LAFIA JOURNAL OF LIBRARY AND INFORMATION SCIENCE
Volume 4, Number 2, 2023.
https://lalibjournals.org/index.php/LJLIS
ISSN: Print - 2814-0702, Online - 2814-0710
LJLIS

PROFICIENCY AND TECHNICAL KNOW-HOW OF LIBRARY SERVICE PROVIDERS AND THE UTILIZATION OF AUGMENTED REALITY IN UNIVERSITY LIRARY IN FEDERAL UNIVERSITY OF LAFIA, NASARAWA STATE NIGERIA

Samuel Otsonu Aboh PhD
Department of Library and Information Science, Faculty of Education.
Federal University of Lafia.
Samaboh23@gmail.com

Henry Okoh Enenche$_{CLN}$
Ekainem I. Braide Library
Federal University of Lafia, Nasarawa State
enemakor@gmail.com, enenche.henry@library.fulafia.edu.ng

Samuel Mathew Manje
JD Gomwalk Library, College of Education Akwanga Nasarawa State.
Samuelmathewmanje78@gmail.com

Abstract
This work studied the knowledge Proficiency and Technical know-how of Library service providers on the Utilization of Augmented Reality in University Library in Federal University Lafia, Nasarawa State Nigeria. Fifty-three Library service providers where studied using a descriptive survey method. The entire population was studied because of the small size of the population. The questionnaire titled "Proficiency and Technical Know-how on the use of Augmented Reality (PTKUARQ)" was used for data collection for and finding was analyzed using simple frequency. Findings showed, that majority of library professional in the Ekaneim I. Braide University Library have intermediate proficiency level in the use of social media digital data tool but the level in utilizations of other digital data tools range from intermediate to beginners' level. Majority are knowledgeable on the installation of the Augmented Reality tool while few have knowledge of the utilization of AR. Strategies that can improve the proficiency and technical know-how of Library service providers on the utilization of AR are identified as training on the installation of the AR tool, hands-on demonstration on operation of AR tool on Mobile device and frequent practice using the AR tool. For improve the proficiency and technical know-how of Library service providers, it was recommended that trainings on the utilization of the AR tool should be conducted and that Library service providers should be provided with avenue to practice what the learnt about utilization of AR tool.
Keywords: AR, AI, Library Utilization, Proficiency Knowledge Know-how.

Introduction

As libraries develops so also comes along the development of those to keep the library called librarians, who are saddled with the roles of not only safe guarding these material but also of generating data for the consumption of their immediate community and other interested members. The rampant changes in this data brought about by new technologies are making traditional performance measures less effective in demonstrating the library's/librarians contribution community development. The world is changing swiftly; the communities as well as the libraries need to change in line with the changing trending. These changes unfortunately, are generating fear that some things which are familiar and important will be lost as various institutions including the libraries are being transformed (Kadiresan, Mangkhollen, and Thiyegarajan, 2020). This fear may not come through if our communities and especially as librarians our libraries transforms apace with the transformation of the world. The only fear or risk is if our libraries fail to transform fast enough. This will not only impact on the community but also our roles as librarians.

For libraries and librarians to achieve this transformation in line with the developing trend of the society, it is inherent that we adopt the use of modern day technology. This transformation can be achieved with the use of the computers, the Internet, online courses, smart phones, cameras, other digital tools such as big data, artificial intelligence, block chain technology, Internet of things and other applications such as quick response code and augmented reality. The role of technology in communities according to Fortier and Burkell, (2015) is increasing, and the only way to follow up with the increasing rate of improvement is to use these new tools wisely. It will be important to note that to make the most of today's technology is to take advantage of these technological tools by knowing about them and be aware of their usefulness.

That one is born in the digital age does not guarantee access to digital technology and its benefits as young people of the digital age think differently about information: how to create it; how to find it; how to access it; and how to share it. This phenomenal as posited by Lloyd (2016) poses challenges and opportunities to a great extend for libraries and librarians to reach younger patrons in new and compelling ways. Many institutions are finding new tools and new strategies to help libraries and the library profession stay relevant in this digital landscape. Librarians are now saddled with a more tasks unlike the earlier ages of library development where people must necessarily come to the library to get information, and the librarian is only bothered with information service delivery. Librarians in this digital age are faced with other arduous task including; thinking about how patrons use the library; what they need the library for; how they interact with the library and the services the library provides. One of the most powerful devices that people use in day-to-day life is the Mobile device. With the use of these devices, data generation and even use of library services have taken a new dimension. Various tools are now deployed and used in the generation of data and use of provision of library services. These tools include, Radio Identification Device (RFID), Bar Code (BC), Quick Response (QR), Biometric tools (e.gMedeley) and plagiarism tools (e.gturnitin), and Augmented Reality

Tools (AR). However, of all the digital tools, this study is restricted to Augmented Reality.

