Similarly, room allocation must be based on functions or clusters of functions. As functional buildings library buildings must be planned with the following qualities in mind, utility, stability, beauty including ample space for storage of less used materials. Where affordable air condition should be installed to facilitate effective preservation and ensure longevity of books, journals and equipment. Air conditioning would also provide a conducive work and study environment for both students and staff.

While in principle all libraries have similar organization patterns, there are variations according to functions or purpose of a library. Essentially, space allocation, amount and equipment required for each department or

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clusters of functions and how they relate to each other is determined by the purpose of the building. In order to get the most out of the library, a planning committee composed by librarians, board members, administrators and library users should be established prior to the actual planning. Committee members must work closely together and must understand both the potential and limitations of library buildings its systems, architecture including preservation principles and techniques. They can also provide advice regarding space allocation and relocation and this can be done cost effectively and also ensure effective functioning of the building. For the committee a clear conception of the proposed building, its purpose and how best to realize it is also crucial.

The choice of the architect is also crucial and librarians must understand the language of the architect for effective consultations. Librarians must know in advance the use and function of the proposed library building and the rooms including the types of materials to be used. With this knowledge, the architect can be informed accordingly.

Academic and Special Library Buildings

Libraries and especially academic library buildings tend to grow faster and as they grow, they become complex, resulting in great demands for space. According to Metcalfe (1986) academic and research libraries grow at a rate of 4 -5% annually, doubling further in perhaps sixteen to seventeen years. However, their growth rate slows down by 2% annually as they mature. University and research libraries face acute space problems as they grow due to a number of reasons including the introduction of new courses, curriculum changes and an increase in student intake, need for new books and journals and also due to an increase in research activities and research output and also to accommodate new technology and accessories. While it is difficult to determine

institutional growth in terms of student admission, however, space and allocation must be determined by the purpose, type of users and activities. UNESCO has provided basic architectural standards and guidelines that should be followed when planning a library building. UNESCO and other experts suggest that a library building must planned at least 30 years ahead to accommodate future space needs, technology facilities, equipment, and both print and non print materials. Further that greater attention should be given to the why rather that the how long range planning because one cannot predict future space requirements and needs. Therefore, flexibility of the building is of crucial importance.

Flexibility

Planning and designing library buildings of the 21st century and site location requires foresight and intelligent functional library buildings must be designed with flexibility, future expansion and people in mind. This flexibility is necessary in order to accommodate future space and expansion needs and requirements for various envisaged services and functions such as installation, accommodation and storage of technology including transmission media, audio-visuals, equipment, computers, accessories and micro formats. Also, modification of rooms to meet student and staff space needs and requirements, sitting and shelving capacity, special collections, staff facilities, photographic and bindery units, and also to accommodate traditional functions and activities such as shelving, reading rooms, office space, conference rooms and carrels *et cetera*. Choice of site location is also critical to ensure future expansion, entry and exit. Therefore, library buildings must be constructed at the edge of the campus in order to alleviate or limit future problems.

Shelving

Shelving tends to occupy the largest amount of

square footage space in a library. It is also one of the most expensive items on library building costs. Therefore, choice and selection of the type of shelf must be based on function and space utilization costs. Today there is a wide range of types and quality bookshelves including metal and wooden, compact and moving book shelves. In library buildings with acute space shortage, compact shelving are more ideal because they save space and moving shelves can easily be made around to create additional space when need arises. However, compact shelving is costly..

Acoustics

Today libraries are being automated and equipped with audio-visual materials in order to increase access to materials. This also tends to have implications in terms of noise reduction. Therefore when planning library buildings greater consideration should be given to minimizing noise levels within the library. Noise reduction can be achieved through construction of thick sturdy walls, which can absorb sound. Using soft acoustics material, thermal acoustic walls, or acoustic ceiling or carpets can also reduce noise levels. Noise can also be minimized by the sight location of the building itself. Another way is by location and relocation of rooms and also furniture arrangement.

