

EFFECT OF ENVIRONMENTAL FACTORS ON PRODUCTIVITY OF ACADEMIC LIBRARIANS IN NIGER STATE, NIGERIA

By

Dr. G. A. Babalola

Department of Library and Information Technology,
Federal University of Technology, Minna Niger State, Nigeria
E-Mail: gaboft7r7@gmail.com, gideonbabalola@futminna.edu.ng
gideonbabalola@rocketmail.com, gabolt@yahoo.com;

M. A. Adeniji

Technical Service Division, University Library,
Olabisi Olabanjo University, Ago Iwoye, Ogun State, Nigeria.
E-mail: mosesdavid20102gmail.com

and

Dr. S. J. Udoudoh

Department of Library and Information Technology,
Federal University of Technology, Minna, Niger State, Nigeria
E-mail: udoudoh_samuel@yahoo.com

Abstract

The study examined effect of environmental factors which are: public power supply, day light radiation and internet accessibility - on the productivity of academic librarians. Survey research design was used. The population for the study comprised 99 academic librarians working in the 12 academic libraries in Niger state. A purposive sampling technique was used to select five (5) out of the 12 academic libraries. Seventy two academic librarians in the five selected academic libraries were used. The purposively selected academic libraries enjoyed better funding and better infrastructural facilities (like internet access and connectively) than the ones than were not selected. The questionnaire instrument tagged "Power Supply Internet Access and Daylight Illumination (PSIADI) was used to collect data for the study. Data were analyzed with simple descriptive statistics of frequency counts and percentages. It was found from the study that public power supply affected the productivity of librarians as majority of them mainly depended on it. Moreover, daylight radiation had negative effect on the productivity of librarians, while internet accessibility affected the productivity of academic librarians. It is recommended amongst of other things that there should be synergy among stake-holders- academic librarians, various library and institutions management in the provision of constant and stable electricity in the institutions used for the study. Moreover, management of various institutions should make the office environment of the librarians conducive as much as possible to optimise their productivity.

Key words: Environmental factors, Productivity of academic librarians, Niger State Nigeria.

Introduction

Environmental factors refer to the things that are found in the surrounding of the academic librarians which could affect their productivity. They could be visible or invisible, living or non-living, physical, technical, or psycho-social in nature. Environmental factors include; human interaction, office furniture, internet connectivity, lighting system, physical surroundings, etcetera. The work environment, according to Opperman (2002) is a composite

of three major sub-environments viz: the technical, the human, and the organizational environment. Technical environment refers to tools, equipment, technological infrastructure and other physical or technical environment. This environment creates elements that enable employees to perform maximally their respective responsibilities and activities.

The human environment refers to peers, others with whom employee relates, team and work groups, interactional issues, leadership and management. Human environment is designed in such a manner that the opportunity to share knowledge and exchange ideas could be enhanced. This is the basis to attain maximum productivity. Organizational environment, includes system, procedures, practices, values and philosophies. Management has control over organizational environment. The study is restricted to what Opperman (2002) depicted as technical environment. The technical environment in the paper refers to public power supply, daylight radiation and internet connectivity and their effect on the productivity of academic librarians in Niger State, Nigeria.

Increased realization for high productivity in Nigeria culminated in the establishment of National Productivity Centre (NPC) with Decree 7 of April 1987, now NPC Act CAP 272 of 1990. It was established as a multi-disciplinary, tripartite, research-oriented federal parastatal, under the supervision of the Federal Ministry of Employment, Labour and Productivity. It was established with the sole aim of improving productivity and instilling productivity consciousness in all sectors of the economy (N.P.C, 2013).

It would be recalled that the Federal Government of Nigeria's economic policy on 'privatization' 'commercialization', 'restructuring', 're-engineering', 'right-sizing', 'downsizing' or 'reformation' of the work force in government establishments in Nigeria is a bold step towards reducing the problem of redundancy, indifference, wastage and low productivity (Ahmed, 2008). In the Information Age characterized by stiff competition and survival of the fittest among firms, issues that border on the productivity of the work force are of major concern to management and employees of most organisations including libraries. Most organisations are now working towards joining forces with High Performing Organizations (HPO) (Ahmed, 2008).

