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Digitization of Cultural Heritage Information Resources for Effective Utilization in South-East Nigeria

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Abstract

This study examines the level of digitization and integration of ICT in the preservation and management of cultural information resources for effective utilization in cultural heritage institutions in South-East, Nigeria. A descriptive survey research design was used for the study. The population of the study is 453 consisting of all the staff of public libraries and museums in South-East, Nigeria. The researchers used an observation checklist and a questionnaire for data collection. The data collected were analyzed using mean and standard deviations. Also T-test was used for the hypothesis. The findings of the study revealed that there is a very low level of digitization of cultural resources in the south-east Nigeria and therefore recommended an urgent need for the digitization of cultural heritage information resources for effective utilization in cultural heritage institutions.

Keywords: *Digitization, ICT, Preservation and Management, Cultural Resources, Libraries, Cultural Heritage Institutions.*

1.1 Introduction

Digitization is a term used to connote the transfer of documents from an original format to a machine readable format. This format presents data that is represented by bits or bytes. It encompasses the "creation of digital objects from physical, analogue originals by means of a scanner, camera or other electronic device. It is undertaken as part of a process that includes: selection, assessment, including of needs, prioritization, preparation of originals for digitization, metadata collection and creation, digitization and creation of data collections, submission of digital resources to delivery systems and repositories. This process is accompanied along the way by management, including intellectual property rights management and quality control, and evaluation at the end"

(UNESCO, 2010). Its attending benefits in information sharing cannot be over-emphasized as it ensures that information is easily accessible, storable, maintainable, and shareable through the use of digital technology.

Cultural heritage according to Dim & Osadebe (2009)"refers to the legacies of physical artifacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present for the benefit of future generation". This information resource can be in wide variety of formats such as objects and artefacts, including books, journals and newspapers, photographs, museum objects, archival documents, sound, audiovisual material, monuments and archaeological sites. Manuscripts with universal value, audio-

visual materials, and library and archive collections are among the sources that need to be primarily dealt within this frame. WIPO (n.d.) added that cultural heritage content may come in many different forms, such as:

- verbal expressions, such as folk tales, folk poetry and riddles, signs, words, symbols and indications
- musical expressions, such as folk songs and instrumental music
- expressions by actions, such as folk dances, plays and artistic forms or rituals, whether or not reduced to a material form
- tangible expressions, such as: productions of folk art, in particular, drawings, paintings, carvings, sculptures, pottery, terracotta, mosaic, woodwork, metal ware, jewelry, basket weaving, needlework, textiles, carpets, costumes, crafts; musical instruments and architectural forms.

The study therefore aims to identify the cultural heritage resources available in cultural heritage institutions and to determine the extent to which these cultural heritage resources are digitized in Nigeria.

1.2 Statement of the Problem

Despite these advances in technology and improvements in the digitization of cultural heritage resources by many countries of the world in Nigeria, it seems that issues still exists in major cultural repository and the level of and scope of digitization is still lagging behind. Many studies have been conducted on management and preservation of cultural heritage in Nigeria in the past. Still, none of these studies focused on digitization as a tool in preserving cultural heritage resources for effective utilization in cultural heritage institutions in Nigeria.

1.3 Objective of the Study

The study is designed to:

- (a) identify the cultural heritage resources available in cultural heritage institutions
- (b) to determine the extent to which these

cultural heritage resources are digitized in Nigeria.

2.1 Literature Review

Ezenagu (2020) observed that they can be tangible -"expressions of the societies that are living or lived in the area example include landscape, monuments, traditional buildings, archaeological sites, temples, historic cities or intangible-the immaterial cultural expressions and traditions of societies rooted in the cultural values and practices of both past and present generations which includes traditional ways of life, social practices, festivals, music, craftsmanship". These resources are created from the interactions of humans and the environment where he finds himself.

