

Research Article

Periscoping the Relationship between Motivation Factors and Measures of Productivity for Librarians in Federal Health-based Institutes in Abuja, Nigeria

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Abstract This study was carried out in seven Nigerian health-based institutes with the aim of finding out the relationship existing between motivation factors available and measures of productivity applied for rating Librarians in the population studied. A descriptive survey design approach was taken to study a population of 18 Librarians in the seven establishments (out of this number, 17 (94.4%) were actually used). Questionnaire was the research tool used to collect data which were presented in tables and analyzed using descriptive statistics. The Pearson Product Moment Correlation coefficient (r) method was applied to determine the relationship while hypothesis was tested with t-statistics at 0.05 probability level. Results show that a positively significant relationship (P>0.05), r (0.97) exists between motivation factors available and measures of productivity applied for Librarians in these centres. The key motivation factors identified are job security, recognition of status, career advancement opportunity et cetera. Major measures of productivity identified were seminar papers, journal article publication, technical reports and abstracts/bibliography and these cut across all the centres. The study showed that there were differences in the application of measures of productivity within the institutes.

Keywords Health Facilities-Nigeria; Health Research; Information-Health; Librarians; Motivation Factor; Productivity-Measures

1. Background

There are two common motivational stands that have kept great men and people going in whatever task before them. These are (i) that until one is moved, nothing moves for him because no man becomes except he begins; and (ii) that until there is a willing attitude, there would not be a winning altitude. These stands seem to come in play on issues concerning demand for motivation and performance (productivity) in the Nigerian civil service where this study is geographically focused. The Nigerian civil service is composed of staff of various disciplines including Librarians. And these are employees who have received professional training on the administration and management of Library and Information Services and Sources.

Upon appointment, a Librarian is expected to grow from the beginning rank of Librarian II (equivalent of a Graduate Assistant in a University) through Director of Library and Information Services (the peak of the profession in civil service); however there may be differences in nomenclature in various institutes. In between the ranks, s/he is expected to grow or be promoted with some evidence of productivity from the job schedule (FMOH-NIPRD, 2010). To provide evidences of productivity, civil service personnel in Nigeria in addition to their inner wills, do most times demand for some motivational packages as enabling media. What is not known is the measure of willingness of individual staff to be productive.

Be this as it may, motivation as for Rabey (2001) encompasses an internalized drive that is more dominant in an individual at a given moment. It is believed that it cannot be prompted for one by another but an enabling environment could only be created to aid that person's realization of himself by making a choice to respond to his inner motivation. Request for motivation factors in reality, go beyond enabling environment and this may be what the civil service staff in Nigeria craves for. All the same, it is a global knowledge according to Rabey (2001) that motivation is a critical factor for consideration in all human productive endeavours whether it is internal (coming from oneself) or external (influence by other external factors). This work is concerned with the external factors that bring about motivation and which encourages productivity.

Productivity as used here is the inert achievement of rapid, sustainable as well as measurable improvements in operations. In his doctoral thesis, Ugwuona (2013), described productivity with reference to research productivity as the gain or the output obtainable for the use of certain input in a research process. In most government establishments over the globe, productivity is seen as a key factor for growth and achievement and consequently it is considered a dependent factor for allocation of resources by many authorities in Nigeria.

