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Maker-spaces in Nigerian Libraries: Assessing Awareness and Preparedness

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Abstract

The study investigated the awareness and readiness in adoption of maker-space in Nigerian libraries, with Delta State as a case study. The study adopted the descriptive survey research methods. The population of the study is 75 librarians who where participants at the Annual General Conference of the Nigeria Library Association (NLA), Delta State branch 2023. No sample was drawn, because of the small and manageable size of the population. A total of 75 copies of the questionnaire were distributed to the respondents and 73copies were retrieved and found usable for the study, giving a (97%) response rate. The data obtained from the questionnaire were analysed using descriptive statistics. The findings revealed that some of the librarians in Delta State Nigeria, are aware of the concept of maker-space to a minimum level. The findings also shows, that none of the libraries had adopted maker-space, the result further reveals that none of the libraries is at any level of preparedness in adopting a makers-pace in their libraries. The findings indicated that the challenges militating against the adoption of maker-space in libraries in Delta State Nigeria includes, inadequate space in the library to enable makers' activities, lack of fund to purchase needed tools and equipment, lack of trained manpower to supervise the process, unstable electricity supply, among others. The study recommended that awareness on the need for maker-space in libraries should be created through seminars, conferences and workshops, heads of libraries should make provision for the establishment of maker-spaces in their library. Management of various libraries should make allocation in their annual budget for the funding of maker-spaces in their libraries. A maker-space management policy should be formulated.

Keywords

Epidemiology, healthcare systems, vaccination, public health, socio-cultural

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Introduction

Today's Nigerian educational system places a great emphasis on skills development, skills acquisition, vocational/technical education, and entrepreneurial studies. This is in order to aid self-employment and eradicate joblessness from the society, by being and employer of labour, instead of relying on being employed by others. In other words, it emphasizes on Do It Yourself (DIY). Developing the ability to work for oneself after graduating from any type of educational institution needs hands on practice. According to Hussain and Nisha (2017), maker-space is a physical location in the library created to aid sharing of information, knowledge, and skills, and it is opened to all persons irrespective of academic and social backgrounds. The idea of a maker-space in a library was born out of developing efforts to integrate the concepts of creativity and innovation within the system of libraries as custodians of knowledge. A maker-space is an area within a library that is furnished with industrial tools, gadgets, and other equipment required for the creation and manufacturing of objects. Scott (2012), stated the main feature of a maker space to include a place where people come together to create and collaborate, to share resources, knowledge, and other related ideals. Moreso, maker-space can also be defined as an area equipped technologically with various devices and instruments, such as computers, laser cutting, 3D printing, and scanning that facilitate professional and technical exchanges as well as user inventions and creativity. It can also be said to be a location where library patrons come together to expand their professional and technical skills outside of reading books, journals, and periodicals. It’s a workspace or gathering place with hi-tech tools where people get together to exchange ideas and expertise..

According to Ginsberg (2015), a maker-space is a location where ideas may be developed and things can be made. Furthermore, Osawaru, Dime and Okonjo (2020), asserts that the rationale behind maker-space is to form an environment comfortable for users to enable experimentation, creating and learning within a controlled setting. According to Wang et al. (2016), maker-spaces foster an atmosphere in which individual makers may now engage with one another online to exchange ideas, pick up new skills, build communities, and collaborate on projects. The uniqueness of Makers' ideas is crucial to the existence of Maker-spaces in libraries. The main goal of maker-spaces is to foster innovation and creativity. Through hands-on practice, library users are encouraged to think creatively and generate something original. The primary goal of a maker-space in a library is to find something new and novel through the process; replicating or repeating existing content is discouraged. It's a platform where people can realize their ideas, put them into action, and ultimately create a product. Goener (2015) provided evidence to bolster this claim, claiming that maker-spaces is a space where patrons are free to experiment with technology to express their creativity, it enhance logical development for libraries.

In order for libraries to be relevant in this day and age, they must adapt to changing trends. In light of the current circumstances, the library has to encourage and make space for creativity and invention in order to attract patrons once more. A technologically enhanced area that allows patrons to explore their interests needs to be set up in the library. Because of this, libraries need maker-spaces. The Maker movement has the potential to improve learning, but many libraries in Nigeria do not truly support it, according to Okuonghae (2019), who studied

the issues and challenges of creating maker-spaces in Nigerian university libraries, discovered that there is no existing maker-space in any universities libraries in Nigeria. Also the researchers in a pre- research survey that used a mixed methodology of desk research, data mining, and interviews found out that, there are yet to be any libraries in Nigeria with a maker-space. The question now is, are the libraries, not aware of the Makers movement? And if yes, how prepared are they in adopting a maker-spaces in their libraries? This study, therefore seeks to find out the reasons for the unavailability of maker-spaces in Nigeria libraries with libraries in Delta State in focus, and also investigate their level of preparedness in adoption. This is in order to fill the gap in knowledge.

