Essentials of
INFORMATION
and
COMMUNICATION
TECHNOLOGIES
IN LIBRARIES

A BOOK OF READINGS

Edited by

VICTOR N. NWACHUKWU *Ph.D CLN*

UZOAMAKA OGWO *Ph.D CLN*

Essentials of Information and Communication Technologies (ICTs) in Libraries: A Book of Readings

ISBN: 978-978-993-513-0

DIGITAL SIGNAGE MEDIA IN CONTEMPORARY LIBRARY SERVICES

Obot, Imaobong Ndifreke *Ph.D.*

Abstract

This paper appraises the diverse approaches the use of digital signage media can aid contemporary library services. It provides a general awareness on how technology is employed in the library with emphasis on Digital Signage Media. It explains what Digital Signage media is and how it is employed in contemporary library services. The paper has also identified challenges and strategies of engaging digital signage systems in contemporary library services. The paper concludes that the use of ICTs to wit Digital Signage Systems in Library Services should be made imperative for effective services delivery.

Keywords: *Digital Signage Media, Contemporary, Library Services. Information Dissemination*

Introduction

Libraries have gone through various technological breakthroughs and rapid developmental phases in recent times. These phases are necessitated by the advent of ICT which has whirled information provision in diverse ways like generating, processing and disseminating information. Thus, the conventional methods of library services have given way to digital modes of information handling in contemporary library services. Lombardi (2000) purported that users will prefer more computer contents, more and more computer indices, digitalized finding aids, digital repositories of articles, online access to newspapers and other resources. Therefore, contemporary library services should cover the acquisition, storage processing and dissemination of information in digital format. Such digital devices include digital signage which should identify users' needs and also provide the right information services at the right time in order to save the time of the users. In line with this, Haber as cited in Obot & Umoh (2020) was of the view that while providing books was a standalone function for libraries throughout the last few centuries, their offerings have evolved with the digital age to meet the changing needs of their patrons. Libraries are therefore compelled to incorporate digital sources in order to remain at the fore of information provision and dissemination (Emezie & Nwaohiri, 2013). In a similar vein, Pradhan & Mohanty (2016) stated that today, academic libraries are struggling to provide quality services to the users in this emerging era of digital technology which has brought not only changes to methods of information but also its retrieval processes and the accessing of the information. This means that libraries, whose primary roles lie in the creation, storage and dissemination of knowledge must provide relevant and timely sources of information to her immediate communities as they embrace this modern technological whirl (Obot & Umoh, 2020). Therefore, the proliferation of information and media of disseminating information in this digital era

have necessitated libraries to adopt various digital media to match up with the information needs of its users and to maintain its place as a reliable hub of knowledge that could support contemporary library services.

One of such media adopted by libraries is the digital signage. Digital signage media represents an emerging new multimedia and communication technology that is briskly gaining grounds in contemporary library services. Digital signage is the method used to show any form of multimedia content on a digital display in any indoor or outdoor venue. Digital signage is the use of modern flat-panel video devices, typically LCD or Plasma TVs connected to a small computer or network device, to display a wide range of informational and marketing materials using various media formats, including web-based technologies (Morgan and Mori, 2008). The concept of digital signage is not alien to contemporary library services. Obot & Umoh (2020) stated that it is an in-space and out-space information dissemination device which has the ability to show any type of media on a digital display. The authors further buttressed the fact that digital signage media are just transformations or replacements of the traditional billboards, paper boards, posters, signboards, banners, blackboards and whiteboards which, traditional displays were hitherto used as a means of communication and information dissemination of community and organisational events, current awareness and felicitations. Therefore, digital signage displays is an alternative to traditional displays which has activated new forms of presentations, interactivity and experiences.

There are also state of the art digital signage frameworks that go beyond providing basic information even as common digital signs, maps and directional aids remain in force. These include applications like Bluetooth-driven Beacon systems and cellular Wi-Fi systems, digital graphics in shelf labels, wall visuals, floor graphics and directory signage which can now be used to help users navigate library space in a more profound way and to enjoy richer, more fulfilling way finding experiences (Cody, 2016; Lammhults Design, 2015) and also get information and updates on contemporary issues.

Globally, librarians adapt to new and emerging technology in the provision of signage services for libraries to be relevant in this technological era. In the United States, digital signage and directory systems for a single building or for an entire campus is obtainable (TouchStone, 2017). This is used to communicate a clear, consistent message while maintaining your systems through an easy-to-use web interface with add way finding, announcements, and many other helpful apps.

