MANAGEMENT OF AVAILABLE INFRASTRUCTURAL FACILITIES AND STUDENTS' ACADEMIC ACHIEVEMENT IN BORNO STATE COLLEGES OF EDUCATION IN NIGERIA

Mohammed, A. Siqqid
Department of Sience Education
Federal University of Technology, Yola, Adamawa State, Nigeria

Grema Ali Dapshima
Department of Chemistry
College of Education, Science and Technology, Bama, Borno State, Nigeria
Email: Dapshigreali@yahoo.c om

ABSTRACT

The main purpose of this study was to examine management of available infrastructural facilities and students' academic achievement in Borno State Colleges of Education. The survey research design was employed for the study, covering an accessible population of 487 academic staff. The sample size of the study was 195 academic staff randomly selected from the population. These are academic staff from three Colleges of Education with sample sizes of 67, 76 and 52 respectively. Also results of students' academic achievement for the period of five years (2004/2005 - 2008/ 2009 academic sessions) was used in five courses; Biology, Chemistry, Mathematics, Physics and Integrated Science. The data collected through questionnaire and documentary evidence of results were analyzed using mean, standard deviation and Pearson correlation. The reliability coefficient of the instrument was established as 0.92 and this was considered high enough to accept the homogeneity of the instrument. The study revealed that there was fairly adequate management of available infrastructural facilities in the colleges and there is significant relationship between management of available infrastructural facilities and students' academic achievement. Based on these findings, it was recommended, among other things that the Borno state Government should improve it management/provision of infrastructural facilities in these colleges of education.

Keywords: *Management, infrastructure, facilities, academic achievement, Students*

INTRODUCTION

Management of educational resources is a process of making prudent utilization and control/maintenance of available scarce educational resources in order to achieve academic performance of the students. Management acts as an objective function that ought to be grounded in the responsibility for performance. Management is a set of activities which can be classified as concerned with planning, organizing and controlling. It acts as an art or an act of managing an organization. Management acts as the manner of directing or using anything in the act of management (Babalola and Ayeni, 2009).

Furthermore, academic achievement essentially applies to what an individual can do within a specified criterion domain. Ebel (1979) defines academic achievement as the assessment of outcome of formal instruction in a cognitive domain within defined subject matter that is explicitly taught. Ebel stresses that this instruction is expected to produce observable changes in behaviors of those who are being instructed. Both Ebel (1979) and Uba (1987) believed that academic achievement is the current measure of performance as a yardstick.

The concept of management began with employee managers when a man first employed others to work for him for various reasons. According to Humphries in Babalola, Ayeni, Adedeji, Suleiman and Arikewuyo (2006), at the beginning of management, employer-employee relationship was that of master-servant. Educational management is an applied concept that derives from industrial and business management. Nevertheless, educational management is uniquely different from industrial management, owing to the labour-oriented and child-centered nature of the education industry. In resource management, good educational managers must carefully and effectively handle educational resources (men, money, material and machines including computers, teaching technology and internet facilities) put under their custody (Babalola et al, 2006). Infrastructure/facilities management would involve forecasting, planning, budgeting, organizing, utilizing as well as replenishing infrastructure and facilities in order for these resources to continuously meet the purpose. For they were in the first instance harnessed together (Babalola and Ayeni, 2009).

Infrastructural facilities are the physical things that facilitate teaching and learning in schools. It includes the laboratories, libraries, workshops, classrooms and equipment. These are the related infrastructure significant for learning to take place in academic environment for achievement. The objectives of these infrastructures are to arouse the learner's interest to full participation (Abdul, 1987). Resource management in education is by far one of the most important aspects of education process and should be given great priority if the school system is to be effectively and adequately managed to meet the yearnings and aspirations of the learners and the society at large. Furthermore, in order to improve the management of resources in education, trusted and efficient men and women should be employed into institutions for the purpose of proper implementation of objectives for our educational systems.

Also, qualified, experienced and endowed persons should be controlling and managing the affairs of the educational institutions so as to utilize the scarce educational resources efficiently and effectively. It is against this background that this study is to examine the relationship between management of available infrastructural facilities and students' academic achievement in Borno State colleges of education. The study was guided by the research question: Is there any relationship between management of available

infrastructural facilities and students' academic achievement in Borno state colleges of education? In response to the above question, it was tentatively assumed that: there is no significant relationship between management of available infrastructural facilities and students' academic achievement in Borno State Colleges of Education.