There is no organization that would be willing to be left behind as a Low Performing Organization (LPO). Many organizations are now undergoing changes as a result of Business Process Re-engineering (BPR) (Coping with change, 1997; Henczel, 2002). Even libraries that are traditionally regarded as non-profit and service oriented organizations also have concerns for productivity as they are being called upon constantly to give account of their stewardship (Andrews, 2007).

Productivity of academic librarians is service-oriented. The service could be classified into two major groups namely- intangible and tangible services. The first category of services is un-amenable to quantification. The second category unlike the first could be measured objectively. In the study, therefore, the productivity of academic librarians was measured in terms of the tangible services alone (that is research productivity which includes: on-going researches, number of journal articles published, chapters in books published, number of books reviewed and number of bibliographies compiled)

The productivity of the academic librarians could, however, be a function of the work environment. In other words, the physical facilities in the office of the librarians could serve as determining factors on their productivity. The crux of the study is the effect of physical facilities on the productivity of academic librarians. Part of the physical facilities that could affect the productivity of academic librarians include: public power supply, daylight radiation

and internet connectivity (access). Each of (or a combination of) the listed environmental factors could affect the productivity of the academic librarians.

Public power supply and internet connectivity fall within the technical environment which Opperman (2002) identified. With stable electricity, a librarian could access information materials, type manuscript on the computer system, send research proposals on-line and access the address of editors of journals of repute with ease. Communication that border on types and formats of articles that are acceptable for publication could be made online between authors of articles and editors of various journals. This is also made possible through the powering of an electronic current. Thus, if there is stable power supply in the office of the librarian, accessing, and down loading of relevant electronic materials could be done with much ease. This has the tendency of accentuating the research outputs of librarians. Even if the office of the librarian is connected to the Internet, if there is perennial network problem or the Internet is disabled, the research productivity of the librarians would be badly affected. For the research output of the librarians to receive a boost, the importance of stable power supply and functional Internet services could not be over-emphasised.

Shibanda (2006) reported that Programme for the Enhancement of Research Information (PERI) facilitated access to e-journals in Kenya universities and research institutions. The programme was designed to maximise access to online information and to increase research output of the researchers. He added further that the Kenya librarian and information services consortium (which comprised universities and research institutions) was established to fully maximise the benefits accruable to the utilisation of the e-journal. The consortium subscribes to over 22 online resources and databases globally. The report from Shibanda's discovery affirmed the indispensability of Internet connectivity to the research outputs of the academia. Members of the academia would be able to embark on and execute researches when they enjoy unhindered access to the Internet. In other words, the research outputs of the librarians could reach optimum if such librarians are made to work in a comfortable office with stable power supply and functional Internet services.

Ajayi (1996) remarked that while weighing the impact of: information technology, technology and materials on human activities, the one that has exerted the greatest influence on virtually every aspect of human activities is information technology. Ajayi (1996) opined further that the Internet in particular has been considered to have revolutionised the way people collaborate and communicate through the global services it offers. Such services include: electronic mail, file transfer protocol, Gopher, Wais and Telnet, to mention but a few (Osofiyan, 1996).

Moreover, evidence abounds regarding the impact of Internet services on research activities and other academic exercises in academic communities of developed and industrialised societies of the world. The academic communities of North America, Japan and Europe are becoming increasingly reliant on the use of Information and Communication Technology, particularly, computer and Internet facilities, in promoting research activities for subsequent national development (Udoh, 2001; Ughegbu, 2001; Slabbert, 2006). In Nigeria, for the academia to participate maximally in contemporary international ICT development – in terms of the utilisation of Internet services for teaching and research activities – the academic community must go beyond just the use of e-mail and browsing on the Internet to utilising other packages like e-workshop, e-conference and e-learning opportunities which can facilitate, speed up and improve the quality and quantity of teaching and research activities (Okafor, Imhonopi and Urim, 2011).