Components of a digital signage media in Contemporary Library Services

Components of digital signage media include software, hardware, content and strategy (Konrath, 2017). Software allows one to show varied or limited types of content through Content Management Software (CMS). Hardware is the physical display, media player and wall mounts. Strategy involves the plan to help one ensure that the digital signage project was successful while content involves what is shown on display which can be textual, images, video, calendars, etc.,

The content reproduced with digital signage can be as diverse as its source and it is typically produced by marketing and sales professionals, professional audiovisual/web advertising agencies and freelancers, based on aggregator services (e.g. RSS feeds or feeds developed by ICT Service Providers) or generated by the user (e.g. by the secretary) (ITU-T Technology Watch Report, 2011). With the upsurge in technology, design and selection of content displayed is a key factor in information dissemination for achieving sustainable development goals. The regular media used in digital signage networks are sound and visuals, even though sound is most often considered noise by library users as well as staff members. Noise from audio sources may seem to blur the intended message. As such, the presentation of content requires more bandwidth, more processing power and higher-quality end terminals which can overload the communications infrastructure and limit responsiveness in content delivery (ITU-T Technology Watch Report, 2011). The authors stated further that the content reproduced with digital signage can be as diverse as its source which may be produced by marketing and sales professionals, professional audiovisual /web advertising agencies and freelancers, ICT service providers or generated by the user and enumerated such contents to include:

a) Point of Wait: corporate, education, hospitality, healthcare and banking
Information may include the time and place of upcoming meetings, a news ticker, financial and weather updates or simply content designed to create a pleasant ambience.

b) Point of Sale: ads, kiosks, branding TV
Point of Sale networks comprise digital signage that directs consumers/users close to a product or service for sale. Such installations are designed to deliver a measurable return on investment (ROI). They are however used in libraries that are set up to make profit (as in the case of private libraries), or libraries that have sections for bookshops. This is used to promote products, resources and services, personalise and improve the user experience and educate users about the availability of information resources and services.

c) Point of Transit: traveller information and advertising on the go
Consumers/Users are on-the-go viewers. Train station, airports, buses and taxis, etc. This is pervasively used in and on all modes of public transportation to meet the needs of on-the-go viewers, providing real-time location and context-aware traveller information and advertising. It is basically to meet stringent safety requirements and standards, withstand a high temperature range (e.g -25 degree Celsius/+ 75 degree Celsius) and be resistant to vibration. Such projects are often implemented in collaboration with transport agencies and public authorities or school management buses. Such traveller information may also be used for emergency communication and mass notification, intruder messages, national warnings and earthquake instructions sent instantly on display within a large-scale digital signage network.

Information Dissemination on Digital Signage Media

Libraries have an increasing role to manage the storage, maintenance and dissemination of information to facilitate the acquisition of knowledge. Therefore, the types of information to be projected on a digital signage as outlined by Obot & Umoh (2020) include:

i. **New information dissemination services:** this is information that is current in line with the latest literature published such as new trends and latest developments in a given subject area or information needed to make practical decisions or informed choices, academic and research teams, bibliographic information and analytical information, journal publications, monographs etc. To provide this service, librarians need to compile published and gray literature in all fields to relevant data inputted in the database in order to have produced current titles.

This information dissemination service is made up of two types of services i.e. selection dissemination of information and electronic clip-on services.

    a. **Selective dissemination of information:** the library can organise this service by providing new or updated information to the users on select topics of their interest from new information sources and trending events.

    b. **Electronic clip-on information dissemination service:** this is a process where librarians offer electronic clip-on services to library users based on the topic which the users have so chosen. Library users need to register in the university library and their names and profile information updated in the digital signage display (by way of acknowledgement) in order to benefit from this service. With this, they promptly receive feedback in their mail boxes. This information dissemination service is a modern technological method of disseminating information which was hitherto done through current awareness and SDI services can still be carried out through the electronic medium.

ii. **Routine information dissemination service:** this service is provided on a day-to-day basis and includes the result of experiments carried out, research on engineering operations in a factory, details of fabricated products etc. Routine information dissemination service can be given through directories, handbooks, encyclopedias etc.

iii. **Simple-phrase information dissemination service:** in the simple-phrase information dissemination service, complete picture on a particular topic is re-displayed based on the users' query. This will enable the user understand the developments in the topic which he must have lost touch with.

iv. **Complete information dissemination service:** this involves information for highlighting, assessing and understanding general trends in the subject. This service is accomplished through information sources which are mounted on display and include; literature search, bibliographic compilations, reports and critical reviews based on the library users' topic of interest, subject or area of specialization. Such information dissemination service could be given on demand, as coverage is usually complete.