Objectives of the Study

The objectives of this study are:

1. To investigate the level of awareness about maker spaces among librarians in Delta State, Nigeria.
2. To assess the preparedness of libraries in Delta State, Nigeria, to adopt maker spaces
3. To identify the challenges and barriers that librarians face in implementing maker space

Literature Review

Libraries through their programs and collections, have promoted lifelong learning. This, along with the renewed interest in creating, has resulted in the creation of a new kind of library space, furnished with cutting-edge digital instruments like 3D printers and laser cutters, and this space in the library is known as maker-space. According to Wang et.al (2019), public libraries were the first to adopt maker-spaces, but an increasing number of academic libraries are seeing the advantages of maker-spaces and how they fit into their strategic goals. This new trend has the potential to bridge disciplinary divides between academic staff and students, promote collaborative and experiential learning, foster knowledge production and sharing, and support academic libraries in meeting the ever-changing demands of their local communities. In industrialized countries, the number of makerspaces in university libraries has been increasing as more people begin to recognize their potential to support active and self-directed learning. Numerous academic libraries have started offering access to maker resources and services as colleges search for ways to promote innovation and entrepreneurship. One of America's most intriguing academic makerspaces is the one located at the DeLaMare Science and Engineering Library at the University of Nevada, Reno (Conway, 2014).

Students can be encouraged to experiment and learn outside of the classroom and the typical framework of their assignments by using maker-spaces. Burke (2015), opined that students can build upon and apply the knowledge they gain in their classes in a wider context. Maker-spaces can also serve as a place to acquire certain skills related to higher education topics of study. Maker-spaces are a perfect fit for libraries, according to Okpala (2016), maker-space offer a different approach for service and program delivery to library users. It is an informal mix of a shop, conference room, and laboratory, creating a collaborative studio environment for artistic endeavours. Not only can maker-space help individuals become more independent, but it can also strengthen the sense of responsibility. Potential benefits of the technology-related interaction that takes place in maker-spaces include self-fulfilment,

learning, and enterprise. Socializing enhanced well-being via the creative process, learning through more structured scaffolding, such as introductory seminars for technologies like 3D printing and more focused skills-based projects are some of the advantages of maker-spaces. (Dellot, 2015). Abram (2013) outlined such benefits of maker-space as follows:

1. Provide access to a wide variety of tools and technology,
2. Facilitate group interaction, knowledge, and resource sharing,
3. Supply access to physical space for individual project development,
4. Provide an open environment for expression of creativity and innovation,
5. Access to equipment for prototyping project ideas for companies.

Despite the benefits and much more accrued to maker-space in the library, there are still a number of perceived challenges that have hindered the establishing of maker-space in libraries especially in Nigeria as a developing nation. Idhalamo, Ikenwe and Omigie (2020), stated that maker-space is cost intensive, power consuming, proper supervisions, resource persons and equipment replenishment. Funding such ventures in Nigerian libraries will not be easy because of corruption and cultism that are used to greet genuine ventures and good efforts. Moorefield-Lang (2015), asserts that maker-spaces focus on use of certain technologies, resources and equipment which may be very expensive to acquire and install. It's obvious that not every library is equipped with adequate funding, tools, resources, or staffing to run a local maker-space. Some concern is raised about how ethical maker-spaces will be unless strong "collective leadership" addresses issues such as sustainability with the materials used, legal issues around the tension between creative commons and intellectual property rights, and ongoing health and safety concerns (Dellot, 2015). According to Aiyeblehin, Onyam and Akpom (2018), who stated that some of the challenges facing makerspaces in Nigerian libraries are persistent problems affecting all ICT related projects in Nigerian libraries. These challenges include poor funding, lack of trained manpower, unwillingness of Librarians to embrace new concepts, and lack of technological tools among others. Similarly, Okuongha (2019) attested that poor level of awareness of the concept of maker-spaces among librarians, and the problem of poor storage facilities and poor maintenance culture of library infrastructures are some of the numerous challenges militating against maker-space especially in Nigeria.

Research Methodology

This study was carried out using a social survey method. A questionnaire was used as the instrument for collection of data. The questionnaire was structured by the researchers to suite the objectives of this study, which is to find out the level of awareness maker-space in libraries and the level of preparedness to adopt a maker-space in libraries in Delta State Nigeria. The population of the study is 75 participants at the Annual General Conference of the Nigeria Library Association (NLA), Delta State branch 2023. Participants comprised of librarians from various types of libraries across the state. (See distribution list in table 1 below) As a result of the small size of the population, the researchers considered the whole population for the study and such no sampling was done. The researchers administered and retrieved the questionnaire from respondents same day, and there was a 98% response rate. A four points rating scale was used and a response criterion of 2.5 and above was set as a criterion mean to be accepted, while below 2.5 is rejected.

