

Makerspace Acceptance and Integration: A Veritable Tool for Readjusting and Enhancing Public Libraries in Developing Countries.

Ike, Chika Patricia

chika.ike@unn.edu.ng

University of Nigeria, Enugu Campus Library

Okoroafor, Chimezie Kingsley

kingmezie1@gmail.com, Kingsly.okoroafor@uaes.edu.ng

**University of Agriculture and Environmental Science Library,
Umuagwo, Imo State**

&

Onyam, Ijeoma Dora

dora.onyam@unn.edu.ng

University of Nigeria, Enugu Campus Library

Abstract

For public libraries in developing countries to maintain its relevance in this 21st century, there is need to embrace innovative library activities. Innovative library services entails converting old library services as well as creating new programmes that will aid in enhancing library services and activities. This literature based opinion paper considers makerspace acceptance and integration as a veritable tool for readjusting and enhancing public libraries in developing countries. The paper x-rayed the state of public libraries in developing countries, how public libraries can benefit from Makerspace, competence required and strategies to achieve that. The paper concludes that services of the public libraries in developing countries should not comprise only those services and activities the literates' stands to benefit from but should also include those innovative services that the non-literate will also benefit from.

Keywords – Makerspace, Integration, Veritable Tool, Enhancing, Public Libraries, Developing Countries.

Introduction

World public libraries provide citizens of all ages with valuable cultural resources including access to books and other media, calm and quiet settings for reading, support for formal education and public spaces for community events. The condition of public libraries in developing countries shows a worrisome condition, this agrees with the view of Smith (2019) that public libraries today are at a critical juncture. It is also worrisome about whether public libraries would become obsolete and librarians are faced with constant questions about how libraries can remain relevant in this 21st century. Public libraries in developing countries and their librarians today are faced with the option of adapting to the current trend or else stand the chance of being obsolete. Owing to that, for public libraries in developing countries to meet up with the current trend, their librarians need to be innovative and creative. The public library as an organization is a flexible learning institution that encourages creative minds, in other words, public library should always be in the forefront of accepting the newest, latest service delivery models. One-way public libraries in developing countries can achieve that is through accepting and integrating makerspace as opined by (Idhalama, Ikewe & Omegie, 2020). Makerspace is a library service, function or space that engenders innovation, creativity and proliferation of information and new knowledge for the public library users. This idea of makerspace, if spread across public libraries in the developing countries will help it become more popular attractions and also assure their future existence.

Concept of Public Library

A public library is a library that is established by the state government and maintained with public fund such as taxes, levies, rates or through other communal effects or contributions. According to Wikipedia (2009), a public library is that library which is accessible by the general public and is generally funded from public sources, such as taxes. Public libraries are always regarded as the people's university, providing avenue for independent decision making, continuous and lifelong education, and individual development. This library is open to the entire populace irrespective of their race, colour, ethnic group, religion, size, etc. Through the provision of variety of information resources - textbooks, journals and other related materials - public libraries attempt to meet a wide variety of needs of its user community (Eze, Okeke & Okoroafor, 2019).

Functions and Objectives of the Public Library

The basic functions/objectives of a public library are: Organizing book exhibitions; skill training for users (e.g. in ICT, literacy, trade and skill acquisition, etc.); provision of telephone information service; guidance in locating materials; provision of reading accommodation; Photocopy (reprographic) services; Provision of reference and information services; guidance in reading, and instruction in the use of books; provision of book and non-book materials. These materials include textbooks, pamphlets, films, filmstrips and other materials that can direct library users to new paths of knowledge and learning.

STATE OF PUBLIC LIBRARIES IN DEVELOPING COUNTRIES

The state of the public library system in any nation is indisputably a reflection of the level of acceptance of libraries and librarians by the nation. It is also a reflection of the prevailing values system in the country. Emojoroh in Aiyeblehin, Onyam and Akpom (2018) conducted a study on the roles and effectiveness of public libraries in nation building and found that public libraries especially in developing countries are performing poorly in most aspects due to appalling resources. The public libraries are positioned to provide and promote access to information which will translate to development of the society. Interestingly, public libraries in developed countries perform the same functions of public libraries in developing countries but with some difference which include postal services for citizens living in remote houses, support integration through library events like family outreach organized in public libraries, establishment and provision of library and information services to potential users such as prisoners, hospital patients and the handicapped. But in developing countries scenario, the case is different as seen in the problems of inadequate funding, unskilled staff, out- dated and irrelevant resources of the public libraries, lack of recognition and nonchalant attitude on the part of government to know the importance of libraries as it relates to economic, social, educational and national development of the country.