335

The Role of Digital Signage Media in Contemporary Library Services

The library in a media world where information competes for attention should find better ways to engage the interest of its users through digital signage as seen in malls, streets, hospitals, stadium, airports, and other public spaces are instances of the new multimedia technological trend which libraries must key into to bolster their roles as information (Obot, Effiong & Asuquo, 2019). Digital signage media are a must have in the provision of contemporary library services. Libraries are learning hubs where relevant information are adequately provided and effectively utilised by patrons to advance the educational objectives of its parent institution. Therefore libraries can reach out to their users with digital signs that are informative, entertaining, collaborative and educational. Digital signage could therefore be used to provide information about the library and attract library patrons through its peppy content and eye catching designs and animations, web contents, and real-time video broadcasts (Obot & Umoh, 2020). The authors further enumerated the role of digital Signage Media in contemporary library services to include the following:

1) It employs a wide-ranging solution which allows for a dependable centralised management and publishing of digital media in order to attract more users to patronise the library. By so doing, it becomes an effective tool that is needed to communicate with users (as conventional signs, static signs, posters and flyers only encourage manual distribution and installation) and reduces cost of producing and installing new signs each time a different content has to be replaced.

2) Digital signs provide useful information (for safety, disaster management, direction, identification, behaviour regulation, current awareness etc) to library patrons about events in and outside of the library. It can also be continually updated and refreshed to advertise events and offer news feed on all international and state events.

3) Delivering content over the internet ensures its safe arrival, proper scheduling and handling which eliminates independence on in-library personnel to change tapes or DVDs (since library personnel are not employed to perform such tasks or not usually motivated to perform such tasks) as the content in such tapes are found in collections associated with management and support functions.

4) Digital signage has several additional components over traditional displays with expensive physical duplication of materials or the burden of sojourning to a place where such materials are displayed. It also stores large volumes of already achieved digital information which facilitates library users' rapid search and access to a multiplicity of multimedia information in an interactive mode.

Other roles digital signage media play in contemporary library services as outlined by Obot, Effiong & Asuquo (2019) include that:

5) They are better at drawing the attention of the target audience by conveying important and current information such as news on health, politics, and all other facets of life, advertising and current library holdings.

6) University libraries in a bid to retain their place as a reliable repository of knowledge can play an important role in the unity of the nation as well as the nation's security through the adoption of digital signage media to display information about the need for peaceful co-existence.

7) It could also be used to display important tourist centres in a country, political events, important national news headlines, sports events, cultural festivals in different parts of the country, crises pruned areas and so on, thereby arousing security consciousness in the people.

8) In cases of emergency in the library where staff and users need to vacate a campus for security reasons, digital signage can be activated to give emergency instructions, guiding people to safety, disseminating vital information and instructions.

9) Digital signage systems can be used to educate students of sensitive precautions such as only taking registered taxis and not over indulging at the students bar. This helps arose security consciousness of the students. The use of digital signage to deliver positive news helps build a sense of security within staff and students. Example could be in the case of a fire outbreak.

10) Consequently, sports competition results and honours, celebrating the success of a department; moral boosting videos and imagery is also perfect for digital delivery (Tucker, 2018).

11) Displaying potent information about other cultures which may seem strange or alien to people of other regions can help bring to the minds of people the existence of such culture thereby linking one culture to another or forcing one to learn about another culture.

12) Catch phrases that carry information on national unity and security could be displayed using digital signage media. For instance phrases like "Our Unity is in Our Diversity", "Many Colours One People", "Unity is Our Strength", "Nigeria Needs You, Be Your Brothers' Keeper", "Different Tongues, One People" and many more, could be displayed in the library to eliminate a sense of insecurity, build and foster a sense of unity and oneness among citizens of the nation.

Other roles of digital signage media include that;

13) Digital signage can be placed anywhere within and outside the library – the canteen, the lobbies, the lawn etc to serve as a tool for marketing library products and services, raising brand consciousness, conveying information to staff or students and engaging every audience and especially visitors to the library.

14) It plays an important role in informing students about specific and general events such as conferences, seminars, lectures and lecture venues, meetings, library opening hours, deadlines for registration, exams schedule, schedule alteration and sporting activities.

Challenges Associated with Utilising Digital Signage Media

The main challenge for most libraries is the successful deployment and integration of a digital signage network system to replace the traditional display

system. SandKRS (2014) categorizes challenges of digital signage to include display blindness – public displays are used in many places most of them not getting the attention of the users due to static public screens, content selection for displays, interaction in the public spaces – interaction in public spaces depends on the personality typologies of library users and scheduling of contents and application – the current display systems show contents which are scheduled in advance but with the emergence of open display networks and content adaptive systems, these approaches have limitation with context awareness, interaction and new scheduling approaches are required.