METHODOLOGY

The study employed a survey method. The population of this study comprises all the academic staff in the three Colleges of Education in Borno State. In this study, simple random sampling was used and 40% of the population was considered as the sample size. According to Nwana (1981), if a population reaches one hundred or more, then 40% of the population should be selected. Borno State has nine tertiary institutions out of them three are Colleges of Education namely; College of Education, Science and Technology, Bama, which is located in North-Eastern part of Borno; Kashim Ibrahim College of Education, Maiduguri is located in Borno Central and College of Education, Waka-Biu is located in Southern part of Borno. These are the study areas are represented by sample size of 67, 76 and 52 respectively.

Two instruments were used in collecting data. the first was self developed questionnaire entitled: Management of Available Infrastructural Facilities and Academic Achievement Questionnaire (MAIFAAQ). The questionnaire containing 10 items was concerned with the management of available infrastructural facilities in relation to academic achievement. The categories of responses were provided with 5 point rating Likert-type scale as given on weight, thus: Strongly Agree (SA) = 5; Agree (A) = 4; Undecided (U) = 3; Disagree (D); and Strongly Disagree (DA) = 1 respectively. The split-half co-efficient of the scale was found to be 0.85.

Any item that yielded a mean of above 3.50 was regarded as agree, items yielding a mean of 2.50 was regarded as undecided and any mean below 2.50 was regarded as disagree (Olagunye & Awoyokun in Dapshima, 2010). Result Collection Format (RCF) was used to obtain the final year National Certificate in Education (NCE) results of students from 2004/2005 to 2008/2009 sessions in Biology, Chemistry, Physics, Mathematics and Integrated Science of the three colleges of education were obtained from various academic offices for verification. The expected academic performance of each was coded as follows:
National Certificate in Education (NCE)

Distinction	=	A	4.50-5.00	70% and above
Credit	=	B	3.50-4.49	60%-69%
Merit	=	C	2.40-3.49	50%-59%
Pass	=	D	1.50-2.39	45%-49%
Lower pass	=	E	1.00-1.49	40%-44%
Fail	=	F	0.00-0.99	39% and below

This is in accordance with laid down standard of the National Commission for Colleges of Education (NCCE). For detail see Appendices A, B and C. For this study, decision on null hypothesis (Ho_1) depends on the level of relationship between two variables at 0.05 level of significance. The level of relationship for the test either can be negligible, low, moderate or high by the Pearson correlation (r). Correlation Coefficient (r) could reveal both the magnitude and direction of relationship between the variables. This means that a correlation coefficient could be high or low, positive or negative. A high correlation coefficient indicates a greater degree of relationship while a low correlation coefficient indicates a small degree of relationship. A positive coefficient indicates a direct relationship, that is, as one variable increases, the other also increases. A negative coefficient indicates an inverse relationship i.e. as one variable increases, the other decrease. When the correlation coefficient is zero, we say that there is no relationship between the variables (Hopkins and Glass, 1989).

RESULTS AND DISCUSSION

Table 1 shows that 1 item rated above 3.50 by academic staff. This suggests that there is laboratories for all science courses and are effectively used. But other 9 items with mean rated below 3.50 by academic staff indicates that no enough library in the colleges, infrastructure in the colleges are not up to standard and also there is no available infrastructure in the colleges which are properly used, no enough lecture halls, no office accommodation, no any maintenance, any control and supervision of available infrastructure in the colleges of education in Borno state and affect students' academic achievement.

Table 2 shows that there is a moderately strong positive correlation between management of available infrastructural facilities and students' academic achievement in Borno state college of education. This implies that there is moderately high positive relationship between management of available infrastructural facilities and students' academic achievement in Borno state colleges of education. Since the correlation is high (0.80) this indicates that a change in one variable is associated with the change of similar, but not equal degree in the other according to Hopkins and glass (1989).