In this study therefore, focus is on federal health-based institutes in Abuja, Nigeria as listed in the Nigerian Institutional Directory (2014). These include: (1) Federal Medical Centre (FMC) Abuja-Established in year 2012 as Federal Staff Hospital to cater for the provision of tertiary health care for Nigerians and other clients registered with the hospital. It is located at the Jabi – Airport Road in Idu Industrial Area axis of Abuja with about 950 staff strength of which two are Librarians. The Chief Medical Director is Dr. C.I. Igwilo; (2) Gwagwalada Specialist Hospital (GSH). Also known as University Of Abuja Teaching Hospital, was instituted in 1994 as Specialist Hospital and later became the University of Abuja Teaching Hospital, headed today by Dr. P. Alabi and located at the Specialist Hospital Road in Gwagwalada, Abuja. It provides special and tertiary health care to Abuja residents and other states around the federal capital territory in addition to its teaching hospital role. There are four Librarians in a staff population of over 4000; (3) Institute of Human Virology Nigeria (IHVN) -This was established in 2004 via the assistance of the Institute of Human Virology in Baltimore, USA to address the HIV/AIDS crises in Nigeria through development of infrastructure for treatment, care, prevention and support for people living with and those affected by HIV/AIDS, Cancer, Tuberculosis, Malaria and other diseases. It is located at Plot 252 Herbert Macaulay Way in the Central Business District. The Executive Director is Dr. Alash'le G. Abimiku. The Centre has 415 staff at present of which one is a Librarian; (4) National Biotechnology Development Agency (NABDA) Abuja: Established in 2001 to promote and coordinate Biotechnology Research and Development processes and products that would respond to national aspirations on food security, affordable health care, job and wealth creation. The Director is Prof. Lucy Ogbadu. It is located near Trade Fair Complex in Lugbe, along Airport Road Abuja. It has staff strength of 948 with three Librarians; (5) National Food and Drug Administration and Control (NAFDAC) - Established by Decree 15 of 1993 which had undergone amendments in 1999 and 2004. The institute has the mandate to regulate and control the manufacture, importation, exportation, distribution, advertisement, sale and use of foods, drugs, cosmetics, chemicals, detergents and medical devices in order to safeguard the public health of the nation. The Director General/Chief Executive Officer is Dr. Paul B. Orhii. The Head Office is on Plot

2032, Olusegun Obasanjo Way, Zone 7, Wuse District. The organization has 2,239 staff strength with one Librarian. (6) **National Hospital Abuja (NHA)** Formerly National Hospital for Women and Children - This Centre was created by Act 36 of 1991 and opened in October, 1999 to cater for the needs of women and children in Nigeria and West African sub region with a view to reducing morbidity and mortality rates and to carry out research into peculiar causes of women and children related disease in Africa. It is located along the Independence Avenue of the Central Business District of Abuja. It has over 3000 staff members with four Librarians (one of them, a Youth Corps member at the period of this research) The Chief Medical Director is Dr. J.A.F. Momoh; (7) **National Institute for Pharmaceutical Research and Development (NIPRD)** - The institute was established in 1989 as a result of an agreement between the Federal Government of Nigeria and the Pharmaceuticals Manufacturers' Group of the Manufacturers' Association of Nigeria (PMG-MAN). The institute has interest in drugs' development and formulary but also runs a clinic for patients within the environs. It has about 296 staff strength including four Librarians (one out of this number is on sabbatical at this period). It is located in Plot 678/690 at the Phase II of the Idu Industrial Area, Abuja. The Director General/Chief Executive Officer is Prof. K.S. Gamaniel.

All these institutes as described above have civil servants in their employ and in various disciplines including Librarianship. The order of placement and promotion requirements for Librarians in them is similar. What could be different is the sort of motivation applied and the yardstick for rating the productivity of staff therein. Although Card (2006), insists that there is no international standards on productivity measure; Monir and Keith (2002) and Argyris, (2005) have shown some pertinent measures for assessing productivity especially in either academic or core research environment. Some important ones include the number of faculty members, number of publications- books and journal articles, journal impact factor, registered patents, citation counts, number of products on shelf et cetera. On the other hand, Chaudhary and Sharma (2012) had presented different factors that could generally be helpful in motivating employees to be productive. Some of these are recognition of status, organizational climate, career advancement opportunity, job enrichment, employee recognition programmes, job security, employees' participation, employees' empowerment and work tools availability. This article is not looking at identifying these factors again rather it is a study with different objectives and mindset.

2. Statement of the Problem

It is known as an age long practice that the reason for motivating employees is primarily to enhance productivity. However there is still an unattended gap in Library and Information Science research about identifying the relationship existing between the motivation factors and measures of productivity. Put in a question form, this study intends to know "how does motivation factors relate with measures of productivity in the population chosen?" Thus in order to fill this research gap, the paper attempts to discover the existing relationship between the two variables (as they are applied for Librarians), in the seven federal health-based institutes in Abuja, Nigeria.

3. Purpose of the Study

The purpose of this study is to determine the relationship existing between motivation factors and measures of productivity for Librarians in the federal health-based institutes in Abuja, Nigeria. Specific objectives are: To find out the key motivation factor/s encouraging Librarians productivity in these institutes; To determine if there could be other ways to better motivate Librarians other than the existing forms; To discover the main measures of productivity for Librarians in the population; and to determine if there are differences in the measures of productivity applied in the institutes under study.