2.2 Efforts at Digitizing Cultural Heritage Information Resources

Rapid progress in use of ICT, web and mobile technologies has significantly boosted the digitization of cultural heritage information resources. Ruthven & Chowdhury (2015) observed that numerous digital libraries and information services on cultural heritage information resources are now available such as the Library of Congress's American Memory collection which is one of the earliest and largest digital libraries of cultural heritage information. It is a digital record of American history and creativity comprising written and spoken words, sound recordings, still and moving images, prints, maps, and sheet music that document the American experience. Similarly, Europeana is a large open-access digital library of cultural heritage information. Europeana is a single access point to millions of books, paintings, films, museum objects and archival records that have been digitized throughout Europe. In Russia, there are efforts to digitize their cultural heritage resources in different partitions such as the National Library, Archives and Museums.

In the National Library, Kim & Malceva (2022) noted that as of June 15, 2022,

the National Electronic Library collection had a total of 5 million artifacts including electronic copies of books, educational and periodical literature, dissertations and abstracts, monographs, patents, notes, and visual and cartographic publications. The Archives has more than 609 million items from the early eleventh century to the present and performs important functions to preserve historical memory, replenish information resources, and provide access to the public. The museum as of 2020, has more than 23 million museum items registered in the national catalog of the museum collection. The catalog is planned to be complete by 2026, when metadata and images of the museum's collection are included in the register and posted online. In Bulgaria, St. Cyril and Methodius National Library owns one of the richest and most valuable collections of varied types of materials - books, manuscripts, periodicals, graphics, and other publications, representing Bulgarian cultural heritage. In South Africa, Pick over as cited by De laPorte & Higgs (2019) Digital Innovation South Africa (DISA), was the first collaborative national digitization project in South Africa. It included several heritage and research stakeholders from government, tertiary institutions, libraries and archives, to make South African material of high socio-political interest accessible online to scholars and researchers worldwide.

2.3 Cultural Heritage Resources in Nigeria

Nigeria is historically and culturally rich, with diverse cultural heritage resources. These are incredible examples of human creativity that can be found in almost every part of the country. Nigeria is a multi ethnic and multi lingual country in Africa. Among other 'minor' ethnic groups, the Igbo to the east, the Yoruba to the west, and the Hausa-Fulani to the north are its three largest ethnic groups. Ezenagu (2020) pointed out that

cultural heritage resources in Nigeria ranges from historic sites, landscapes sites, and built environments to biodiversity, collections, past and present traditions, cultural practices, indigenous knowledge, and technology, as well as the host communities' contemporary life. Amusa (2020) noted that Nigeria has about 29 game reserves, 1129 forest reserves, 4 game sanctuaries, 2 strict nature reserves and 8 national parks. Onyima (2016) added that Oral tradition remains an indispensable cultural heritage management strategy among pre-modern and pre-historic Africans which continues to be relevant in contemporary Nigeria. However there are poor attempts at preserving these cultural heritages which threatens its existence. Ogbu et al, (2020) posits that most of these cultural information resources are available in analogue format especially in developing countries and hence digitization is indispensable.

2.4 Extent of Digitization of Cultural Resources in Public Libraries and Museums

In cultural heritage institutions, it is expected that all services concerning cultural information resources should become accessible to the users on the internet. Todorova (2012) found out that cultural institutions, libraries included, are encouraged to digitize their materials since digitization is an act of reproduction and an act of making a work available to the public. It can also be asserted that cultural resources are yet to be digitized in public libraries and museums in South -East Nigeria. This notion is affirmed by the findings of Onye (2016) which revealed that the available resources in libraries and museums were not maximally positioned for access by students. Students' use of internet shows the need for the library to increase technology and digital information resources to improve the availability and accessibility of information resources for students to utilize other than the ones provided in print format.

On the other hand, Lor and Britz (2012) opined that a new form of cultural heritage is born when the tangible or intangible heritage objects are digitized; and this is commonly referred to as digital cultural heritage or cultural heritage information resources and that cultural heritage information resources may include a wide variety of content, objects and artefacts. A key trend in e-information are diverse specialized tools to access the Internet, but making demands on data processing, transmission of information over the network and its protection. Such means include mobile media, emails and more which is aimed at supporting library services that require a very high level of preservation and management and expertise.