The findings of the study are discussed in relation to the issue raised in the research question and hypothesis. The issue is the management of available infrastructural facilities in relation to students' academic achievement in Borno state colleges of education. The findings of the study revealed that there is no proper management of available infrastructure by the three groups of respondents, which were rated disagrees (table 1). This implies that available infrastructural facilities in the colleges are not properly managed. And hence affect academic achievement in the colleges. Also based on the hypothesis tested shows that there is a moderately strong positive correlation between

management of available infrastructural facilities and students' academic achievement in Borno state college of education. This implies that there is moderately high positive relationship between management of available infrastructural facilities and students' academic achievement in Borno state colleges of education.

Hence there is urgent need to make infrastructural facilities available in the colleges of education, and to be properly managed and to maintain the standard of these facilities in order to enhance academic achievement. The finding of this study is in line with Ojo (1998) who noted that the availability and adequacy in quantity and quality of these facilities promote effective teaching activities in schools. While their inadequate affect academic achievement negatively. For effective and smooth management of these colleges to be achieved, infrastructural facilities must be provided adequately and managed by the government.

CONCLUDING REMARKS

Based on these empirical findings, the following suggestions were made to improve the students' academic achievement in colleges of education. The Borno State Government should improve the management of available infrastructural facilities in the colleges of education, and also there is need to maintain, control and utilize properly the available infrastructural facilities in the colleges to facilitate academic activities. Borno State Ministry of Education should equip its monitoring unit for effective supervision and management of the colleges of education available infrastructural facilities and other resources.

Borno State Government should provide more infrastructural facilities to the colleges of education. The study established the fact that management of available infrastructural facilities in colleges of education have been found less effective and have fairly affect academic achievement in the colleges of education in Borno State. And also there is significant relationship between management of available infrastructural facilities and students' academic achievement in Borno State colleges of education, based on the research question and hypothesis tested using mean, standard deviation and Pearson correlation.

Table 1: Mean Rating of Academic Staff on Management of Available Facilities in Relation to Students' Academic Achievement in COE Bama, Maiduguri and Waka-Biu.

Management of available infrastructure in relation to students' academic achievement.	X_1 n=67	X_2 n=76	X_3 n=52	GX N=195	SD	Remark
Your college has labs for all science courses effectively used to enhance academic achievement	4.21	3.93	4.30	4.20	0.1931	Agree
Your college lecture halls are enough for students	2.79	3.10	2.85	2.91	0.1140	Disagree
There is enough library in your college to enhance academic achievement	2.87	2.80	2.94	2.87	0.1086	Disagree
Conditions of infrastructure in your college are good to enhanced academic achievement	2.77	2.68	2.75	2.73	0.0469	Disagree

There is adequate maintenance of available infrastructure in the college	1.72	2.74	2.85	2.43	0.3078	Disagree
The available infrastructural facilities in your college are properly maintained to enhance academic achievement	2.60	2.57	2.30	2.49	0.1652	Disagree
There is adequate provision of office accommodation in the college to enhance academic achievement	2.72	2.63	2.75	2.70	0.0624	Disagree
Infrastructural facilities are adequately provided to enhanced academic achievement	2.90	2.43	2.87	2.73	0.0264	Disagree
Infrastructural facilities in your college are up to standard to enhance academic achievement	2.45	2.43	2.40	2.43	0.3059	Disagree
The available infrastructural facilities in your college are properly utilize to enhance academic achievement	3.34	2.20	3.44	2.99	0.6689	Disagree

Source: Survey 2010

N/B: X_1 = Mean Rating for Academic Staff in Bama; X_2 = Mean Rating for Academic Staff in Maiduguri; X_3 = Mean Rating for Academic Staff in Waka-Biu; n = Number of Sampled Academic Staff in each College; N = Total Number of Sampled Academic Staff, Gx = Grand Mean Total SD = Standard Deviation

Table 2: Summary of Pearson Correletion between Management of Infrastructural Facilities and Students' Academic Achievement in Colleges of Education Bama, Maiduguri and Waka-Biu.

