

Deterioration of Non-Print Materials in University
Libraries: the Case of North Central

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Abstract

This study analyzed the deterioration of non-print materials in University libraries in North Central Nigeria. It sought to examine the types of non-print materials available in university libraries, causes of deterioration of non-print materials, extent of deterioration of non-print materials in university libraries and the measures for preventing deterioration of non-print materials in the university libraries. Descriptive survey design was used for the study with a population of 467 library staff. The instrument for data collection was structured questionnaire, interview and observation checklist. Data collected was analyzed using descriptive and inferential statistics. Percentages, weighted mean scores and standard deviation were used to answer the research questions. The study found that the type of non print materials available in university libraries in North Central Nigeria were, computers, servers, discs, flash, CD, VCD, DVDs, Digital video camera, CD-ROMs, plasma televisions, tape recorders, cassettes, slides, multi-media projectors. The study equally found that major causes of deterioration of non-print materials in the university libraries under study were poor ventilation, manhandling, exposure to dust, ultraviolet radiation, water, light, lack of proper maintenance, loss of data as a result of system crash and technology obsolescence. Conclusion and recommendations were made based on the research findings.

Keywords: Deterioration, Non-print Materials, University Library

Introduction

Non-print resources consist of information materials and carriers that can be accessed in various formats. These kinds of resources have a wide range of data and significant information as well. According to Udensi (2004), non-print resources have various formats and are carriers of audio visual, cartographical, three dimensional and graphic materials. In addition to books in libraries, non-print resources are also increasingly used. They are continuously arriving at the library collection to the delight of numerous library users. Udensi (2004) further categorized non-print resources generally found in the library to include:

Audio musical & non-musical resources: sound discs, sound cassette, compact discs, reel, and cartridge reel. Electronic resources: floppy disc, CD&DVD ROM. Multimedia resources (Kits): "a collection of several different information carriers. Video & projection resources: slides, transparencies, film, film strip, Videodisc, Video cartridge, Video cassette, microfiche, microfilm.

Library non-print materials according to Ola (2010) are in wide variety of sizes, shapes and formats which often present problems in relation to library storage and access procedures. Some of the materials like Television sets, cassettes, cartridges, and film recordings available in the university libraries can prove heavy and cumbersome for handling, while others like slides, filmstrips and multimedia kits can prove very difficult to organize, shelve and control. Media records quite often, according to Enright as quoted by Ola (2010) have standard laid down rules that are associated with storage and control. The fragile nature of non-print materials exposes them to damages. Osayuwa-Odigie (2010) states that millions of valuable non-print materials are vanishing in university libraries along with countless manuscripts, print photographic, etc Her emphasis was due to the fact that, significant proportions of the non-print materials housed in most libraries today are in poor physical condition, due to both chemical and mechanical instability inherent in their nature and deterioration resulting from improper storage and handling.

The term deterioration is a state of depreciation in value or in quality. Abiodun (2013) defines deterioration as a change of original state of any material by interaction between the object and the factors of destruction. It is therefore the lost of original quality of any library material which decreases its ability to carry out its intended function. If applied to the library, it is a state in which library materials depreciate in value as well as in quality. Materials that may seem suitable for preservation and conservation, storage or display purposes can have serious negative influence on both book and non book collections. They can cause corrosion, discoloration or deterioration of objects, either because they give off harmful vapours or because they are in direct contact with the library resources. These processes of corrosion, discoloration and deterioration are sped up by high temperature and/or high humidity levels (Museums Australia, 2016). Museums Australia (2016) also averred that, magnetic tapes (cassettes, reel-to-reel and computer) which are part of non book materials are affected by magnetic sources, such as catches on doors. Objects made of rubber and modern plastics can be very unstable and are easily affected by plasticizers released by

some wrapping materials (such as PVC bags, sleeves and sheeting). Ozone, which is naturally present in the air and can, also, be generated by electrical machinery, speeds up the deterioration of rubber. Metals can also have an effect on rubber when in direct contact with it. Thus preservation and conservation of non-book materials, some of which are made from plastic materials, can exert an influence on the materials.