For digital tools to be useful in the library, library service providers (Professional and Non-professional) must have proper knowledge and technical know-how of this tools and how it works. It will not be out of place to even have an experience at expert level working with these tools. The knowledge must not be at professional level but at least they should have a working knowledge about the tool. Knowledge about the tool will entailed that the service provider know about how the tool is installed, what operating system that the tool can work with and what are the required level of connectivity (can it work offline or online) will required for the tool to work. It is in this line that the proficiency level and technical know-how of library service providers on the utilization of Augmented Reality (AR) tool is important to be studied.

Statement of the Problem

The world of data and information sources is experiencing dramatic changes and with it the information needs of the library user community. For the library service provider to meet up with these trends there is need to upgrade in their knowledge of current development in data gathering and data use in the university library community. This may not be the case with library service providers in the Federal University of Lafia Nigeria, as these sets of library service providers' seems to exhibit low proficiency and inadequate technical know-how on the utilization of modern data gathering tools for the provision of service for their users. They seem not to have adequate knowledge and technical-know how on the utilization of the Augmented Reality (AR) as a data gathering and use tool in the library service provision.

With improvement in technology, according to Bent (2018) it is important that librarians improve their knowledge and technical know-how in line with the developing trend, which may not be the case of library service providers in Federal University of Lafia as many of them still provide library services using the traditional method. This may be because of low proficiency, poor knowledge and technical know-how on modern tools like Augmented Reality in providing effective library services. Based on the afore mentioned, the question now is, what is the proficiency level, and technical know-how of library service providers on utilization of Augmented Reality (AR) for service delivery in Federal University of Lafia?

Objective of the study

The objective of this study is to investigate the level of proficiency and technical know-how among Library service provides in Federal University of Lafia, Nasarawa State library and ascertain strategies that can improve their level of proficiency and technical know-how in utilizing Augmented Reality (AR).

Research Questions

Three research questions were raised to guide this study.

Lafia on utilization of digital data tools?

2. How knowledgeable are library service providers on the utilizing Augmented Reality (AR) tools?
3. What is the strategy that can library service providers' proficiency level and technical know-how on utilizing Augmented Reality (AR) tools?

Review of related Literature

One of the basic roles of the library is generating data for the consumption of its host community. The community is changing and so is the method of gathering data for the use of this community. The rapid changes in this data gathering are generally brought about by new technologies which as pointed out by Patil, and Pradhan (2014) are making traditional data gathering measures less effective in demonstrating the library's contribution to the development in the community. The world is changing swiftly which is generating fear that something which is familiar and important including the library will be lost as institutions are being transformed. These fears are needless in the library community as the risks are greater if our libraries fail to transform fast enough.

There are various digital tools in existence which include social media, Quick response Code, and Virtual Reality including Augmented Reality. The vastest digital data tool is the social media. Social media is a product of web-based or internet technologies and they depend on mobile technologies to operate. Some types of social media according to Akporohnor & Olise, (2015) are Facebook, blogs, micro-blogging, YouTube, twitter, Wiki, Mash Up, Digg, Delicious Second Life, Flickr, Picasa, amongst others. To find a lasting solution to use of the library by library user, the library should adopt as much as possible all the social media platforms available to her users and the library services providers should be knowledgeable in the use of these platforms. This will enable the library meet users in the different social media platforms. By this, users could quickly be informed of the available resources and services available in the library. Some of the various digital tools in existence in the technology world among those available are; Quick response (QR) code. QR originated from Japan in 1994. It has 4,296 characters that can be used to describe information resources. Libraries can put into a QR codes the URL to web pages, music, videos, images, business card information and text. It can keep URLs under 300 characters for less complex code and more for more complex QR code. QR code can be downloaded from any application store (Wu, Thompson, Vacek, Watkins and Weidner 2016). Quick Response (QR) code have the following feature, it supports foreign language, multiple sizes/colors, generates multiple kinds of codes and can be saved in multiple format like PNG, JPG or even PDF. It is available for free; one can create the QR code using free software from any App store.