3.1 Research Methodology

The survey design was used to obtain data for the study. The researchers used public libraries and government owned museums in South-East Nigeria for the study. There are forty-one (41) public libraries and seven (7) museums in South East Nigeria (see Table 1 below). The population of the study is 453 participants consisting of 220 Librarians working in public libraries and 233 members of staff working in the museums. The instruments for data collection were an observation checklist and a structured questionnaire. A total of 453 copies of the questionnaire were distributed and 441 copies were returned and found usable by the researchers. Descriptive statistical technique such as mean, percentages and standard deviations were used in analyzing the data.

Table 1: List of Public Libraries and Museums in South-East Nigeria

S/N	State	Number of Public Libraries	Number of Museum
1	Abia	11	2
2	Anambra	13	2
3	Ebonyi	2	1
4	Enugu	5	1
5	Imo	10	1
Total		41	7

4.1 Result and Discussion

4.2 Cultural Heritage Resources Available in Public Libraries and Museums in South-East Nigeria

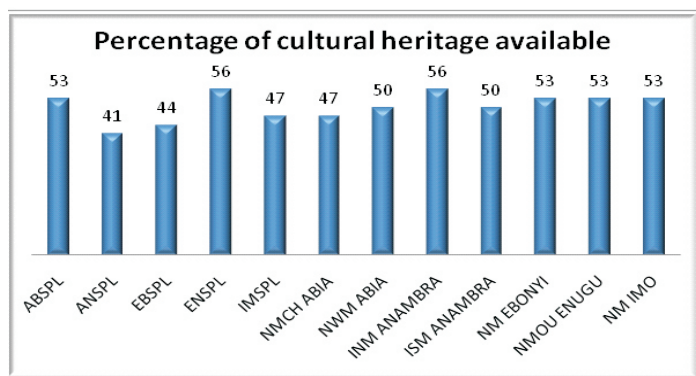


Figure 1: Bar Chart of Cultural Resources Available in Cultural Heritage Institutions in South-East, Nigeria

The result presented in figure 1 above shows that out of thirty-two (32) cultural heritage resources available in cultural heritage institutions mentioned in the study, an aggregate of nineteen (19) representing 60% of the items are available in the public libraries and museums, while thirteen (13) representing 40% of the items listed were not available.

Generally, the researcher's observation showed an impressive availability of cultural resources in cultural heritage institutions in South-East, Nigeria. This corresponds with the assertion made by Onyima (2016) that Nigeria is a country endowed with a lot of cultural heritages sourced from its multicultural communities.

4.2 Extent of Digitization of Cultural Resources in Public Libraries and Museums

Table 2: Mean Ratings of the Extent of Digitization of Cultural Resources in Public Libraries and Museums Cultural Heritage Institutions (Total Number of Items= 33)

	Cultural Heritage institutions				Overall		D
	Library		Museum		Mean	SD	
	Mean	SD (D)	Mean	SD (D)	Mean	SD	
A <i>Sculptural works such as:</i>							
Statue	1.12	.35 VLE	1.49	.58 VLE	1.33	.53	<i>VLE</i>
Stone	1.20	.42 VLE	1.59	.57 LE	1.42	.55	<i>VLE</i>
Wood	1.48	.56 VLE	1.54	.63 LE	1.51	.60	LE
Clay	1.14	.35 VLE	1.34	.59 VLE	1.25	.51	<i>VLE</i>
Sand art	1.13	.34 VLE	1.32	.50 VLE	1.24	.45	<i>VLE</i>
Gold	1.10	.31 VLE	1.17	.38 VLE	1.14	.35	<i>VLE</i>
Ice	1.10	.33 VLE	1.20	.40 LE	1.16	.38	<i>VLE</i>
Bronze	1.12	.35 VLE	1.42	.53 VLE	1.29	.48	<i>VLE</i>
	1.17	.38 <i>VLE</i>	1.38	.52 <i>VLE</i>	1.29	.48	<i>VLE</i>
B <i>Work of artistic craftsmanship such as:</i>							
Painting	2.76	.99 HE	2.40	.88 LE	2.55	.94	HE
Sculpture	1.72	.62 LE	1.81	.46 LE	1.77	.54	LE
Drawing (including a diagram, map, chart or plan)	2.55	.92 HE	2.11	.93 LE	2.30	.95	LE
	2.34	.84 <i>LE</i>	2.11	.76 <i>VLE</i>	2.21	.81	<i>VLE</i>
C <i>Audio resources such as:</i>							
Sound recordings	1.50	.53 LE	1.56	.54 LE	1.53	.54	LE
Musical work	1.54	.60 LE	1.63	.55 LE	1.60	.58	LE
	1.52	.57 <i>LE</i>	1.60	.55 <i>LE</i>	1.57	.56	<i>LE</i>
D <i>Visual Resources such as:</i>							
Visual recordings	2.12	1.00 LE	2.38	.81 LE	2.27	.91	LE
Video films	1.52	.53 <i>LE</i>	1.77	.43 <i>LE</i>	1.66	.49	<i>LE</i>