According to IFLA (2004), storage conditions for audiovisual and multimedia carriers, which are major parts of non-print materials, require special attention if their preservation is to be saved from having a negative influence on their use. Dirt, dust, polluted air and excessive or changeable temperature and humidity, which can cause damage, should be avoided. The life expectancy of CDs and tapes can be increased if they are stored under controlled temperature and humidity. The carriers should be stored separately, according to their chemical type (e.g. magnetic tapes, 78 rpm, LPs, acetate discs, optical discs), in order to provide well-adapted temperature and humidity, as well as to facilitate extinguishing in case of fire. In addition, magnetic media – such as video and audiotape – should be kept away from magnetic fields. This way, the negative influence of preservation on use and further use will be minimized to the barest. Other materials that suffer reasonable deterioration are CDs and DVDs. To avoid them from negative effects of preservation and conservation, good preservation and conservation practices can be adopted as follows: any marking on the physical carriers must not affect the integrity of the resource itself. For example, the marking of CD or DVD using traditional inks or adhesives should be avoided. Two solutions exist, although neither has yet proved to be entirely reliable: special quick-drying ink or a laser engraver applied to the central blank area of the disc, IFLA (2004). Osifoh (1997) identified dampness, poor ventilation, which can cause mould and fungi attacks on documents, high temperature and humidity, aerosols and noxious gases from polluted air, insect and rodent infestations, as enemies of non-print materials that exert a negative influence on them and reduce their lifespan. He also recognized electronic or electric machinery as enemies to magnetic tape, because they may generate magnetic currents. He recommends that magnetic tapes be stored in cardboard or inert plastic and be rewound at least once a year.

Pollution has been identified as another serious enemy that affects not only library users but library materials and has a negative effect on preservation and use of both print and non-print materials. Adcock (1998) states that, pollution is important to librarians not only because of the physiological effect it has on users, but due to its deteriorating effects on

library materials. Pollution from the atmosphere like common dust, particles of dirt or soot from industrial area settle on books and non book materials and unless the materials are well protected, degradation will set in. In a study conducted by Njeze (2012), the following factors were identified as causing degradation of non-print materials and rendering them either useless or reducing their usability: cracking and scratching of sound disc, distortion of sound quality, fading of the surface blemishes, colour change, loss of data in magnetic media, fungi on the surface disc and deformation of sound disc. Deterioration of the non print materials was also found to be capable of rendering the materials unusable. It was found to be caused by dust particles, high moisture, high humidity and excessive light.

Objectives of the study

The broad objective of this study is to ascertain causes of deterioration of non-print materials in University libraries in Nigeria. The specific objectives include to:

1. Identify the types of non-print materials available in university libraries in North Central Nigeria.
2. Examine the causes of deterioration of non-print materials in the university libraries under study.
3. Ascertain the extent of deterioration of non-print materials in university libraries in North Central Nigeria.
4. Determine strategies for preventing deterioration of non-print materials in the university libraries under study.

Methodology

A descriptive survey design method was used for this study. Questionnaire, check list and interview schedule were used as instruments for data collection. A total of 467 library staff (227 academic librarians and 240 library officers.) in 13 universities in North central states of Nigeria was the population. The study was carried out in the federal and state university libraries situated in North Central Nigeria. The universities consist of University of Agriculture Makurdi and Benue State University in Benue, Kogi State University and Federal University Lokoja in kogi, University of Ilorin and Kwara State University Melete, Nassarawa State University and Federal University in Lafia, Federal University of Technology, Minna and IBB University, Lapai, University of Jos and Plateau state University and University of Abuja .

The entire population of the thirteen university libraries in North Central Nigeria which comprised of 467 professional and para-professional staff was used for the study because of the manageable size of the population. Based on the geographical spread of the population, the researcher made use of research assistants in areas that were far for the administration of questionnaires and collection. Data collected was analyzed using descriptive and inferential statistics. Percentages, weighted mean scores and standard deviation were used to answer the research questions.

Findings and Discussion

Distribution and Return Rate of Questionnaire

Four hundred and sixty seven (467) questionnaires were administered to librarians and library officers in 13 university libraries in North central Nigeria. Out of these, 365 copies (78.16%) were returned and found usable, while 102 copies representing 21.84% were lost or unusable. The distribution and return rate of the questionnaire is shown in the table below.