Furthermore, in an investigative study carried out in South-Western Nigeria, Okafor, Imhonopi and Urim (2011) found a positive correlation between the publications output of the respondents and Internet services. Their findings revealed that the advent of Internet services and tools increased the volume of respondents research output. The study revealed that the utilisation of Internet services aided the respondents to publish their works (54.3%), to attend conferences (61.6%) and to improve both the quality of their teaching (74.2%) and the quality of their research output (79.1%). Furthermore, respondents recorded an improved research output in terms of books, chapters in books, monographs and journal articles from when they began to use Internet services compared to their research output prior to the implementation of computers and Internet services at their institutions.

For respondents who had more than 12 publications, chapters in books rose from 0.4% to 0.78%; technical reports and monographs rose from 0.2% to 8.2%; refereed conference proceedings rose from 0.5% to 18.4%; journal articles rose from 30.4% to 54.3%; while the number of conferences attended also increased from 20.5% to 61.6%. In fact, 74.2% of the respondents admitted they relied more on Internet materials for the pursuit of their research publications, conference notifications and for teaching and career advancement generally. The afore-stated phenomenal upsurge in publications output of academia from the findings of Okafor, Imhonopi and Urim was attributed to the use of Internet services, tools and technologies.

Natural illumination that comes through daylight could equally affect the productivity of academic librarians. Daylight which is a vital natural resource creates a pleasant visual environment, increases alertness and a feeling of well being which could stimulate employee's productivity. When the individual well-being is enhanced, the mood, performance, attitude and the overall progress in academics would also improve. Daylight has better light quality than electric lighting in terms of distribution, colour rendering and modeling and is more appropriate for performing visual tasks. Ramanathan (2010) reported the academic benefits of day lighting and found that students in day lit schools had higher mathematics and calculative ability when compared with the scores of the children who studied in an artificially lit environment. At the day lit Durant Road Middle School in North Carolina, the teachers who worked for more than a year affirmed that they feel better mentally and physically because of the day lit environment Ramanathan (2010) added that a strong association exists between the amount of daylight and students behaviour when ranked for sociability and concentration.

In a literature study on the impact of daylight the agency, National Renewable Energy Laboratory of the United States Government had identified the following. With properly installed and maintained day lighting systems, natural light has proved to be beneficial for the health, productivity and safety of building occupants. Natural light helps maintain good health and can cure some medical ailments. The pleasant environment created by natural light decreases stress levels for office workers. Productivity increases with the improved health of workers and with better productivity comes financial benefits for employees. Students also perform better with natural light. Across the nation, studies have shown students in day lit rooms achieve higher test scores than students in windowless or poorly lit classrooms (Edwards, Torcellini, 2002).

The perennial public power failures coupled with its epileptic supply are teething problems confronting any move towards development and advancement in Nigeria. Except the office of the academic librarians are given special consideration power failure could constitute a serious threat to their productivity. Moreover, if the internet facilities are disabled,

the productivity of the librarians could be adversely affected. The office space, the ventilation and the amount of natural illumination that the office of the librarians receive could as well affect their productivity. If the office is not spacious with little or no natural illumination, the productivity of the librarians could suffer some set back (Ramanathan, 2010).

Statement of the Problem

Academic libraries are established to provide literature support for teaching, learning and research for the members of the academia. The librarians are the human factors that are saddled with the responsibility of rendering these services. They are supposed to be highly productive. It has been established that many academic librarians are not productive (Adomi, and Mordi, 2003). The low productivity of some of the librarians could be as a result of unfavourable environmental conditions which include: erratic power supply, absence of internet access or presence of disabled internet facilities, poor natural illumination, and poor ventilation. Therefore, the research examined the effect of public power supply, internet access and daylight illumination on the productivity of academic librarians in Niger State, Nigeria.