Photographs.	2.95	.83		2.82	.93	HE	2.88	.89	HE
	HE								
	2.20	.79	LE	2.32	.72	LE	2.27	.76	LE
E Non-literature print resources such as:									
Stone block	1.25	.45		1.38	.52		1.33	.50	VLE
		VLE			VLE				
Mould	1.22	.42		1.33	.53		1.28	.49	VLE
		VLE			VLE				
Matrix	1.26	.46		1.30	.52		1.28	.49	VLE
		VLE			VLE				
Coins	1.32	.50		1.34	.56		1.33	.53	VLE
		VLE			VLE				
	1.26	.46		1.34	.53		1.31	.50	VLE
F Literature resources such as:		VLE			VLE				
Manuscripts	2.50	.52	LE	1.59	.54		1.98	.70	LE
					LE				
Books	2.90	.62	HE	2.23	1.08		2.51	.97	HE
					LE				
Rare books	2.26	.62	LE	1.57	.54		1.87	.67	LE
					LE				
Journals	2.86	.78	HE	2.47	1.08		2.64	.98	HE
					LE				
Magazines	2.74	.74	HE	2.28	1.07		2.48	.97	LE
					LE				
Newspapers	2.68	.77	HE	2.25	1.08		2.43	.98	LE
					LE				
	3.05	.74		2.72	1.03		2.86	.93	HE
Special collection resources such as:		HE			HE				
Collections of eminent scholars of national interest and value	2.28	.70		2.04	.56		2.14	.63	LE
		LE			LE				
Slides	1.90	.47		1.80	.60		1.84	.55	LE
		LE			LE				
Photo documentation work on rock art.	2.18	.95		1.74	.48		1.93	.75	LE
		LE			LE				
Museum	1.82	.57		1.73	.46		1.77	.51	VLE
		VLE			VLE				
Archives	1.64	.61		1.74	.55		1.70	.58	LE
		LE			LE				
Artifacts	2.59	1.04		2.47	1.00		2.52	1.02	HE
		HE			LE				
Monuments	1.87	.42	LE	1.92	.43		1.93	.43	LE
	2.66	.68	HE	2.07	LE		2.32	.88	LE
					.90				
					LE				
Cluster Mean	1.89	.60		1.81	.66		1.84	.66	LE

4.3 Testing of Hypothesis

Ho: 1. There is no significant difference between the mean ratings on the extent of digitization of cultural resources in cultural heritage institutions.

Table 3: An Independent T -test Analysis on the Extent of Digitization of Cultural Resources in Cultural Heritage Institutions

Cultural Heritage Institutions	N	\bar{X}	SD	Df	T	Sign	Decision
LIBRARY	125	2.30	.46	290	1.815	.071	NS
MUSEUM	167	2.21	.42				

5.1 Discussion of Findings

An independent t- test analysis was carried out on the extent of digitization of cultural resources in cultural heritage institutions. This gave a $t(290) = 1.815$, $p > .05$. Hence the null hypothesis of no significant difference between the two variables was accepted. This result indicates that digitization of cultural resources has not been significantly achieved in cultural heritage institutions in South-East, Nigeria.