Table 1: Response rate of questionnaires among the universities

S/ N	Location	University	Number Distributed	Number Returned	Percentage Returned	Number Lost	Percentage Lost
1	Benue	BSU	32	27	84.38%	5	15.62%
		UAM	71	48	67.61%	23	32.39%
2	Kogi	FU Lokoja	12	12	100%	0	0%
		KSUA	30	28	93.33%	2	6.67%
3	Kwara	KWASU	24	18	75%	6	25%
		UniLorin	60	52	86.67%	8	13.33%
4	Nassarawa	FULafia	18	16	88.89%	2	11.11%
		NSUK	22	19	86.36%	3	13.64%
5	Niger	FUTM	64	35	54.69%	29	45.31%
		IBBL	18	16	88.89%	2	11.11%
6	Plateau	UNIJOS	51	45	88.24%	6	11.76%
		PSU	37	31	83.78%	6	16.22%
7	FCT	ABUJA	28	18	64.29%	10	35.71%
Total			467	365		102	

Key: UNILORIN=University of Ilorin; BSU=Benue state University; UNIJOS=university of Jos; KSU=Kogi state university; IBB=IBB university Lapai; KWSU= Kwara State University; PSU=Plateau state university; ABUJA= University of Abuja; FUL= Federal University Lokoja; FUTM= Federal university of Technology

Minna.; UAM=University of Agriculture; Makurdi NSUK=Nasarawa State University Keffi; FUL= Federal University, Lafia.

Table 2: Types of non-print materials available in university libraries in North Central Nigeria

Non print Material	<u>No. of Universities</u>		<u>No. of Universities</u>		R	D
	Available	%	Least available	%		
Laptop	12	92.31	1	7.69	1 st	A
Desktop	12	92.31	1	7.69	2 nd	A
Servers	11	84.62	2	15.38	3 rd	A
CD Rom	11	84.62	2	15.38	4 th	A
Flash	11	84.62	2	15.38	5 th	A
CD	10	76.92	3	23.08	6 th	A
Disc	10	76.92	3	23.08	7 th	A
DVD	9	69.23	4	30.77	8 th	A
Cassette	8	61.54	5	38.46	9 th	A
multimedia projector	8	61.54	5	38.6	10 th	A
VCD	8	61.54	5	35.46	11 th	A
Tape recorder	8	61.54	5	38.46	12 th	A
Plasma TV	7	53.85	6	46.15	11 th	A
Digital video camera	7	53	6	46.15	14 th	A
Micro-paper	1	7.69	12	92.31	15 th	LA
Three dimensional	2	15.38	11	84.62	16 th	LA
Micro-opaque	3	23.08	10	76.92	17 th	LA
Filmstrips	3	23.08	10	71.92	18 th	LA
Slide projector	3	23.08	10	76.92	19 th	LA
Microfiche reader	3	23.08	10	76.92	20 th	LA
Microfiche maker	4	30.77	9	69.23	21 st	LA
Microfilm sheet	4	30.77	9	69.23	22 nd	LA
Micro recording	5	38.46	8	61.54	23 rd	LA
Films	5	38.46	8	61.54	24 th	LA
Ipa/palm tops	5	38.47	8	61.53	25 th	LA
Films	5	38.46	8	61.54	26 th	LA
Flat screen	5	38.46	8	61.54	27 th	LA
Home theatre	6	46.15	7	53.85	28 th	LA
Slides	6	46.15	7	53.85	29 th	LA

The rating of the result presented in table two showed that, lap top and desktop 12(92.31%) servers, flash and CD-Rom 11(64.2%), disc and CDs 10 (76.92), DVD 9 (69.23%), multi-media projectors, VCDS, tape recorders, cassettes with 8(61.54%) digital video camera and

plasma television 7(53.85) are the major types of non-print materials that were indicated available by respondents in university libraries in North central Nigeria. However, it was observed through personal interactions and interview with staff of the university libraries in North Central states that, even though some of the non-print materials such as CD-ROMs, flashes, CDs, and cassettes are said to be available, they are not functional. Overhead projectors, slide projectors, home theatres, film strips, microfiche machines, micro opaque were indicated available but very low as their percentage response was below 50 percent.

Table 3: Mean ratings of respondents on causes of deterioration of non-print materials in university libraries in North Central states.