Public libraries are considered as agents of social, political and cultural change in any society and provide a wide range of readership than any other type of library (Ezeabasili & Chibueze, 2021). Despite much development since the inception of public library, it's services is used today by less than 10 percent of the population within the community where it is located as observed by the researcher. It is no more new that public libraries offer

irrelevant services to illiterate. This agrees with the views of Ezeabasili and Chibueze (2021) that the main constraints on the development of public library have been the irrelevance of the service offered to the illiterates who comprising of two-third of the adult population, and the fact that those who are literate and have access to libraries rarely use them for other thing than educational purposes and stop using them when their educational goals are achieved. In support of the view above, Nwokocha in Ezeabasili & Chibueze 2021 stated that despite all the strides made by public libraries, many librarians are still worried that public library users remain largely students who concentrate on reading for their promotional and entrance examination with the help of personal textbooks and without borrowing books from the library. The public library should be a central venue for the community, providing and encouraging creative and learning activities -formal, informal, self-directed and supported. Its co-location with other facilities will create opportunities for entrepreneurial collaborations which support economic development, national integration, local innovation, learning and exchange of ideas. Improved facilities will encourage a wide range of target groups within the community to visit the library including school students, job seekers, and adult learners.

CONCEPT OF MAKERSPACE

A modern idea about public libraries of the 21st century indicates that they should be a ‘third place’ that is a meeting place which is neither a home nor a workplace where the users are not just active participants, but also generates content (Nyhus in Aiyebilehin, Onyam & Akpom, 2018). The concept of makerspaces was viewed by Hussain and Nisha (2017) as a physical location embedded to share resources and knowledge, work on, network, projects by different people from different academic background. It is a hub to create, invent, tinker, explore and discover using a variety of tools and materials to develop certain skills. The existence of public and community spaces is increasingly needed nowadays. Modern society's life cannot be separated from the phenomenon of socializing and collaborating in various fields as one form of knowledge sharing culture as in the view of Tri (2020). This is merely for the development of the talents and creativity of everyone. However, competition in the global era requires everyone to have certain competencies. In the midst of these conditions, the library continues to experience development and has now arrived at the era of makerspace. Makerspaces are a natural fit for libraries, providing an alternative way to deliver services and programs to their communities.

Initially, makerspace is a gathering place for communities in order to pour their creativity into a product; it was originally in public places and not in a library. However, along with the times, the existence of makerspace is increasingly needed. In this 21st century, makerspace has become one of the new service innovation trends in the library which is actually a learning tool in the community.

Makerspaces are a natural evolution for libraries where users are allowed to tinker with technologies in order to be creative. It is an area where people gather to make and create; these spaces often include 3D printers and other technologies, but do not necessarily have to. In makerspaces, people share skills, ideas and often work together on projects. For libraries, maker space creates another way for community members to access information, and encourages social and creative engagement with the library. Makerspace help libraries remain relevant by allowing them to reinvent and market themselves as leading-edge, and to demonstrate their relevance in their users' lives by offering pathways to economically valuable skills, civic engagement, and other goals that may be more important than the 'making' itself.

Makerspace is a space for expression, creation and openness for the development of creativity and problem solving that ends in an outcome (product) of creativity itself. Makerspace has become the fifth generation in library development as noted by Tri (2020). Basically, makerspace is a gathering place for makers to collaborate and exchange ideas to produce something. Tri (2020) has this to say that makerspaces consist of a community of makers that come together to create by sharing tools, skills, and knowledge-creating a place to learn a new skill, to become a creator, to connect with a community and build friendships, or to gain access to specialised equipment". From this it can be deducted that makerspace consists of a community of makers who come together to create something by sharing equipment, abilities, knowledge and making a certain place to learn new skills to become a creator and establish a community with certain specializations.