4. Research Questions

The following questions were advanced for the study.

- 1. What relationship exists between motivation factors and productivity indices in these healthbased institutes?
- 2. What are the key motivating factors for librarians in these study centres?
- 3. Are there other different ways by which librarians in this population could be motivated?
- 4. What could be the major measure of productivity used to rate librarians in these health facilities?
- 5. Are there differences in the application of the measures of productivity in these institutes?

5. The Null Hypothesis

There is no significant relationship between motivation factors and productivity indices in the federal health-based institutes in Nigeria.

Alternative hypothesis (H_a): There is significant relationship between motivation factors and productivity indices in the federal health-based institutes in Nigeria.

6. Significance of the Study

This study would directly add to existing literature on motivation and productivity especially in the area of health-based institutes in the country and will serve as a template to the need for employee motivation. The result will aid both employers and the employed in decision-making with regards to demands for external motivation packages and as well, expected performance of employees who are being motivated. The result will be relevant to human resources managers.

7. Scope of the Study

This study is primarily concerned with the health-based institutes established and funded by the federal government of Nigeria, which provide health care services to citizens of the country. The content scope is limited to motivation factors, measures of productivity used for librarians and the relationship between the two variables; motivation factors and productivity indices.

8. Literature Review

There are few literature sources bearing relevance to studies on relationship between motivation factors and measures of productivity across the globe but particularly in Nigeria. Some of the available literature has presented so many theories from which four classified factors were identified to drive impact on productivity of employees. Lawrence and Jordan (2009) recorded these four classified motivation drives as (1) the inbuilt need that seeks to be identified with great achievements (2) the need to be affiliated to strong and powerful individual (3) the need to gain dominance and (4) the need to be autonomous. Upon these drives however, it was noted that people have very different interpretation of motivation and the strategies that are employed to achieve it.

In the Nigerian Civil Service regulations as exemplified in NIPRD (2010) Scheme/ Conditions of Service, motivation programmes were not explicitly spelt out except for salaries, promotion guidelines and training schedules. In contrast to this provision, Levoy (2009) in his proposal, advocated for ecofriendly policies which are not easily found within the Service system of Nigeria rather bureaucratic policies are readily available. As for Levoy (2009), the later would incidentally de-motivate the employee who would like to (as a result), spend little effort on the job; avoid the work place and exit the organization at any given opportunity. This effect of poor motivational packages in the service scheme is corroborated by the work done by Anyaoku (2016) where she found that fair remuneration, lack of training and retraining, provision for job performance and equal rights issues were major areas of dissatisfaction amongst Librarians in a study of demographic determinants of quality of work life of Librarians in Nigeria.

Another empirical study on the motivation factors of employees in Nigeria by Aworemi, Abdul-Azeez and Durowoju (2011) found that good working condition; interesting work and good salary would motivate employees to be highly productive. The study proposed that job enrichment, job enlargement, promotions, internal and external stipends, monetary and non-monetary compensations for employees were necessary to encouraging their loyalty and productivity. From the other part of the globe, studies on the need for motivation factors in propelling productivity of the employees have also been carried out in the United States by Jerry (2012) and in Kuwait by Jarkas and Radosavljevic (2013). Their studies show that payment delay, lack of financial incentives, low budget, extent of change orders, poor information, unrealistic scheduling, poor supervision and shortage of materials are all de-motivating factors that could cause low productivity in work places.

Thus far, in this review of literature, the gap still exist of the knowledge of the relationship between motivating factors and productivity indices which the present study seeks to address.

9. Methodology

This work is presented as a descriptive survey design. The population of the study comprises 18 Librarians employed in the seven federal health-based institutes in Abuja, Nigeria. Questionnaire was used to collect data. Questionnaire item/s that appeared in Likert scale (where applicable) had fourpoint weight and a criterion mean of 2.5. Decision was taken as accepted or rejected based on the value when compared with the criterion mean. Returned questionnaire were 17 (94.4%) and these were used for the study. The researcher used the descriptive statistics for analyses and presented results in tables. Data obtained from the open-ended questionnaire items were analyzed to form opinion/s which they represent. The Pearson Products Moment Correlation Coefficient was applied in discussing relationship existing between the two variables as sought in research question one. The null hypothesis was tested using t-statistics at 0.05 level of probability.