Another type digital tool is Virtual Reality (VR). VR denotes a complete engagement experience that closes out the physical world. VR is commonly defined as an experience in which a user is remains physically within their really world while entering a virtual world (comprising three-dimensional objects) using headset with a computer or mobile device. It is part of a spectrum of related technologies ranging from mostly real

experience to a completely virtual experience. VR is a computer generated technology that creates a simulated world in which users interact with visual and auditory elements projected through headgears, such as Oculus or HTC Vive (Massis, 2016). Using VR is an active learning and more engaging way of data generation and data use. Library users may struggle when they encounter unfamiliar words and abstract ideas that are not tied to any personal experience to which they can relate the new concept but using VR provides opportunity for users to immediately translate the virtual experience into a comparable experience so that the concept can be associated to a real and personalized experience. VR as pointed out by Wu, Thompson, Vacek, Watkins, and Weidner (2016) utilizes an experiential learning approach, hence library user can personal experience (as opposed to books or lectures alone) to conceptualize the knowledge they convey. It can replace the lingo filled method of using information on a lecture–based approach to a recognizable and familiar situation that makes learning easier as well as improving library users learning and retention rate.

Another digital data tool is the Augmented Reality (AR). AR was first achieved, to some extent according to Wu, Thompson, Vacek, Watkins, and Weidner (2016), by a cinematographer called Morton Heling in 1957. Morton invented the Sensorama which delivered visuals, sounds, vibration to the viewer. The two scholars looked at AR as a term for a live direct or indirect view of a physical real-world environment whose elements are *amplified* by virtual computer produced sensory input such as sound or graphics. AR combines the real and virtual in an interactive real time and registered it in 3D. AR can make a connection between the physical library surrounding you and the virtual library on the web. It allows users to enter the information ecosystem with the help of a smart phone or other devices. Augmented reality (AR) has been in varying growth stages for years. Today, with a headset available to some and a hand-held device available to many, AR benefits library users with an enriched service delivery. Today, there also exist free apps that can be easily downloaded to one's smart device that can be used to enter the augmented reality ecosystem for educational uses (Massis, 2016). AR differs from virtual reality in that it renders an entirely computer-generated environment in which the user interacts with presents a real-world image (e.g., the view through the lens of a camera or cellphone) and then overlays that image with computer-generated elements. Though augmented reality has existed since the 1950s, only recently has it been made available in a practical format for personal use (Chaudhary 2016). The advent of the Smartphone has enabled any individual to have an augmented reality interface right in the palm of their hands. Augmented Reality (AR) is similar to the virtual reality but with a little difference in that augmented reality (AR) adds digital elements to a live view often by using the camera on a Smartphone or a hand held device. Examples of Augmented Reality experiences as pointed out by Esposo-Betan, and Santos (2017) include Snapchat lenses and the game Pokémon Go. In AR, the library users can download app into their smart devices to view the library. Some social media applications such as Snapchat, Instagram, and Facebook, including mobile games such as Pokémon Go have integrated AR with a high level of success and libraries have the opportunity to use this same widely-popular

technology to help connect potential users with library materials and services.

How can Augmented Reality (AR) be used for the next generation libraries?

A study conducted by Parabhoi, Bhattacharya and Dhâr (2017) titled 'Use of QR Code' in Library in 2014. From the study, it was found that 85% of people say the mobile device is a significant part of their everyday-life. Most if the respondents of this study are familiar and comfortable with the use of mobile phones. Since our library users are mobile device savvy, our library services should be anchored on the mobile devices. Augmented Reality (AR) as pointed out by these scholars is a digital data tool that is anchored on the use of digital devices that gives the feel of reality by combining virtual world with really life experience. AR can be used to do an interactive mobile guide and walking tour of a library and its locations, get a brief history of the library and browse a catalogs (with the help of a mobile device). Librarians have noticed the potential advantages AR can provide to the library profession and have conducted researches to examine current state of AR, evaluate library-related AR applications, and analyze how AR may affect librarianship (Massis, 2015). For example, Akporhonor and Olise (2015) indicated that a closer look on recent publications and online articles revealed that AR is being applied to library work in various ways which include; Bookshelf reading and browsing; Library instruction/orientation; Library tours; Instructional guides; Augmenting photo collections; Promotional games; Awareness campaign; and Library navigation.

Today, it may be argued that the role of the library in promoting literacy is as important it has ever been if not more so. Therefore, there is need for varying literacy skills to be developed. Literacy can be defined as the sets of skills needed to create, manage and interpret information in the digital age (Chaudhary 2016). As digital technologies make information more accessible, literacy skills, both the traditional (reading, writing, and others) and digital (data analysis, coding and others), are needed to manage and interpret different collections. It is important for librarians to possess required literacy skills that will enable them to effectively provide library services in an efficient and cost effective way in this digital age.