Table 1: population distribution table

S/N	Type of libraries	Librarians
1	Academic libraries	43
2	Public libraries	17
3	Special libraries	11
4	School libraries	4
5	National library	None

Grand total= 75

Source; Researcher provided (October, 2023).

Data Analysis and Discussion

The researchers distributed 75 copies of the questionnaire and 73 copies were retrieved given a 97% retrieval and response rate. The data are hereby analysed using descriptive statistical method and simple percentage.

Rating keys: (SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree)

Table 2: Level of awareness about maker-spaces among librarians in Delta State, Nigeria.

S/N	Statement	SA	A	D	SD	$\bar{X}$	%	DECISION
1	I have no Idea what maker-spaces are in libraries	18	12	23	20	2.3	43%	Rejected
2	There is a maker-space in my library	0	0	28	45	1.3	74%	Rejected
3	I need to know more about maker-spaces in libraries	33	19	10	11	2.9	34%	Accepted
4	I don't think it is necessary to have maker-spaces in libraries	12	10	30	18	2.0	48%	Rejected
5	Establishing a maker-space in the library will make the library lose focus on its mission	15	10	28	20	2.2	45%	Rejected
6	I think maker-space can be a means for the library to provide access to services, materials and skills that users may not be able to obtain on their own	26	18	17	12	2.7	37%	Accepted
7	I think maker-space will	31	22	9	11	2.9	34%	Accepted

	facilitate user satisfaction of library services							
8	Maker-space is a way for libraries to provide access to services, materials and skills that patrons may not be able to obtain on their own	21	26	11	15	2.6	37%	Accepted
9	Maker-space will facilitate demonstrated needs of community of library users for learning and collaboration through making activities	26	21	12	14	2.7	37%	Accepted
10	I think maker-space is not meant for libraries.	10	14	24	29	2.1	47%	Rejected

Table 2 shows result on responses on "level of awareness of librarians on maker-space in libraries. Items such as; I have no idea what maker-spaces are in libraries, there is a maker-space in my library, I don't think it is necessary to have maker-spaces in libraries, establishing a maker-space in the library will make the library lose focus on its mission, I think maker-space is not meant for libraries where **rejecte**d with a mean rating and percentage of,2.3(43%), 1.3 (74%), 2.0 (48%) and 2.1 (47%) respectively. However, items such as; maker-space can be a means for the library to provide access to services, materials and skills that users may not be able to obtain on their own, maker-space will facilitate users satisfaction of library services, maker-space is a way for libraries to provide access to services, materials and skills that patrons may not be able to obtain on their own, maker-space will facilitates demonstrated needs of community of library users for learning and collaboration through making activities, maker-space will facilitates demonstrated needs of community of library users for learning and collaboration through making activities, where **accepted,** having a mean rating and percentage each of 2.7(37%), 2.9 (34%), 2.6 (37%), 2,7 (37%).

The finding from the study shows that only 43% of the respondents have some level of awareness of makerspace in libraries. However, 34% interest on having a better knowledge what makerspace in libraries is all about. This is in line with Okuongha (2019), who confirmed that there is poor level of awareness of the concept of makerspaces among librarians.

Table 3: Preparedness of libraries in Delta State Nigeria, to adopt maker spaces.

S/N	Level of preparedness	SA	A	D	SD	$\bar{X}$	%	DECISION
1	The library has potential resources for funding a maker-space	0	9	32	32	1.6	61%	Rejected
2	Management will support the ideal of establishing a maker-space in the library	12	12	29	20	2.1	46%	Rejected
3	Staff in the library are interested/experienced in maker-space activities,	1	5	42	25	1.7	59%	Rejected
4	There is available space for individual project development.	0	4	32	37	1.5	66%	Rejected
5	There are available equipment for prototyping projects ideas.	0	2	39	32	1.5	65%	Rejected
6	There is adequate supply of electricity in the library	8	11	30	24	2.0	50%	Rejected
7	There are available experts that participants can look up to for guidance	0	0	30	43	1.3	73%	Rejected
8	The library has the capability to establish a maker-space in cooperation with other partners within and outside the library community	24	29	13	7	2.9	35%	Accepted
9	There is a conducive environment in the library for the expression of creativity and innovation	12	9	28	24	2.0	48%	Rejected