There are many activities that can be done in makerspace, ranging from soldering, cutting, printing images with 3D printing, and others. With this makerspace, someone can increase their innovation and pour directly in the form of products. Later, someone can not only read books in the library, but can also repair cell phones, laptops, and make other products in the library directly. One illustration of the real activities of makerspace in the library,

for example is when a person reads about robots, one can immediately use robotic tools and practice what one reads. Thus, a child will get a deeper understanding related to robotic knowledge from an early age. He can also be a producer or maker of robots and not just be a consumer. Thus, the public library can be a place for collaborative learning and create new experience for users

REQUIRED COMPETENCE FOR MAKERSPACE INNOVATION

According to Kyungwon Koh & June Abbas as quoted by Tri (2020), there are some general competencies that must be mastered by librarians in the makerspace era, namely:

- 1) the ability to learn new ideas, innovation etc.
- 2) the ability to adapt to changing situations
- 3) the ability to collaborate
- 4) the ability to advocate for learning
- 5) the ability to serve a variety of people.

The ability to learn a librarian must have the ability to learn and have a positive attitude in learning something new. In this case, a librarian must think open minded. In the context of makerspace, the existence of technology and tools used in makerspace also continues to grow. For this reason, librarians must continue to learn and upgrade their knowledge about new things that can be applied to makerspace.

The ability to adapt to changing situations.in this world, everything can change at any time, from tasks, job responsibilities, natural situations, technological developments, and so on. For this reason, a professional librarian must have the ability to adapt to change. Makerspace will continue to grow in line with the times, owing to that professionalism must be supported by the ability to adapt to the needs of the times.

The ability to collaborate: to create something extraordinary, someone needs collaboration, not everything can be done alone. This is in accordance with human nature that human is a social creature in which its existence always requires another human being. Likewise, to build a makerspace, a librarian must collaborate with other parties to provide a new colour in the library with the makerspace. However, makerspace is a gathering place for makers to produce a new product so that sharing ideas from various parties with different disciplines is needed. A librarian can collaborate with makers to develop an idea and work on a new project.

The ability to advocate (accompany) the learning process on makerspace. A librarian in this case must be able to provide an understanding to the community that the existence of a library can be an appropriate place of learning to improve one's abilities in a particular field through makerspace.

The ability to serve various walks of life. In this case, a librarian knows the diversity of community characters, ranging from cultural background, abilities, age, gender, and others. This is so that the learning process in makerspace can work well; each person with a different character will be different in their way of learning and thinking. Everyone in makerspace must feel comfortable learning with different individuals. For this reason, a librarian must be able to serve all people.

In addition to mastering general competencies, there are special skills that must be mastered by librarians in makerspace, namely:

1) managerial skills; 2) program development; 3) fundraising; 4) technological literacy; and 5) facilitation of learning based on the theory and behaviour of users (community).

Managerial skills: Managing makerspace in the library requires good managerial skills. Managerial here is not only managerial in general, but also includes HR management, program management, spatial management, and also information management.

Program development skills: a librarian needs skill and knowledge in developing learning resources in makerspace. In this case, the program development capability also includes the development of a learning curriculum, making a prototype of the makerspace, and holding various activities such as workshops.

Fundraising skills: fundraising is an important skill that must be possessed by a librarian. Fundraising is the main key in management. Whether or not the activity takes place in the makerspace management depends on the extent of the fundraising skills possessed by the librarian. However, to build makerspace requires a lot of funding that includes facilities and infrastructure that is in it.

Technological literacy skills: Technology literacy is an important ability that librarians must possess in makerspace. Soft skills and knowledge of the technology itself can support the existence of makerspace. With technology literacy, librarians can determine the right application or technology for the types of makerspace in the library. For example, if makers in makerspace make robots, then a librarian must also know what tools are needed in the

manufacturing process. For this reason, technological literacy is needed in the development of makerspace in libraries.

Facilitate learning skills: In makerspace, a librarian does not only serve the user, but must also be able to provide facilitation and assistance in learning.

Here, the librarian acts as an educator and also a mentor armed with the knowledge and skills possessed. Librarians can also become consultants' in certain fields if there are difficulties faced by the user.