Morgan & Mori (2008) also added that the greatest challenge in the deployment of a digital signage system in a library is not technological but content and management. Budgeting constraints must also be taken into account when discussing the challenges associated with the utilization of digital signage media in contemporary library services.

Strategies for Designing Digital Signage Media in Comtemporary Library Services

In order to serve patrons and the generality of the public better, the first step is to set goals for the smooth implementation of the digital signage project. This involves identifying who your beneficiaries will be. This will enable design well targeted signage that will accommodate the target audience. The second stage involves getting personnel and facilities ready. This involves getting a Media player to power the display and display content, getting the screen for display ready and a Content Management Software which is what you need to create content and schedule it to your displays. The third stage involves choosing the right location for the display. The content must however determine a location. It must therefore consider its audience and look out for high traffic areas, viewing height and should be seen within eye level and in a well-lit area. The content of a digital signage must be appropriate, attractive, engaging and above all continually refreshed as content shown over and over will eventually fade into the background (Morgan & Mori, 2008). According to ITU-T Technology Watch Report (2011), digital signage can be received from one or three viewing patterns namely Point of Transit, Point of Wait or Point of Sale, which content must be designed to complement their viewing pattern, as discusses earlier.

The third stage is the application of design principles such as simplicity of content, taking note of safe areas to ensure visibility, choosing appropriate colours, aligning content to the left. The fourth stage is adhering to standard best practices such as legibility of texts to ensure readability and accessibility of the digital signage media to those with disabilities.

Conclusion

Digital signage media is a sine qua non for the provision of effective library services in contemporary society. Therefore the role of digital signage media in contemporary library services cannot be over emphasized. Librarians must keep pace

with this new technological trend by adopting digital signage media so as to revolutionise the library, its space and facilitate its growth.

References

Cody, C. (2016). Wayfinding Trends: Modern Digital Signage Caters to Personal Tastes and Profiles of Shoppers. Building Design and Construction, Callison RTKL blog. Retrieved from https://www.bdcnetwork.com/blog/wayfinding-trends-modern-digital-signage-caters-personal-tastes-and-profiles-shoppers.

Emezie, N. A., Nwaohiri, N. M. (2013). 21st Century Librarians and Effective Information Service Delivery. *Journal of Information and Knowledge Management,* (4)1:30-43

ITU-T Technology Watch Report (2011). Digital Signage: The Right Information in all the Right Place. Retrieved from https://www.w3.org/2016/signage/statements/Technology_Watch_Reporyt_November_2011_Digital_Signage.pdf

Konrath, K. (2017). Digital Signage: The Ultimate Implementation Guide for any Projects. Retrieved from https://www.convergent.com

Lammhults Biblioteksdesign A/S (2015). Unmanned Open Libraries-What is it? Retrieved from http://www.lammhultsbiblioteksdesign

Lombardi, J. V. (2000). Academic Libraries in a Digital Age. *D-Lib Magazine*, 6(10). Retrieved from http//www.dlib.org/dlib/october00/Lombardi/10lombardi.html

Morgan, K. & Mori, T. (2008). Digital signage in the library. Paper presented at the 11th Annual Library and Information Technology Association (LITA) National Forum of the America Library Association. Retrieved from http://www.ala.org/lita/sites/ala.org.lita/files/content/conferences/forum/2008/21_Digital_Displays.pdf

Obot, I. N., Effiong, A. E. & Asuquo, B. E. (2019). Digital Signage Media in University Libraries as Catalyst for National Unity and Security. In Eboro, U. E. & Enang, U. E. (Eds.). *Trending Technologies in Library and Information Science.* Pp 222-235.

Obot, I. N. & Umoh, M. O. (2020). Digital Signaging for Information Dissemination in Nigerian Libraries: A Vehicle for Achieving Sustainable Development Goals (SDGs). In Adias, T. C, Ibegwam, A. F., Udofot, I. M. & Hamilton, D. O. (Eds.) *Information Management Agenda 2030: Perspectives of Sustainable Development Goals. (A Festchrift in Honour of Professor Felicia Eduwem Etim at 60).* Pp 486-496.

Pradhan, S. (2016). Academic Libraries: A Source of Knowledge Dissemination. *International Journal of Multidisciplinary Research Review*, 1 (5): 131-135

SandKRS (2014). Proceedings of the 3rd International Conference on Computer Science & Computational Mathematics (ICCSCM) Retrieved from www.sandkrs.com

Touch Source (2017). TouchSource Electronic Touchscreen Directories and Wayfinding Systems. Retrieved from https://www.touchsource.com

Tucker, H. (2016). Libraries are thriving, thanks to large format digital displays. Retrieved from https://asus-business.co.uk.