10. Presentation of Results

Research question 1; sought to discover the relationship between motivation factors and measures of productivity in the population studied. This is shown in the tables below as derived from the raw data (see appendices). In so doing, the mean values of motivation factors (X) in the aggregated **Table 1** is correlated against mean values of measures of productivity (Y) in **Table 2**. The correlation values are shown in **Table 3** and Numbers 1-9 in this table are the representative numbers standing for both items in motivation factors (X) and measures of productivity (Y).

S/n	Motivation factors	NIPRD	NAFDAC	NABDA	FMC	GSH	IHVN	NHA	Total	Mean
		(4)	(1)	(3)	(2)	(3)	(1)	(3)	(17)	(X)
1	Recognition of Status	13	03	07	07	09	03	08	50	2.9
2	Good organizational climate	10	03	06	06	10	03	08	46	2.7
3	Career advancement	12	03	08	05	09	02	08	47	2.8
4	opportunities	10	03	07	06	08	02	07	43	2.5
5	Job enrichment	08	03	05	04	08	02	03	33	1.9
	Employee recognition									
6	programmes Job security	14	03	08	06	10	03	07	51	3.0

Table 1: Aggregated motivation factors as available in the seven Health-based institutes

7		08	03	07	04	07	02	05	36	2.1
	Employee's	09	03	05	04	08	02	08	39	2.3
8	participation in all decisions	12	03	07	06	08	03	07	46	2.7
9	Staff empowerment Availability of work tools									

Table 2: Aggregated measures of productivity as applied in the seven Health-based institutes

S/n	Productivity indicator	NIPRD	NAFDAC	NABDA	FMC	GSH	IHVN	NHA	Total	Mean
		(4)	(1)	(3)	(2)	(3)	(1)	(3)	(17)	(Y)
1	Journal publication	16	01	05	06	05	03	06	42	2.5
2	Main line book publication	12	01	05	04	05	03	06	36	2.1
	Book chapter contribution									
3	Technical reports	10	01	05	04	08	03	06	37	2.2
4	Conference papers	11	01	05	06	08	03	08	42	2.5
5	Seminar papers	11	01	05	04	07	03	09	40	2.4
6	Abstracts/Bibliographies	14	01	05	04	09	03	08	44	2.6
7	Patents	12	01	05	08	08	03	06	43	2.5
8	Supervision of higher	10	01	05	04	06	02	06	34	2.0
9	degrees	11	01	05	04	07	02	08	38	2.2

Table 3: Correlation between motivation factors (X) per librarian and measure of productivity (Y) per librarian in the population

ltem rep. no	Motivation factor mean (X)	Productivity indicator mean (Y)	X ²	Y ²	ХҮ
1	2.9	2.5	8.41	6.25	7.25
2	2.7	2.1	7.29	4.41	5.67
3	2.8	2.2	7.84	4.84	6.16
4	2.5	2.5	6.25	6.25	6.25
5	1.9	2.4	3.61	5.76	4.56
6	3.0	2.6	9.00	6.76	7.80
7	2.1	2.5	4.41	6.25	5.25
8	2.3	2.0	5.29	4.00	4.60
9	2.7	2.2	7.29	4.84	5.94
	∑X= 22.9	∑Y= 21.0	∑X ² = 59.4	∑Y ² = 49.4	∑XY= 53.5

From Table 3 above and using Pearson Product Moment Correlation (PPMC) formula;

r = N∑XY - ∑X∑Y/ $\sqrt{(N∑X^2 - (∑X)^2(N∑Y^2) - (∑Y)^2)}$, the correlation coefficient r, is calculated wherein ∑X= 22.9, ∑Y= 21.0, ∑X²= 59.4, ∑Y²= 49.4 and ∑XY= 53.5 Thus, r = 17x53.5- 22.9x21.0/ $\sqrt{(17x59.4 - (22.9)^2 x (17x49.4) - (21.0)^2}$ = 909.5 - 480.9/ $\sqrt{(1009.8 - 524.41)(839.8 - 441.0)}$ = $\sqrt{485.4x398.8}$ = $\sqrt{193577.5}$ = 440 r = 428.6/440 = 0.97 r = 0.97

10.1. Testing the Hypothesis

The Alternative hypothesis (H_a) was stated as: There is significant relationship between motivation factors and productivity indices in the federal health-based institutes in Nigeria. Now Table 4 was established to show the test for this statement.