ENHANCING PUBLIC LIBRARIES THROUGH MAKERSPACE INTEGRATION

Most Public libraries in developed countries have long seen the nexus between the public library and makerspaces. In most cases, public library spaces have been redefined as makerspaces in a bid to meet the emerging need of a space for creativity and innovation coupled with access to new technologies. The advocacy for makerspace in public libraries should be created so that the perception of many will change in respect to services being rendered. Okpala in Aiyebilehin et al (2018), while making a case for makerspaces in libraries noted the need to change the current thinking of librarians in developing countries.

Public libraries must be empowered to perform their duties, and for public libraries in developing countries to fulfil its mandate especially as it relates to providing free and open access to a broad range of materials and services to people of all ages and backgrounds, it must retool its methods, rethink its strategies and redefine its service concept to include the creation of makerspaces. Branwyn in Aiyebilehin et al (2018) captured this when he said that "the role of a public library should also adapt over time, and that time is finally here. It's time to plan how we're going to build the future and what place public libraries have, should or won't have". A lot is changing in this century; existing walls of knowledge division are falling quite fast. Several institutions are changing their roles to remain relevant. Public libraries in developing countries cannot afford to stay with the same old flag. The library must move, change roles, and redefine its space to retain its relevance. In fact, the library users are getting so advanced with new technologies that any librarian who chooses to spend so much time sitting behind his desk will soon raise his head to see a crowd of library users who are working without the librarian, that is, if they decided to use the library at all. In order to meet the changing needs of library users there are several new things the library

must do, one of these is to introduce or create a makerspace in the library. The use of public libraries depends on the services provided or made available in the library. The effectiveness of any library is best measured in terms of access and demand of its services. Therefore, if the services provided are not adequate for the needs of the non-literates, it is not likely that they are going to make use of the library as opined by (Ezeabasili & Chibueze, 2021). Something has to be done in other to re-position public libraries in developing countries. In the view of Adeniyi and Subair (2013), public library services should be repackaged. Such repackaging can take form of introducing or creating a space where users can come together and share ideas on how to be creative in nature. The existence of makerspace will increasingly strengthen the position of public libraries as public spaces (public spheres) which are the centre of community gathering and also as a neutral public space for every level of society. For public libraries to maintain its relevance in the society where they operate, they need to embrace innovative and creation that would attract both the literates and the non-literates. Innovative library services entails converting old library services as well as creating new programmes that will aid in promoting and enhancing public library services to the community which they serve. Innovation covers all processes which are conducted to develop new or improve product, services or production method and to make it useful. Services of the public library should not comprise only those services the literates' stands to benefit from but should also include those innovation services that the non-literates will also benefit from.

Many libraries in developed countries have well-developed makerspace programs and facilities already in place. For example, Aiyebilehin et al. (2018) noted that State Library of Queensland, Library at the Dock Victoria, Cambridge Public Library, Western Australia, which focuses on paper crafts, knitting, crocheting and painting and Parkes Shire Library, New South Wales, which holds fantastic creative children's programs.

In the same vein, public libraries in developing countries need to imbibe these activities and endeavour to create spaces for various purposes, such as advanced study places, artists' studios, film studios, recording facilities, paint making, chat rooms, artistic expression, poetry readings, etc

Public libraries need to engage with their communities beyond their traditional core business, by offering unique learning experience and opportunities for people to create and make, rather than just consume content. The need for 'unity in diversity' calls for makerspace activities in

public libraries. Hence, to survive and stay relevant, public libraries need to be flexible and innovative, embracing both the physical and virtual initiatives, if national integration is expected

It is expected of librarians that work in public libraries to provide the community with access to local, national and international resources for recreational and information purposes, seamless access to a wide range of collections, information, technology, readers' advisory, heritage and cultural services delivered via its physical service points, and where appropriate, outreach services; and by well trained and experienced library staff. A Makerspace program will offer opportunity for public libraries to enhance their role as a place of lifelong learning, and actively respond to the Nigerian government's science and innovation agenda.