Signs

Signs are important in any building. Their main purpose is to direct users to their needs and for identification of services. To be effective, signs must be in black, yellow, white and lower case in order to attract users to collections and to harmonize the building.

Lighting and Ventilation

Proper ventilation and lighting is crucial in library buildings and reading rooms must be well equipped and lighted. However, natural lighting provides for better studying compared to artificial lighting. Where affordable, air conditioners should be installed to increase the longevity of library collections, particularly in tropical climates and also to create a conducive study environment for users. A library building must also be designed with comfort and beauty in mind both internally and externally. Colour, decorations and designs can also enhance the beauty of a building and a pleasant work environment can influence behaviour and work motivation in library. Great importance should also be given to natural light.

User Space Needs

In Tanzania as in most developing countries, the majority of students both graduate and undergraduate, spend a large part of their study time in the library because this is the only place where they can find and use relevant reading resources. The library also provides a conducive study environment for students and the peace and quiet they need compared to their noisy and over-crowded halls of residence. In Tanzania the library plays a major role in the teaching and learning process of students. Students are also the major users of the library followed by lecturers. This is to be expected given the high cost of textbooks and electronic information resources. The library is the only place where students can find resources that meet their course and curriculum requirements. Due to limited book allowances, students cannot afford to purchase their book requirements for the different courses.

However, even among students the degree of usage, space needs and requirements for the different categories of users also varies. In most Universities, including Tanzania, the majority of students tend to be undergraduate students. Of these a majority are social science students. In terms of space needs and usage therefore, one can assume that social science students are more likely to need more space because they

use the library more often compared to students enrolled in science related disciplines. Need and common sense and logic would dictate how much space should be allocated for the different category of students.

The UDSM Library was designed for a limited number of students and functions of at that particular time. Since then student enrolment has more than doubled and library can barely accommodate this large number of students, new programs and services including the needed infrastructure required for a 21st century library. Today for example, installation of computer technology and accessories, has resulted in electric outlet overload. It is not unusual to see students and workers walking over meters of extension cable on each floor. One can also observe a large number of students reading outside on campus lawns simply because the library cannot accommodate this large number of students.

Needs of Users with Disabilities

Often times when library buildings are planned the needs of physically handicapped or impaired students are forgotten. For example as Hedges (1986) points out, circulation routes in the building must allow staff interaction and support to users. Similarly, in tall buildings, lifts or elevators are crucial; they don't only provide comfort; but they also promote personal communication between users and staff.

Academic and research library buildings must also be designed with the needs of students with disabilities both in terms of space needs, facilities and relevant resources, such Braille facilities, audiotapes for study and learning and wide doors and corridors, elevators or lifts for easy movement and access. Even though the number of students with physical disabilities is small compared to the student population, UDSM and particularly the library needs to look into how the needs of students with disabilities can be met. This means book budget allocations must also take into consideration learning,

reading and teaching resources such as Braille materials, and audiovisual material etcetera for this category of users. Similarly, special librarians who can meet special needs of these students must be trained.

Collection Development

As indicated earlier, library buildings are intelligent functional buildings with a specific purpose, which is to support teaching, learning, research and consultancy. As an information power base, the collection development is part and parcel of library planning. Collection development involves, "adding, withdrawing, relocating, reformatting, replacing, preservation and re-strengthening of materials." Effective collection development must be guided by a collection development policy to guide the acquisition of resources both print and non-print media.

Weeding, Conservation, Preservation and Protection

Weeding, preservation and conservation are integral parts of collection development and preservation is an integral part of conservation. As pointed out earlier, academic and research libraries particularly in developing countries including the University of Dar es Salaam, face acute financial problems to purchase new and relevant resources. Most of these libraries have no policy on weeding out outdated books and serials or acquisition of new information packages. It is not unusual to find very old and outdated, books, journals and useless magazines acquired through donations occupying the much needed shelf space. Most of these tend to disintegrate over time due to heavy usage, old age and climatic conditions. Insects are the greatest enemies of library materials particularly in tropical climates. Therefore library policies on fumigation are important. Greater consideration should also be given to climate

and choice of building materials because they affect not only the life span of collections but also the physical building itself.