S/No	Causes	SA	A	D	SD	Mean	SD	R	D
1	Poor Ventilation	137	115	45	68	2.88	1.11	1 st	A
2	Mal handling	127	119	56	63	2.85	1.08	2 nd	A
3	Exposure to water	138	96	60	71	2.82	1.14	3 rd	A
4	Deterioration by ultraviolet radiation	144	87	50	84	2.80	1.19	4 th	A
5	Exposure to dust and air	129	89	83	64	2.78	1.11	5 th	A
6	Exposure to light	138	79	65	83	2.75	1.19	6 th	A
7	Lack of proper maintenance	133	86	65	81	2.74	1.17	7 th	A
8	Fire outbreak	83	147	68	67	2.67	1.02	8 th	A
9	Loss of data as a result of system crash	108	83	90	84	2.59	1.14	9 th	A
10	Loss of data as a result of technology obsolescence	95	96	82	92	2.53	1.13	10 th	A

Key: SA= strongly agree, A= agree, D= disagree, SD= strongly disagree, standard deviation, R- rating, D- decision.

Table 3 shows the mean ratings of the responses of the respondents on all the ten (10) items on causes of deterioration of non-print materials. The causes of deterioration of non-print materials were identified as poor ventilation, mal-handling, exposure to water, dust, ultraviolet radiation, exposure to air, light, lack of proper maintenance, fire outbreak, loss of data as a result of system crash and technological obsolescence. However, the overall mean showed that, poor ventilation (mean = 2.88) is ranked highest as cause of deterioration, Loss of data as a result of technology obsolescence (Mean = 2.53) is ranked lowest as causes of deterioration of non-print materials. The standard deviation values for the ten (10) items for how response of the respondents relate to the causes of deterioration of non-print materials ranged from 1.02 to 1.19 which showed that the respondents were not far from one another in

their responses and that their responses were not far from the mean. In the interview held with the representatives of the heads of university libraries, their responses to the questions by the researcher in the interview were in agreement that, mal-handling, environmental conditions such as high and low humidity, dust, viruses, and poor ventilation are causes of deterioration of non-print materials in university libraries in North Central Nigeria

Table 4: Mean observation on the extent of deterioration of non-print materials.

	Non-print resources.	VGE	GE	LE	VLE	Mean	SD	R	D
1	Computer	95	223	35	12	3.35	.79	1st	GE
2	Over head projectors	100	219	23	23	3.25	.83	2nd	GE
3	Film strips	176	88	80	21	3.15	.96	3rd	GE
4	Severs	192	59	84	30	3.13	1.03	4th	GE
5	CD-ROM	130	92	103	40	2.85	1.03	5th	GE
6	Diskettes	152	77	60	76	2.84	1.18	6th	GE
7	DVD	123	126	36	80	2.80	1.13	7th	GE
8	Slides	122	100	82	61	2.78	1.09	8th	GE
9	Flash	154	59	33	119	2.68	1.31	9th	GE
10	Films	104	90	118	53	2.67	1.04	10^h	GE
11	VCD	93	99	107	66	2.60	1.06	11th	GE
12	CD	84	77	177	27	2.60	.92	12th	GE
13	Transparencies	101	98	66	100	2.55	1.16	13th	GE
14	Multi-media projectors	115	81	54	115	2.54	1.23	14th	GE
15	Television	124	39	101	101	2.51	1.22	15th	GE
16	Microfiche readers	110	61	97	97	2.50	1.18	16th	GE
17	Microforms	84	80	121	78	2.47	1.07	17th	LE
18	Video machines	93	83	61	128	2.39	1.20	18th	LE
19	Radio cassettes	81	90	65	129	2.34	1.17	19th	LE
20	Video cassettes	77	69	121	98	2.34	1.09	20th	VLE
21	Radio set	72	94	77	122	2.32	1.13	21st	VLE
22	Digital video camera	61	42	110	152	2.03	1.10	22nd	VLE

Key=VGE= very great extent, GE= great extent, LE= low extent, VLE, very low extent, SD= standard deviation, R= rating, D= decision.

Table 4 above shows the mean ratings of the respondents on extent of deterioration of non-print materials. Applying the concept of real limit of numbers, the results of the data analysis revealed that, the computer, over head projectors, film strips, servers, CD-ROM, Diskettes, DVD, Slides, Flash, Films, VCD, CD, transparencies, multi-media projectors, televisions and microfiche reader are materials that deteriorate to a great extent. Microforms and video machines deteriorate to a low extent while radio cassettes, video cassettes, radio and digital video camera deteriorated to a very low extent with mean rating of less than 2.5.