Objectives of the Study

The main objective of the study is to examine the influence of environmental factors on the productivity of academic librarians in Niger State, Nigeria. The specific objectives are to:

- i. determine the effect of public power supply on the productivity of academic librarians in Niger State;
- ii. ascertain the effect of internet connectivity on the productivity of academic librarians in Niger State; and
- iii. ascertain the impact of daylight radiation on the productivity of academic librarians in Niger State.

Research Questions

To achieve the fore going objectives, the following research questions were answered:

- i. What is the effect of public power supply on the productivity of academic librarians in Niger State?
- ii. What is the effect of internet connectivity on the productivity of academic librarians in Niger State?
- iii. What is the impact of daylight radiation on the productivity of academic librarians as in Niger State?

Scope of the Study

The study covered only the academic librarians that are found in universities, polytechnics and colleges of educations in Niger State. Only five (5) academic libraries were purposively selected for the study. The study as well covered the effect of public power supply, internet connectivity and daylight radiation on the productivity (research output) of these academic librarians.

Research Methodology and Population of the Study

The research design used for the study was survey. The total population comprised 99 academic librarians that were found in the 12 academic libraries in Niger State. Non-probabilistic purposive sampling techniques was used to select five out of the 12 academic libraries in Niger State. Seventy two (72) academic librarians that were found in the five selected academic libraries were used for the study (see Table1). The purposively selected academic libraries are all federal institutions with the exception of Ibrahim Babangida University, Lapai. Purposive sampling was used to select the affected institution libraries as a result of a preliminary investigation that was carried out by the researchers on the status of academic libraries in Niger State. Part of the preliminary investigation revealed that the purposively selected libraries enjoyed better funding and were better off in terms of infrastructural facilities such as internet access and connectivity than the libraries that were not selected for the study. Such factors (better funding and better infrastructural facilities) could affect positively the productivity of librarians in the purposively selected academic libraries.

Table 1: List of Academic Libraries Used for the Study

S/n	List of Academic Libraries	No. of Academic Libraries
1	Federal University of Technology, Minna	31
2	Ibrahim Badamasi Babagida University, Lapai	11
3	Federal Polytechnic, Bida	10
4	Federal College of Education, Kontagora	11
5	Federal College of Wild-life Management, New-Bussa	8
	Total	72

The researcher-constructed questionnaire instrument tagged Power Supply Internet Access and Daylight Illumination (PSIADI) was used to collect data for the study. The instrument is divided into four parts namely A - D. Part A elicited demographic information from the respondents. Seven items are contained. Part B has four items and it elicited information on the effect of public power supply on the productivity of librarians. Part C elicited information on the effect of daylight radiation on the productivity of librarians. It has five items. Part D has Six items. It elicited information on the effect of internet connectivity and accessibility on the productivity of librarians.

The researchers personally went to each of the purposively selected academic libraries to distribute the instrument to the librarians. The researchers went back at the end of two weeks to collect the data gathering instrument. Data were analyzed with simple descriptive statistics of frequency counts and percentages.

Data Presentation and Analysis

Out of 72 copies of the questionnaire administered, only 67 (93.1%) were duly filled and returned. The data are presented in descriptive tabular format as follows:

Table 2: Effect of Public Power Supply on Productivity (Research Output) of Academic Librarians

S/n-	Statements	No. of Respondents	Percentage
1	Incessant power outage has resulted in my low research output	50	74.6
2	My research work is mainly dependent on public power supply	59	88.1
3	It is imperative for me to acquire personal generator soonest	53	79.1
4	The intensity and constancy of public power supply in Niger State is ideal for my research work.	10	14.9

From Table 2, majority (59;88.1%) of the respondents indicated that their research work is mainly dependent on public power supply while 10 (14.9%) respondents affirmed that the intensity and constancy of public power supply is ideal for their research work.

Table 3: Degree of Public Power Outages Experienced on Research Work.