The findings corroborates Ogbu (2020) who posits that most of these cultural information resources are available in analogue format especially in developing countries. This has implication for the rationale for establishing libraries and museums which is the preservation of cultural heritage for the future generation. It also implies that these valuable cultural resources are prone to disasters like flood, fire, earthquakes, tsunami, natural aging and other factors of deterioration.

Conclusion

Over the past few decades the advent and proliferation of internet technologies have opened up new opportunities for the creation of digital copies of cultural information resources that could be accessed from anywhere in the world without causing

any physical damage to the resources resulting from everyday usage. Cultural heritage institutions such as libraries, museums and archives should leverage on this new technology to facilitate interactive and contextual access to these important information resources of cultural value.

Recommendations

Based on the findings, the following recommendations were made:

1. Most public libraries and museums in Nigeria are now moribund. There is need for government to release adequate funds to cater for the ever increasing needs public libraries and museums in the 21st century.
2. There is an urgent need for the digitization of cultural heritage information resources for effective utilization in cultural heritage institutions in order to forestall impending factors of deterioration.
3. To ensure effective utilization, cultural heritage institutions should beef up their collection through the acquisition more resources that add value to the culture of the people.

References

Amusa, T. (2020). Nigeria's nature reserves need more help to protect biodiversity.

- <https://phys.org/news/2020-04-nigeria-nature-reserves-biodiversity.html> (accessed February 02, 2023).
- De la Porte, B. & Higgs, R. (2019). Challenges in digitization of cultural heritage material in the Western Cape, South Africa. *South African Journal of Information Management*. 21(1), a1104. <https://doi.org/10.4102/sajim.v21i1.1104> (accessed January 22, 2023).
- Dim, C.L. & Osadebe, N.E. (2009). The Role of Public Libraries in the Preservation of Cultural Heritage in Nigeria: Challenges and Strategies. *Journal of Applied Information Science and Technology*, 2009, 3, 46-50 https://www.jaistonline.org/ChibuzoOsadebe_2k09.pdf (accessed February 02, 2023).
- Ezenagu, N. (2020). Heritage resources as a driver for cultural tourism in Nigeria. *Cognate arts and Humanities*. 7(1) <https://doi.org/10.1080/23311983.2020.1734331> (accessed January 22, 2023).
- Kim, H. & Malceva, N. (2022). Digitization of Libraries, Archives, and Museums in Russia. *Information Technology and Libraries*. <https://ejournals.bc.edu/index.php/ital/article/view/13783/11619> (accessed January 22, 2023).
- Lor, P. & Britz, J. (2012). An ethical perspective on political-economic issues in the long-term preservation of digital heritage, *Journal of the American Society for Information science and Technology*. 63(11): 2153-64.
- Ogbu, K.N; Oche, N.A.; Nwachukwu, V. N.; & Batagarawa, S.A. (2020). Effective Management of Cultural Heritage Information Resources: A Comparison Of Libraries And Museums in South East Nigeria. *Library Philosophy and Practice*. <https://digitalcommons.unl.edu/libphilprac/4505> (accessed February 02, 2023).
- Onye, U. (2016). Availability, accessibility and utilization of library information resources by students of the Federal University of Technology, Owerri (FUTO), *Information Technology and Libraries* 6(1); 22-27.
- Onyima, B.N. (2016). Nigerian Cultural Heritage: Preservation, Challenges and Prospects. <http://dx.doi.org/10.4314/og.v12i1.15> (accessed January 22, 2023)
- Ruthven, I & Chowdhury G. G. (2015). *Cultural Heritage Information: Access and Management*. England: Facet Publishing.
- Todorova, T. & Vasileva, R. (2012). *Library, information and cultural heritage management textbook*. SULSIT: Zabu kvite–Opismeneh.
- United Nations Educational, Scientific and Cultural Organization (UNESCO) (2010). *Fundamental Principles of Digitization of Documentary Heritage*. http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/mow/digitization_guidelines_for_web.pdf (accessed February 11, 2023).
- World Intellectual Property Organization (WIPO) (n.d). Intellectual property and traditional cultural expressions/folklore. (accessed February 02, 2023).