Librarians can also create more space by completely weeding out materials which are no longer considered useful or less used· and replace them with newer exact reprints or editions or microfilms. Most libraries in developing countries, including Tanzania, do not have weeding policies. This could be attributed to several factors including financial constraints and fear because once discarded such materials cannot be replaced due to financial constraints. Therefore, most libraries, feel that it is better to have a shelf full of useless materials than an empty shelf.

Today, new information and communications technologies have increased availability of materials in different packaging formats. The new information packaging formats have great potential in terms of space saving and optimal use of scarce space. A change in acquisition policy such as shifting from print to non-print material may be necessary if resources are easily available. Collection development policies are also needed to provide guidelines and strategies on weeding and space saving or creation and re-organization strategies. This must be accompanied by training of human resources in, for example, preservation and conservation techniques. Knowledge about different types of paper such as acid and acid free paper is also important and would allow staff to handle these types of material more effectively.

Libraries do not only protect collections, they also house staff. Automatic fire detectors and extinguishers including security-warning lights are necessary for protection of both staff and library collections. Staff training is crucial to ensure they have the necessary skills to deal and handle these issues effectively and efficiently should the need arise. Library collections can also be insured even though this is an expensive option particularly for libraries in poor countries.

OPTIONS

Libraries can create space through space modification and space allocation, re-organization or by constructing separate libraries or extensions. All these options can be costly in terms of time, human resources and the financial implications involved particularly for poor dependent countries. Therefore, library reorganization changes must be based on the understanding of the organization and the needs of users for continued effectiveness of the library, particularly in ensuring efficient use of space, energy and technology. This understanding would become a basis for creating adequate space, a conducive study environment for students, staff and provision of facilities including power supply requirements and space demands for new technology and communication facilities. Furthermore, library space reorganization must be based on the understanding that information would be made available and accessed at a single point of control and users should be able to know what is available, what is new, who has what, when a document is due or where to get an alternative resources.

Library reorganization must also take into consideration the changing needs and demands of the organization and those who work in the building. This is crucial to ensure and realize a functioning and efficient library building and also to facilitate good governance and efficient and effective use of resources. This must be accompanied by improvements in the work environment to facilitate good working relations, consultations and free flow of information. Furthermore, the building design and control system must also ensure user comfort, privacy and must encourage and promote social interactions, informal networking and communication within and among staff.

CONCLUSION.

The value of buildings does not necessary stem from what the buildings can do or

what facilities it has but whether it facilitates efficient management of the building, its functions and human resources. This is important in order to achieve and realize organizational goals. Good communications, easy access and availability of information to support quality decision-making and motivation of organization members including, a comfortable and enriching environment with adequate facilities are also crucial and are clear indications of how the organization values its employees and their well being (Boyd 1994 and Vischer, 1989). Planning academic libraries is important, complex and requires long range planning. Flexibility is also crucial to accommodate new and future space needs and requirements for users, equipment, new functions, services, programmes and also to facilitate future reorganization and space relocation and ensure maximum and effective provision of services and to facilitate integration of new technological and communication demands, including efficient use of power supply.

Reorganization of library buildings also requires understanding of both organizational and user needs in order to realize and achieve organizational goals. A well-planned library building must also promote and facilitates interaction between the building, the organization, the users and effective management and control of resources and functions. Older library buildings built before new technology was introduced are bound to face special problems related to inadequate space, inflexible interior design, outdated electrical and phone systems and physical accessibility to the building, collections and services. In the 21st century, librarians must be able to define current and future space needs, anticipated growth an future collection size and future technological development and must have the ability to project how new technology will affect library functions and the provision of efficient services. Hence involvement of librarians and users in the initial

planning phase is crucial to ensure acceptability and effective utilization of space. These are some of the challenges librarians face in planning intelligent functional library buildings of the 21st Century. As Boyd (1994) for example points out, an intelligent building must create an environment that maximizes the efficiency of those who work in the building and at the same time allow effective management of resources and minimization of long-term costs.

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