Variables	Number	Means	S D	r	Relationship
MAIFR	195	2.92	1.05	0.80*	High
SAAR	195	2.90	0.84		

Source: Survey 2010

* Significant at 0.05 level. *MAIFR: Management of Available Infrastructure Facilities Rating*
SAAR: Student Academic Achievement Rating

Table 3: Number of Students admitted and thosegraduated in five departments of College of Education, Science and Technology, Bama between 2004 and 2009

Year	Dept	SA	SG	Dist	Credit	Merit	Pass	LP	Fail	%G	%F
04/05	Bio.	222	98	00	25	47	25	01	124	44.1	55.9
	Chem.	44	24	02	08	10	04	00	20	54.5	45.5
	Physics	38	14	00	02	08	04	00	24	36.8	63.2
	Maths	29	25	00	08	12	05	00	04	86.2	13.8
	Inter Sc.	35	32	00	12	13	06	01	03	91.4	8.6
05/06	Bio.	292	178	00	52	99	26	01	114	61	39
	Chem.	65	46	04	20	16	06	00	19	70.8	29.2
	Physics	32	27	00	04	17	06	00	05	4.48	15.6
	Maths	35	30	01	10	09	10	00	05	85.7	14.3
	Inter Sc	39	30	02	10	17	01	00	09	77	23
06/07	Bio.	107	90	00	10	57	22	01	17	84.1	15.9
	Chem.	59	20	01	03	07	09	00	39	33.9	66.1
	Physics	21	17	01	05	03	08	00	04	81	19
	Maths	66	31	01	15	11	04	00	35	47	53
	Inter Sc	33	30	00	07	17	06	00	03	91	9
07/08	Bio.	133	115	03	32	60	20	00	18	86.5	13.5
	Chem.	84	69	08	19	31	10	01	15	82.1	17.9
	Physics	18	16	00	01	13	02	00	02	89	11
	Maths	61	46	06	18	15	07	00	15	75.4	24.6
	Inter Sc	51	38	02	09	22	05	00	13	75.5	25.5
08/09	Bio.	138	51	01	11	30	09	00	87	37	63
	Chem.	40	21	01	05	11	04	00	19	52.5	47.5
	Physics	33	14	02	05	06	01	00	19	42.4	57.6
	Maths	46	38	05	09	20	04	00	08	82.6	17.4
	Inter Sc	84	20	04	07	07	02	00	64	23.8	76.2
Total		1806	1121	45	307	558	206	05	685		

Source: Survey 2010/Academic office, Record Department College of Education, Science and Technology, Bama

Table 4: Number of Students Admitted and those Graduated in Five Departments of Kashim Ibrahim College of Education, Maiduguri between 2004 an 2009

Year	Dept	SA	SG	Dist	Credit	Merit	Pass	LP	Fail	%G	%F
04/05	Bio.	80	58	05	03	08	17	25	22	72.5	27.5
	Chem.	49	23	01	04	07	04	07	26	46.9	53.1
	Physics	08	02	00	01	01	00	00	06	25	75
	Maths	20	07	01	02	01	02	01	13	35	65
	Inter Sc.	25	20	01	05	07	05	02	05	80	20
05/06	Bio.	74	46	03	04	14	18	07	28	62.2	37.8
	Chem.	57	33	02	05	10	13	03	24	57.9	42.1
	Physics	26	17	01	03	06	05	02	09	65.4	34.6
	Maths	56	32	00	02	11	16	03	24	57.1	42.9
	Inter Sc	23	16	01	03	04	04	04	07	69.6	30.4
06/07	Bio.	98	13	01	02	09	01	00	85	13.3	86.7
	Chem.	41	05	00	00	00	03	02	36	12.2	87.8
	Physics	20	04	00	00	03	01	00	16	20	80
	Maths	57	04	00	00	02	02	00	53	7.0	93.0
	Inter Sc	21	10	01	04	03	02	00	11	47.6	52.4
07/08	Bio.	101	29	01	08	18	02	00	72	28.7	71.3
	Chem.	35	13	00	02	09	02	00	22	37.1	62.9
	Physics	17	02	00	01	01	00	00	15	11.8	88.2
	Maths	47	11	01	03	03	04	00	36	23.4	76.6
	Inter Sc	19	15	00	07	03	05	00	04	79	21
08/09	Bio.	122	22	00	08	06	08	00	100	18	82
	Chem.	44	13	00	04	07	02	00	31	30	70
	Physics	12	02	00	01	01	00	00	10	16.7	83.3
	Maths	34	06	00	02	02	02	00	28	17.6	82.4
	Inter Sc	16	13	00	01	07	04	01	03	81.3	18.7
Total		1102	416	19	75	143	122	57	686		

Source: Survey 2010/Academic office, Record Department Kashim Ibrahim College of Education Maiduguri.