Also, the overall mean showed that computers (mean = 3.35) is ranked highest as non-print resources that have the potential of fast deterioration, while digital video camera (Mean 2.03) is ranked lowest with regards to the extent of deterioration of non-print material. In a personal observation by the researcher to see the extent of deterioration, computers, multi-media projectors and cassettes were the non-print materials that were seen to have deteriorated to a great extent.

Table 5: Mean ratings of respondents on measures for preventing deterioration of non-print materials.

SN	Measures	SA	A	D	SD	Mean	SD	R	D
1	proper handling of non-print materials by librarian	173	141	28	20	3.29	.83	1 st	A
2	Provision of conservation laboratories in libraries.	169	118	47	29	3.18	.94	2 nd	A
3	Provision of preservation and conservation of library budget	143	152	42	26	3.14	.88	3 rd	A
4	Provision of incentives to support preservation activities	139	124	71	19	3.09	.90	4 th	A
5	Internally generated revenue should be used for preservation and conservation.	125	126	81	30	2.96	.95	6 th	A
6	proper selection of non-print materials by librarian	135	105	74	46	2.91	1.04	7 th	A
7	Controlling of library climate for storage of non-print resource	102	153	67	38	2.89	.94	8 th	A
8	Provision of grant for preservation and conservation program	135	97	76	52	2.88	1.07	9 th	A
9	There should be preservation unit in the library	114	124	78	49	2.83	1.02	10 ^h	A
10	Provision of facilities /equipment for preservation /conservation practices	105	145	62	53	2.83	1.01	11 th	A

11	Provision of adequate funds to prosecute preservation activities	112	102	98	46	2.78	1.03	13 th	A
12	library staff should be trained on preservation /conservation practices	127	80	88	61	2.77	1.11	14 th	A
13	Employment of preservation and Conservation librarian	63	157	88	57	2.62	.95	16 th	A

Key: SA = strongly agree, A = Agree, D = Disagree, SD = strongly disagree, D= decision.

From the data presented in Table 5, respondents strongly agreed that, proper handling of non-print materials by library staff, provision of conservation laboratories, provision of conservation and preservation of library budgets, and provision of incentives to support preservation and conservation activities are the major measures identified for enhancing preservation and conservation practices of non-print materials with a mean score of 3.09-3.29. Other measures that were indicated agreed by respondents are, use of internally generated revenue for conservation/preservation activities, proper selection of non-print resources by librarians, climate control and provision of adequate funds. Also, the overall mean showed that proper handling of non-print materials by library staff with mean 3.29 is ranked highest as the strategy strongly agreed by respondents. Meanwhile, employment of preservation and conservation librarians with a mean rating of 2.62 though agreed is ranked lowest as strategies for enhancing preservation practices of non-print materials.

The standard deviation values for the thirteen (13) items measures for effective preservation and conservation of non-print materials ranged from 0.83 to 1.11 which showed that the respondents were far from one another in their responses and that their responses were far from the mean. In the interview schedule conducted by the researcher with the representatives of the heads of university libraries in North Central Nigeria, most of those interviewed identified the provision of adequate funds, written preservation policy, training of staff in preservation and conservation as strategies to promote preservation activities in our universities.

Discussion

The first objective of this study was to find out the different types of non-print materials in university libraries in North Central Nigeria. This was done by personal observation by the researcher. The type of non-print materials found to be available in university libraries in North Central Nigeria were, computers, servers, discs, flash, CD, VCD,

DVDs, Digital video camera, CD-ROMs, plasma televisions, tape recorders, cassettes, slides, multi-media projectors. It was however, discovered through personal observation and interactions that some of the materials like CDs, slides, cassettes and even in other cases, computers even though were physically seen to be available in the library, they were not functional. The findings are in line with Nok (2006) who in his investigation of non-print resources found out that, Kashim Ibrahim library has a collection of reasonable numbers of non-book materials and substantial quantity of electronic resources on CD-ROM. He further stated that, there is a rich collection of audio visual materials which are organized and arranged in several sections including reference, media, Africana, documents, serials and general reading area.