Table 4: T- statistics for the significance of the relationship between motivation factors and measures of productivity in the study population

Correlation coefficient (r)	t-cal	N	Df (N-2)	t-critical	Decision
0.97	15.3	17	15	1.8	H _a is accepted

From formula t= $r\sqrt{n-2/1-r^2}$; where n = 17 and r = 0.97. Then, t = $0.97\sqrt{15/1-(0.97)^2} = 0.97\sqrt{15/1-0.94} = 0.97\sqrt{15/0.06} = 0.97 = 0.97x \sqrt{250}$ t = $0.97 \times 15.8 = 15.3$ t_{.05} 15 = 1.8 t_{calculated} > t_{critical} hence, the test is positively significant (t_{cal} =15.3 > t_{critical} = 1.8)

Research question 2 intended to discover the key motivating factors for Librarians in the study population. **Table 1** gave insight to the answer as six motivation factors were found to have values equal or above the criterion mean. These factors are job security (3.0); recognition of status (2.9); career advancement opportunity (2.8); good organizational climate (2.7); availability of work tools (2.7) and job enrichment (2.5) in that order.

For **research question 3**, opinions presented by respondents show that the majority did not include other different ways to motivate Librarians. However, responses from NIPRD and IHVN Abuja pointed to the fact that instant promotion of staff as at when due and direct involvement of the institute's authority in footing the bill for conferences, workshops and seminars attended by the staff could be a lead-way.

In response to **research question 4**, reference is made to **Table 2**. Here, the major measures of productivity used in rating Librarians in the population were established. These are seminar papers (2.6); journal publication (2.5); technical reports (2.5) and abstracts/bibliographies (2.5). This table presented aggregated measures of productivity and only these four had values equal or above the criterion mean of 2.5.

Finally for **research question 5** which sought to find out differences in the application of these measures of productivity within the seven institutes studied, the following table is considered.

Productivity indicator	NIPR		NAFDA		NABD		FMC		GS		IHV		NHA	
	D	Х	С	Х	А	Х	(2)	Х	Н	Х	Ν	Х	(3)	Х
	(4)		(1)		(3)				(3)		(1)			
Journal publication	16	4.0	01	1.0	05	1.7	06	3.0	05	1.7	03	3.0	06	2.0
Main line book publication	12	3.0	01	1.0	05	1.7	04	2.0	05	1.7	03	3.0	06	2.0
Book chapter contribution	10	2.5	01	1.0	05	1.7	04	2.0	08	2.7	03	3.0	06	2.0
Technical reports	11	2.8	01	1.0	05	1.7	06	3.0	08	2.7	03	3.0	08	2.7
Conference papers	11	2.8	01	1.0	05	1.7	04	2.0	07	2.3	03	3.0	09	3.0
Seminar papers	14	3.5	01	1.0	05	1.7	04	2.0	09	3.0	03	3.0	08	2.7
Abstracts/Bibliographies	12	3.0	01	1.0	05	1.7	08	4.0	08	2.7	03	3.0	06	2.0
Patents	10	2.5	01	1.0	05	1.7	04	2.0	06	2.0	02	2.0	06	2.0
Supervision of higher degrees	11	2.8	01	1.0	05	1.7	04	2.0	07	2.3	02	2.0	08	2.7

Table 5: Mean responses on measures of productivity used for Librarians per institute under study

From Table 5 above, the following differences could be established.

In NIPRD, all the measures of productivity are in application because their criterion mean equaled or exceeded 2.5; in NAFDAC and NABDA, none of the productivity measure is applicable; in the FMC, only three measures are applied in the following order (Abstracts/Bibliographies, Journal publication and Technical reports); in GSH, four of the measures are applied in the order of Seminar papers, Book chapter contribution, Technical reports and Abstracts/Bibliographies; In IHVN, all but Patents and Supervision of higher degrees are applicable to Librarians while in NHA, four measures also apply in the order of Conference papers, Technical reports, Seminar papers and Supervision of higher degrees.