Professional Skills Needed in the Next Generation Libraries

With the digital age, library service providers required so professional skills to enhance their effectiveness in service delivery. Patil and Pradhan (2014), posit that library personnel require some professional skills to enhance their service delivery. This skill includes knowledge and skills in order to market and attract users to the library; Perception of user needs and ability to obtain feedback from users; Technical knowledge, such as ability to use digital tools like the Internet and other electronic resources and databases; as well as presentation skills. Some of the competencies that make up the knowledge base of a good librarian are usually taught within classes that lead to library science degrees. In all cases, understanding the core competencies of librarianship is a good first step towards success in the field (Robert, 2013). These competency skills Robert pointed out include, strong organizational skills; to be good with numbers; friendly;

ethically stable; basic affinity for working with large volumes of information; and to possessing computer skills. Proficiency in utilizing technology and technical know-how in it use enhances the overall effectiveness of a libraries and librarians. Some of these competencies are taught while others are gradually learned and mastered during an education and on the job experience.

Research Methodology

The descriptive research method was adopted for this study. The population of the study was fifty-three (53**)** information professionals working in the University library of Federal University of Lafia. Instrument for data collection was questionnaire and the whole population was studied since the population was relatively small. The Proficiency and technical know-how on the use of Augmented Reality Questionnaire (PTKUARQ) a researcher self-developed instrument was used for data collection. Simple frequency was used to analyze data collected.

Data Analysis

Research Question 1: what is the proficiency level of information professional in Federal University of Lafia on utilization of digital data tools?

Table 1: Proficiency level of Library service providers on the utilization of digital data tool

Options	Professional	Intermediate	beginner	No knowled
Social media (Facebook, WhatsApp, telegram and others)	1	15	37	0
Quick respond Code (QR)	0	14	31	8
Biometric	0	14	31	8
Radio frequency Identification (RFID)	1	14	27	11
Virtual Reality (VR)	1	14	27	11

Table 1 above shows the proficiency level of library service providers in the utilization of digital data tool. One of the respondent is a professional in the utilization of social media (Facebook, WhatsApp, telegram and others) while fifteen 15 respondents have intermediate level of proficiency and thirty-seven (37) are beginners. None of the respondent is a professional in the level of utilization of biometric while thirty-one (31) respondents are beginners with eight (8) respondents having no knowledge of biometrics. One respondent has professional level of proficiency on the utilization of Radio Frequency Identification (RFID) and fourteen (14) respondents possessed intermediate level of proficiency with twenty-seven (27) having beginners level of proficiency while eleven (11) respondent have no knowledge of the use RFID. One respondent has professional level of proficiency on the virtual reality and fourteen (14) respondents possessed intermediate level of proficiency while twenty-seven (27) are beginners while eleven (11) respondent have no knowledge of the use Virtual reality digital data tool.

Research question 2: How knowledgeable are information professionals on the utilizing Augmented Reality (AR) tools?

Table 2: Knowledge level of library professional on the utilization of the AR digital data tool.

Options	Highly Knowledgeable	Knowledgeable	low Knowledge	kno
Installing the AR tool	3	34	7	
Operating the AR tool on Mobile devices	1	0	18	
Finding Bibliographic data using AR tool	1	1	17	
Demonstrating how to use the AR tool	1	0	18	
Teaching the use of AR tool	1	0	18	

Table 2 above shows responses on the level of knowledge of library service providers about utilization of Augmented Reality digital data tool. Three (3) respondents are highly knowledgeable in the installation of AR data tool. And thirty-four (34) respondents are knowledgeable on installing AR tool with seven (7) respondents having a low knowledge of the installation of AR tool while 9 respondents have no knowledge. One (1) respondent is highly knowledgeable of operating AR tool with mobile devices and eighteen (18) have low knowledge while thirty-four (34) have no knowledge of using AR tool with mobile devices. One (1) respondent each is highly knowledgeable and knowledgeable respectively in using AR tool in finding bibliographic data and seventeen (17) have low knowledge and thirty-four respondents have no knowledge on using AR to find bibliographic data. One (1) respondent is highly knowledgeable and knowledgeable respectively in demonstrating how to use the AR tool while eighteen respondents have low knowledge and thirty-four have no knowledge in demonstrating the use of AR tool. One respondent is highly knowledgeable and can teach the use of the AR tool while eight have low knowledge and forty-four have no knowledge to teach the use of the AR tool.

Research Question 3: what is the strategy that can improve information professional's proficiency level and technical know-how on utilizing Augmented Reality (AR) tools?

Table 3: Strategies to improve proficiency and technical know-how of Library service providers in utilize Augmented Reality tool.