It was also revealed that major causes of deterioration of non-print materials in the university libraries under study were discovered to be poor ventilation, manhandling, exposure to dust, ultraviolet radiation, water, light, lack of proper maintenance, loss of data as a result of system crash and technology obsolescence. The findings are in line with Ogunsola and Ikegune (2016) who investigated the causes and factors responsible for deterioration of non-print materials at the University of Ibadan, Obafemi Awolowo University and Ladoke Akintola University. Findings in his study show that, dust, manhandling, lack of proper maintenance and environmental factors are the major causes of deterioration of non-print materials.

The results of the data analysis revealed that, computers, over head projectors, film strips, servers, CD-ROM, diskettes, DVD, Slides, flash, films, VCD, CD, transparencies, Multi-media projectors, Televisions and Microfiche reader are non-print materials that deteriorate to a great extent. Microforms and Video machines were discovered to have deteriorated to a low extent, while Radio cassettes, Video cassettes Radio and Digital video camera deteriorate to a very low extent. In an observation conducted personally by the researcher to observe the level of deterioration in the university libraries under study, it was found that, microfiche, computers, multimedia projectors and CD-ROMs were the non-print materials that deteriorated to a great extent. The researcher observed that, these resources were the most frequently used which is having a heavy toll on them. Again, it was observed that, most of the computers were brought into the libraries by donor agencies as second hand materials whose life span has already expired. Some of the non-print materials such as microfiche, CD-ROMS and overhead projectors in most of the university libraries were out of

use. In the interview conducted with the heads of the libraries, most of them said that, computers, flashes, CDs, cassettes and projectors have deteriorated to a great extent. This finding on the extent of deterioration of non print materials agrees with Njeze (2012) whose findings revealed that, Covenant University accounted for the highest rate of deterioration of non-print materials. Non-print materials that were found to have deteriorated to a great extent are sound disc which distort the sound quality and fades the surface. Findings also revealed that the measures for prevention deterioration of non-print materials as indicated by the respondents are care and handling of non-print materials by staff of the libraries, possession of conservation laboratories by university libraries, provision of preservation and conservation in library budgets, provision of incentives to support preservation activities, provision of security by libraries to avoid theft and mutilation and provision of adequate funds for effective preservation and conservation of non-print materials. The above findings agree with the position of Ekwelen (2011) whose study on “preservation of cultural heritage: the strategic role of library and information science professionals in South East Nigeria” discovered the training of librarians to cope with the sporadic changes in the information networks as a strategy of enhancing preservation practices. This continuous professional training in the art of preservation will make librarians to be conversant with how to preserve and access relevant information. He went further to identify other strategies that can enhance preservation of information materials in academic libraries as the provision of infrastructure. For the library to develop properly, they need not only human but also material resources which will help the library to carry out its operations of preservation. He further states that, adequate funding is needed especially to get the best out from the two other factors (human and material resources). Where adequate fund is provided, training of librarians and equipping of the library will be effectively achieved and this will enhance the whole process of preservation of library materials.

Conclusion and Recommendations

Deterioration of library information materials seems to have affected the quality of teaching, research and publications in every university and every institution of learning depends on the quality of the information sources and services used by the researchers. Deterioration has been found to be the reason why libraries strive to protect their materials. The existence of information in good condition has been found to be one of the underlining concerns of librarians. Academic librarians are supposed to be at the centre of the divide to link the

academic community to the best quality of information through preservation and conservation to avoid early deterioration.

The following recommendations are made based on the findings of the study:

- ✓ University libraries should be encouraged to sustain their acquisition, conservation and preservation of non-print materials. This can be realized via improved funding and participation in consortia arrangements.
- ✓ University libraries in North Central Nigeria should take proactive steps such as preservation and conservation in addressing the problem of poor ventilation, manhandling, exposure to dust, ultraviolet radiation, exposure to water, light, lack of proper maintenance, fire outbreak, loss of data as a result of system crash and technology obsolescence. This can be, by way of organizing workshops and seminars for personnel on the need to adopt practices that will enhance the life span of non-print collections.
- ✓ University libraries in the study are also encouraged to see to it that, Storage conditions for audiovisual and multimedia carriers which are major parts of non-print materials require special attention if their preservation is to be saved from having negative effects on their use.

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