STRATEGIES FOR SETTING UP MAKERSPACES IN PUBLIC LIBRARY IN DEVELOPING COUNTRIES

To create makerspaces in Nigerian public libraries a lot of planning must be put in place to ensure success. There is need for the librarian in charge of the project to do his/her research to understand the user community and their peculiar needs. As Ginsberg (2015) asserted "there is no such thing as a "one-size-fits-all" makerspace". Creating makerspaces is a lot like doing collection development: your main goal is to focus on the specific needs of your community. And don't forget that your community includes not only the patrons who visit your library, but the potential patrons who exist in your area but are not yet visiting your library. To start a Makerspace in your library, you will need certain things in place. First, you need a space within the library, preferably the ground floor. Also, you need to look out for sponsorship from organizations that are interested in such things since your management may not have all the money you would need. Equally, you will need to train at least two library staff or employ experts to manage the Makerspace. Apart from these, you will need tools and equipment such as the following: 3D printers, 3D scanners, Electronics, Workspaces or tables, Lasser cutting machine, consumables, soldering iron, camera, computers, software for design, and many others. In addition, there is need to figure out the sources of funding for the project, usually one success factor in this regard is to look beyond the Government as a main source of funding at the initial stage if you operate in a developing country with developing economy. You may need to start small and expand as your sources of funding increase. And this can be done through lobbying and advocacy efforts.

Okpala (2016) did an extensive write up on the specific steps for setting up makerspaces in academic libraries in Nigeria. According to the author, “the tools which could be found in a makerspace are: library space, 3D printer, 3D Scanner, software, computer(s), furniture, soldering iron, soldering benches, scissors, sewing machines, markers, cardboard papers etc.

CONCLUSION

Public libraries are dynamic, socially responsive institutions, a nexus of diversity and a lifeline for the vulnerable. Public libraries according to Cabello and Butler (2017) are seen as such important third-place institution because they and their librarians have gradually taken on other functions well beyond lending out books. In many communities, librarians are also adhoc social workers and navigators. They help local people figure out the complexities of life, from navigating the health system to helping those with housing needs. This ‘go-to’ role has influenced library programming and events, with libraries providing advice and connections to health, housing, literacy and other areas. If public libraries in developing countries must remain relevant, government should aspire to assist them in building a progressive library services, championing the development of creative spaces and makerspace programmes. With the full acceptance and integration of makerspace in developing countries public libraries, the process of learning will take a new positive turn and this in the long run would assure future existence of public libraries.

REFERENCES

- Adeniyi, A. I. & Subair, R. E. (2013). Accessing indigenous knowledge resources in libraries and the problem encountered by Oyo state, Nigeria. *Library Philosophy and Practice (e-journal)*. <http://digitalcommons.un/edu>.
- Aiyebilehin, J.A., Onyam, I.D. & Akpom, C.C. (2018). Creating makerspaces in Nigeria public libraries as a strategy for attaining national integration and development. *International Journal of Knowledge Content Development and Technology*, 8(4)
- Eze, J. U., Okeke, O.C, & Okoroafor, C. K. (2019) Motivation and Job Satisfaction in Nigerian Public Libraries. *Journal of Applied Information Science and Technology*, 12(2), 64-72.
- Ezeabasili, A.C. & Chibueze, M.N.(2021). Public library services in Nigeria:

for all or just for the literates? *Jewel Journal of Librarianship*, 6(1)
<https://www.jeweljournals.com>.

Ginsberg, S. (2015). *Library and school makerspace: where to start? Maker Bridge*. <http://makerbridge.si.umich.edu/2015/12/library-and-school-makerspace-where-to-start>.

Hussain, A. & Nisha, F. (2017). Awareness and use of library makerspace among library Professions in India: A study. *DESIDCO Journal of Library and Information Technology*, 37(2), 84-90, DOI:10.14429/djli37.2.10989.

Idhalama, O.U, Ikenwe, I.J., and Omigie, C.A. (2020). Adoption of makerspace by public Libraries for national rebirth: Edo state in focus. *Asian journal of social science* 3(1) pp1-7.

Okpala, H.N. (2016). Making a makerspace case for academic libraries in Nigeria. *New Library World*, 117(9/10), 568-586.<http://doi.org/10.1108/NLW-05-2016-0038>.

Smith, M. (2019) Top ten challenges facing public libraries, *Public Library Quartely Publication* 38(3).

Tri, Y. (2020). *Application of space makerspace in Batusangkar IAIN library: library Development strategy*. *Alfuad Journal*, 4(2), 76-87p.

Wikipedia (2009). Public Library. Available at http://en.wikipedia.org/wiki/public_library