Options	Strongly Agree	Agree	Strongly Disagree	Disagre
Training on the installation of the AR tool	21	31	0	1
Hands-on demonstration on operation the AR tool on Mobile device	19	32	0	2
Frequent practice using the AR tool	11	23	11	8
Engage consultant services in the use of AR tool.	1	2	23	27

Data on table 3 represents respondents' response on what can be done to improve proficiency in the utilization of AR tool in service delivery in the library. Twenty-one (21) respondents strongly agree that training on the installation of the AR tool can improve the proficiency of information professionals in the library while thirty-one (31) respondents agreed to this assertion. One (1) respondent disagree with this while no respondent strongly disagrees. Nineteen (19) respondents strongly agreed that hands-on demonstration on the operation of AR tool on a mobile device can improve the level of proficiency of library professional while thirty-two respondents strongly agree. Frequent practice on the use of the AR tool can improve the use of AR tool as eleven (11) of the respondent strongly agreed while twenty-three (23) agreed. Eleven respondents however strongly disagreed while eight agree. Engaging consultancy service cannot improve the proficiency level of information professionals in the library as twenty-three respondents strongly disagree and twenty-seven respondents disagree. While one (1) and two respondents strongly agreed and agree respectively.

Conclusion

Finding of this study shows that library service providers have some level of proficiency in the use of digital data tools. They have intermediate to beginners' level of proficiency in the use of various digital data tools. Library service providers are knowledgeable on the installation of the AR tool. However, library professional have low knowledge on operating the AR tool on mobile devices as can be seen from the response. Knowledge on using AR tool for finding bibliographic data tool was low and Library service providers have low level of knowledge on how to demonstrate the use of the AR tool. Furthermore, library professional have low knowledge of the AR and hence cannot teach the use of the tool. Training on the installations of the AR tool could help in improving the proficiency level of Library service providers in the utilization of the AR tool and so can hands-on demonstration of the operation of the AR tool just as frequent practicing can help the proficiency of Library service providers in the use of the AR tool

Recommendations

Based on the findings of this study, the following are recommended

1. Training sessions on the utilization of the AR tool should be conducted for Library service providers. This will not only improve their proficiency but also in enhance their ability for better serve the library users.
2. Library service providers should be provided with avenue to practices whatever they have learnt about the utilization of AR digital data tool.

References

Akporhonor, B.A. & Olise, F.N. (2015). Librarians' use of social media for promoting library and information resources and services in university libraries in South-South Nigeria. *Information and Knowledge Management, 5*(6), 1-9.

Bent, M. (2018). Perceptions of Information Literacy in the transition to higher education", National Teaching Fellowship Report, Newcastle University, 2018. Retrieved from http://eprint.ncl.ac.uk/file-store/peoduction/55850/9543764E-D3BB47D2-8FD3-CDE6BBEA0FD4.pdf.

Esposo-Betan, J.F., & Santos, S.M. (2017). Advantages and challenges of using augmented reality for library orientations in an academic/research library setting. *Proceedings of the IATUL Conferences*. Paper 7. https://docs.lib.purdue.edu/iatul/2017/challenges/7

Fortier, A. &Burkell, J (2015) Hidden online survillance: what librarians should know to protet their privacy and that of their patrons. Information technology and libraries. 32(3): 57

Kadiresan, N., Mangkhollen, S. & Thiyegarajan N. (2020). Exmining the relationship between book citation and Goodreads reader opinion and rating. Annals of Library and Information studies. 67. Pp 215-221.

Lloyd, A. (2016). Information Literacy Landscapes: an emerging picture. *Journal of Documentation*. (62). 5, 570-583

Massis, B. (2016). What's new in libraries using virtual and augmented reality in the library? *New Library World*, 116 (11/12), 796-799. doi: 10.1108/NLW-08-2015- 0054

Parabhoi, L., Bhattacharya, N., & Dhâr, R. (2017). Use of QR Code in Library. https://www.researchgate.net/publication/318259063

Patil, S. K. & Pradhan, P. (2014). Library promotion practices and marketing of library services: A role of Library service providers. *Procedia - Social and Behavioral Sciences, 133*, 249 – 254.

Robert, S. (2013). Core competencies of librarianship. Core Competencies of Librarianship %20%20LibraryScienceList.com.htm

Wu, A., Thompson, S., Vacek, R., Watkins, S., & Weidner, A. (2016). Hitting the road towards a greater digital destination: evaluating and testing DAMS at University of Houston Libraries *Information Technology and Libraries* 35(2) 5-10