Table 2; above, revealed that respondents disagreed on items such as; the library has potential resources for funding a maker-space, management will support the ideal of establishing a maker-space in the library, Staff in the library are interested/experienced in maker-space activities, there is available space for individual project development, There are available experts that participants can look up to for guidance among others, with mean rating and percentage of; 1.6 (61%), 2.1(46 %), 1.7(59 %), and 1.3(73%) while there was a positive affirmation on, the library has the capability to establish a maker-space in cooperation with other partners within and outside the library community with a mean rating 0f 2.9 (35%)

The research also shows that there are no maker-space available in any of the libraries in Delta State Nigeria. This finding is similar to the findings of Efe (2021), who investigated the Awareness and Availability of maker-space in university libraries in South-South, Nigeria. Efe's findings revealed that no university library has established a maker-space in their

libraries. Furthermore, the findings indicates that no libraries in the State is at any level of preparedness, as indicated by the none availability of needed resources in establishing maker-spaces, lack of encouragement from management, none availability of equipment needed for a maker-space, no presence of experts that guild the process as well as lack of space and a conducive environment for a maker-space in the library. This also is in line with Moorefield-Lang (2015), who affirms that maker-spaces focus on use of certain technologies, resources and equipment which may be very expensive to acquire and install, and as such, not every library is equipped with adequate funding, tools, resources, or staffing to run a local maker-space.

Table 4: Challenges and barriers that librarians face in implementing maker space

S/N	Perceived challenges	SA	A	D	SD	$\bar{X}$	%	DECISION
1	Library management may not be able to identify maker-space area of focus for the target audience	21	26	15	11	2.6	39%	Accepted
2	There will be difficulty in stating maker-space policy and goals.	22	21	19	11	2.7	38%	Accepted
3	There is inadequate funding for getting necessary tools and materials	26	24	12	11	2.8	36%	Accepted
4	Inadequate space in the library building	19	24	17	13	2.6	38%	Accepted
5	Lack of training and support expert/mentors for the program	23	26	11	13	2.7	37%	Accepted
6	Lack of adequate supply of electricity	23	27	12	11	2.8	36%	Accepted
7	Lack of interest by library users	8	14	25	26	2.0	50%	Rejected

As revealed in table 3 above, majority of the respondents accepted all items listed in the table above except one, items accepted includes: inadequate funding for getting necessary tools and materials 2.8(36%), difficulty in stating makerspace policy and goals 2.7(38%),management's inability to identify makerspace area of focus for the target audience 2.6(39%), lack of training and support expert/mentors for the program 2.6(36%), lack of steady supply of electricity 2.8(36%), among other factors are perceived challenges beclouding the adoption of maker-space in libraries in Nigeria. On the other hand, the result indicates that lack of interest by library users will not be a challenge.

the findings reveals that factors posing as challenges to the establishment of maker-space libraries in Nigeria, includes lack of funding, lack of trained manpower to supervise the process, unstable electricity supply etc. this is in agreement with Idhalamo, Ikenwe and Omigie (2020), stating that, maker-space is cost intensive, power consuming, proper supervisions, resource persons and equipment replenishment. Funding such ventures in Nigerian libraries will not be easy because of corruption and cultism that are used to greet genuine ventures and good efforts.

Recommendations

Based on findings, the study recommends that;

1. Library and Information Science professionals, who are already aware of the concept of maker-space in the library, should educate others through seminars, conferences and workshops,
2. Heads Librarians of libraries should make provision for the establishment of maker-spaces in their library.
3. Management of various libraries should make allocation in their annual budget for the funding of maker-spaces in their libraries.
4. A maker-space management policy should be formulated. This can be done either by adopting from libraries that already has or by formulating a home grown policy.
5. A stable source of electricity supply such as solar power should be adopted for use in the library to provide an alternative source of power supply.

Conclusion

The study shows that attention has not been given to maker-spaces in Nigeria libraries, which lack the presence of any maker-space in the libraries and also lack preparedness in establishing one. It is noted that lack of fund, lack of trained experts, lack of steady electricity supply and lack of space and a conducive environment within the library to set up a maker-space are the major hindrance to establishing a maker-space in libraries in Nigeria. From the view point of the benefits attached to maker-space in the library, Okpala (2016), noted that maker-spaces offers a different approach for service and program delivery to local populations. In education for instance, an informal mix of a shop, conference room, and laboratory creates a collaborative studio environment for artistic endeavours, not only can it help individuals become more independent, but it can also strengthen their sense of responsibility. Therefore, it is necessary that library management make it a point of call and tackle the issue of establishing maker-spaces in libraries as been critical to achieving user's satisfaction of library services in this era of ICT evolution.

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