Table 5: Number of Students Admitted and those Graduated in Five Departments of College of Education, Waka-Biu between 2004 and 2009

Year	Dept	SA	SG	Dist	Credit	Merit	Pass	LP	Fail	%G	%F
04/05	Bio.	81	49	00	04	32	13	00	32	60.5	39.5
	Chem.	28	14	00	04	07	02	01	14	50	50
	Physics	13	06	01	00	06	00	00	07	46.2	53.8
	Maths	15	07	00	02	05	00	00	08	46.7	53.3
	Inter Sc.	18	10	00	01	06	02	01	08	55.6	44.4
05/06	Bio.	134	76	00	13	44	19	00	58	56.7	43.3
	Chem.	77	35	01	10	16	07	01	42	45.5	54.5
	Physics	42	14	00	03	08	02	01	28	33.3	66.7
	Maths	44	15	00	03	08	03	01	29	34.1	65.9
	Inter Sc	48	20	00	03	10	05	02	28	41.7	58.3
06/07	Bio.	216	172	01	20	87	63	01	44	79.6	20.4
	Chem.	33	20	01	08	07	04	00	13	60.6	39.4
	Physics	44	32	00	03	15	12	02	12	72.7	27.3
	Maths	30	07	01	02	03	01	00	23	23.3	76.7
	Inter Sc	50	31	01	02	07	18	03	19	62	38
07/08	Bio.	134	134	02	21	67	42	02	00	100	00
	Chem.	34	25	00	07	04	11	03	09	73.5	26.5
	Physics	22	15	01	02	06	05	01	07	68.2	31.8
	Maths	34	16	01	02	06	07	00	18	47.1	52.9
	Inter Sc	35	21	02	01	07	06	05	14	60	40
08/09	Bio.	213	187	01	30	89		02	26	87.8	12.2
	Chem.	61	41	01	03	24	12	01	20	67.2	32.8
	Physics	23	06	01	00	02	02	01	17	26.1	73.9
	Maths	47	26	01	02	10	06	07	21	55.3	44.7
	Inter Sc	42	23	01	03	06	11	02	19	54.8	45.2
Total		1520	1004	17	149	482	318	38	516		

Source: Survey 2010/Academic office, Record Department College of Education Waka-Biu

REFERENCES

Abdu, H. B. (1987). Factors affecting students' performance in science subjects in school certificate examination. (Unpublished Ph.D. Thesis A.B.U. Zaria).

Babalola, J. B., Ayeni,A. O., Adedeji, S. O., Suleiman, A. A. and Arikewuyo, M. O. (2006). *Educational Management. Thoughts and Practice*. Ibadan: Codat Publication.

Babalola, J. B. and **Ayeni, A. O.** (2009). *Educational Management. Theories and Tasks.* Lagos: Macmillan Ltd.

Dapshima, G. A. (2010). Management of Educational Resources and Students' Academic Achievement in Borno State Colleges of Education", Unpublished M.Ed. Dissertation, University of Technology, Yola, Adamawa.

Ebel, R. L. (1979). *Essentials of Educational Measurements.* 3rd Edition. Englewood Cliffs, New Jersey: Prentices Hall.

Hopkins, K. D. and **Glass, G. V.** (1989). *Statistical Methods in Education and Psychology* (2nd Edition). New Jersey: Prentice - Hall.

Nwana, O. C. (1981). *Introduction to Educational Research for Students and Teachers.* Ibadan: Heinemann Educational Books Ltd.

Ojo, F. (1998). *Human Resource Management. Theory and Practice.* Lagos: Pana Publishing.

Uba, N. J. I. (1987). Internal and external assessment of educational achievement at 14+ Anambra State. A Comparative Study. (Unpublished M.Ed. Dissertation).