S/n	No. of hours of power outage experienced per week	Frequency	Percentage
1	1-3	0	0
2	4-6	3	4.5
3	7-9	5	7.5
4	10 and above	59	88.1

Table 3 revealed that majority of the respondents (59;88.1%) experienced more than 10 hours of public power outages per week which affected their research output adversely.

Table 4: Types of Backup Used for Public Power Outages

S/n.	Types of power backup equipment	Frequency	Percentage
1	Generator	57	85.1
2	Uninterrupted Power Supply	40	59.7
3	Both	12	17.9

In Table 4, majority (57;85.1%) relied solely on generator as alternative source of power supply while only 12 (17.9%) used both generator and UPS as backups to forestall incessant power outages.

Table 5: Level of Research Operations Powered by Backup Equipment

S/n	Level of research operations powered by backup equipment	Frequency	Percentage
1	1-20%	59	88.1
2	21-40%	8	11.9
3	41-60%	0	0
4	61-80%	0	0
5	81-100	0	0

In Table 5, majority (59;88.1%) of the respondents indicated that the proportion of their research work powered by backup equipment is between 1-20%. There was no single respondent for 41-60%, 61-80% and 81-100% backup for research equipment against public power failure.

Table 6: Effect of Daylight Radiation on Research Output of Academic Librarians

S/n	Effect of daylight radiation on research output	SA	A	D	SD
1	Day light radiation is too bright, too strong and has adverse effect on my research tasks	48(71.6%)	12 (17.9)	7(10.4%)	—
2	Daylight radiation is too dim for the research that I do	—	6(9.0%)	16 (23.9%)	45(67.1%)
3	Reflections from daylight fixtures have been hindering my research work	30(44.8%)	32 (47.8)	5(7.5%)	—
4	The intensity of light from sun has been affecting my skin adversely	33(49.3%)	31 (46.3%)	3(4.5%)	—
5	I depend so much on natural illumination from daylight radiation for most of my research work	10(14.9%)	10 (14.9%)	40 (59.7%)	7(10.4%)

From Table 6, majority of the respondents 60 (89.6%) indicated that daylight radiation is too bright, too strong for their research tasks. However, 42 (62.7%) respondents equivocally affirmed that they have been depending so much on natural illumination from daylight radiation to do most of their research work

Table 7: Internet Connectivity and Accessibility

S/n	Extent of connectivity and accessibility	SA	A	D	SD
1	The internet services and facilities in my office are disabled	5 (7.0%)	6 (9.1%)	15 (22.4%)	41 (61.2%)
2	There is functional internet connectivity and accessibility in my office	47 (70.1%)	16 (23.9%)	2 (3.0%)	2 (3.0%)
3	The internet facilities in my office is plagued with constant system breakdown	4 (6.0%)	5 (7.0%)	20 (29.9%)	38 (56.7%)

Table 7 revealed that majority (63;94%) of the respondents have functional internet connectivity and accessibility in their various offices while few respondents (11;16.4%) indicated that the internet facilities in their offices are disabled.

Table 8: Effects of Internet Services on the Productivity of Academic Librarians

S/N	Effect of internet services on productivity	SA	A	D	SD
1	My publications in peer reviewed journals/conference proceedings/workshops have increased by more than 5% between 2010-2012 due to internet connectivity and accessibility	51 (76.1%)	4 (6.0%)	10 (14.9%)	2 (3.0%)
2	I published at least two(2) international papers in the past three years (2010-2012) due to internet access	20 (29.8%)	20 (29.8%)	20 (29.8%)	7 (10.5%)
3	Internet connectivity has not impacted positively on my research productivity in the past three years (2010-2012)	4 (6.0%)	15 (22.4%)	18 (26.9%)	30 (44.8%)

In Table 8, majority (55;76.7%) respondents indicated that their research output in the past three years (2010-2012) has increased by more than 5% due to the use of internet facilities. However, 19(23%) respondents affirmed that internet connectivity has not impacted positively on their research productivity in the past three years (2010-2012)

Discussion of Findings

Findings from the research reveal that public power supply is a source of serious concern to academic librarians in Niger State. Only 10 (14.9%) affirmed that the present public

power supply in the state is ideal for their research work. Fifty (74.6%) respondents indicated that incessant power output has resulted in their low research output. If the research output (productivity) of the academic librarians is to be maximized the hands of all stakeholders – librarians, library management, institution management must be on deck in ensuring the provision of stable, constant and steady electricity in the library. With stable electricity, librarians could do more work. They could download materials from the internet in form of e-books and e-journals. They could as well send out articles on-line for publication.