11. Discussion of Results

From the preliminary information gathered from the institutes and staff covered by this study, findings show that the number of Librarians employed in the Nigerian health-based institutes in Abuja, the Federal Capital Territory of Nigeria is grossly inadequate. This is because only 18 out of over 11, 848 staff members in seven institutes are Librarians. With this number, it is clear that health information synthesis and dissemination could be in its poorest state. And if this is so in Nigeria, what could be the fate of other African nations, particularly the Sub Saharan region?

Considering the research questions, results provided in Tables 1 through 3 were vital in determining the correlation coefficient (r) for the two variables which were motivation factors and productivity indices. The value of r (0.97) gave rise to the calculated t-value of 15.3 which was found to be more than the t-critical value of 1.8 thus, the relationship existing between the variables was very positively significant therefore, the working hypothesis (H_a) was accepted. This result supports the old age administrative strategy of motivating employees in order to ensure high productivity. It also upheld the findings of the study by Aworemi, Abdul-Azeez and Durowoju (2011) who found that good working conditions, incentives and financial inducements could motivate employees to be highly productive.

This work also found (Table 1) that the key motivating factors for Librarians in the population studied were job security, recognition of status, career advancement opportunities, good organizational climate, availability of work tools and job enrichment. Reasons behind these options were not given but one could attest to the fact that because of highly restricted job opportunities in the country of over 170 million people coupled with economic hardship and poor recognition of and attention to Librarianship profession, these motivating factors became pre-eminent. Although the conditions of service for the civil servants in the country captured some motivating factors, very few establishments follow such rules religiously. Probably, this informs why respondents choose to emphasize more on promotions and short - term trainings through workshops and seminars when asked to suggest other motivating factors of their choice. This finding seems to corroborate that of Anyaoku (2016) who opined that Librarians in Nigeria are not satisfied with some motivational packages like trainings, remunerations, job performance, commendations and equal right issues.

In determining the major measures of productivity as applied in the population, the study found that four of them were common amongst the seven establishments. These were seminar papers, journal articles, technical reports and abstracts/bibliographies (see Table 2). Sequel to the proposition made by Argyris (2005), that though measures of productivity could vary according to institutions, the well-known ones may include publications in peer reviewed journals (especially in an academic environment), products on shelf, number of registered patents et cetera. Considering the findings here, it means that measures of productivity applied for Librarians in the population under study are within the acceptable standard. However, a good number of the conventional measures were not applicable in most of the centres like NAFDAC, GSH, NHA, NABDA and FMC. This could be because GSH, FMC and NHA are run for pure hospitals services while NAFDAC is a regulatory health agency

and NABDA has not really established a Library after fifteen years of existence (2001 to January 2016, when this study was carried out) and despite having three Librarians in its employ. These Librarians work as administrative staff and are treated as such since their recruitment.

Finally, the differences in application of the measures of productivity in these institutes could be attributed to the fact that NIPRD and IHVN (where all the factors were nearly applied) are pure health research centres and the other institutes are not. In addition to this, each of the institutes has autonomy of decisions and actions as a government agency. Because of this autonomy, each could dictate what happens to its staff welfare and advancement without recourse to the Federal Civil Service regulations. One curious difference noted was the issue of supervision of higher degrees as accepted in NHA. As a hospital, it is not common to have Librarians in such establishment judged with this factor. And this is considered as part of the limitation recorded during data collection.

12. Conclusion

The study on 'periscoping the relationship between motivation factors and measures of productivity in federal health-based institutes in Abuja Nigeria has revealed much in the practice of Library and Information Science in the country. In concluding this study therefore, the following statements are presented.

- The inadequacy of Librarians in the health sector studied calls for concern. Government attention is highly needed to address the anomaly even as the World Health Organization is interested and committed to enabling easy access to health information for all in the 21st century.
- 2) Since the relationship of the two variables was found positively significant, effort should be enhanced in the provision of reward systems for Librarians in the civil service of all the three tiers of government in Nigeria and a legislative back-up put in place to ensure its even implementation.
- 3) All the three tiers of government should provide policies that could also enable the privately owned establishments to put in place, reward systems for Librarians which could project the same motivating factors enjoyed by government employees.
- 4) Measures of productivity as contained in the Civil Service regulations for any given profession should be evenly applied to all employees in such profession. This action would eliminate disparities within cadres operating in the same government employ.
- 5) Establishment of Libraries that could support research should be a first part priority for running a research institute because this would encourage documentation and access to research information and results.

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