Incessant and constant power outages are counter productivity as they are capable of slowing down the speed of the librarians in their research productivity strides. While it is true that majority of the respondents made use of alternative sources of power like generators and UPS as backup for their research work, it is not out of place to state categorically that generators and UPS could not be used for a very long period. Generators are not only expensive to maintain but also environmental unfriendly. Other alternative energy sources like solar power may be researched into and used in the various libraries surveyed as they are more economical and environmental friendly. Though majority of librarians relied mainly on public power supply for their research, the incessant power outages eventually forced them to look out for alternative sources of power to maintain their research tempo. This is in agreement with findings of many researchers. Findings of some researchers have authenticated and established the indispensability of daylight radiation to research output in the academia. (Lindsten, 1992, Nicklas and Bailey, 1997, National Renewable Energy Laboratory, 2002., Ramanathan, 2010).

Finding from the study, is however, at variance with the earlier finding because majority of the respondents indicated that daylight radiation is too bright, too strong and has adverse effect on their research assignments (Table 6). It should be added that the intensity of heat and power from the sun in northern part of Nigeria where Niger State falls into cannot be compared with many of the southern states of Nigeria such as Cross River, Anambra, Oyo etcetera. Therefore, natural illumination from sunlight might make the academic librarians to be productive if the heat from the sun does not have negative consequence on their skin and general comfort.

It is obvious from the study that Internet services impacted positively on the research output of academic librarians. Fifty-five (76.7%) indicated that access to internet services have made their publications to increase by more than 5% between 2010 and 2012. These findings corroborated the findings of Ajayi, (1996), Udoh (2001), Ugheghu (2001), Slabbert (2006), Okafor, Imhonopi and Urim (2011). However, if the productivity of academic librarians would reach optimum all disabled internet services should be made to function optimally.

Conclusion

It is apposite to conclude the study as follows. Environmental factors which include public power supply, daylight radiation and Internet accessibility affected positively the productivity of academic librarians in Niger State, Nigeria. Majority of the academic librarians depended solely on public power supply for their research output.

Alternative sources of power like generators and UPS were rarely used. Moreover, daylight radiation had negative consequence on the productivity of the academic librarians. Finally, Internet connectivity and accessibility affected positively the productivity of majority of librarians sampled for the study.

Recommendations

In line with the study, the following recommendations are made

- i. There should be synergy among the stakeholders: academic librarians, various library management, various institutions management and the government on the possibility of supplying and sustaining radiant, stable and uninterrupted public power supply in all the academic institutions sampled especially in the libraries. If this is done, it would in all probability result to cumulative positive increase in the productivity of the academic librarians.
- ii. As research cum academic institutions, the various institutions in this study could go into research in area like bio-technology with the view of providing alternative power source from biological waste and sun. Solar power has been found to be environmental friendly and economical too, compared with other sources of power like, coal, oil, gas etcetera (Tyagi, Rahim, Rahim, Jeyraj, Selvara, 2013).
- iii. The library management and the authorities of all the institutions sampled should try as much as possible to make the office environment conducive for the librarians, to mitigate the effect of excessive scorching heat from sun. The offices of librarians should be well-furnished with good and heat-mitigating window blind. Moreover, functional air conditioners should be provided in all offices.
- iv. It is strongly recommended that functional internet services with their associated gadgets and facilities be provided in all offices of librarians to enhance their productivity.

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