



Investigation of some factors affecting the performances of chemistry teachers in senior secondary schools in Yola North Adamawa State, Nigeria

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Abstract

This project examined some factors affecting the performances of chemistry teachers in senior secondary schools in Yola North LGA Adamawa State. The project exposes the relevance of paper qualification with teacher performance, the importance of integrating instructional materials and its increasing influence on teacher's performance. The study shows that instructional material is too important to both the teacher and students in teaching and learning of chemistry. In achieving standard long-lasting learning outcome, the teacher performance is vital and motivational system available to chemistry teachers affect their performances. In conclusion, paper qualification, the used of instructional materials and motivation system available to chemistry teachers in senior secondary schools greatly affect their performances.

Keywords: Performance, factors, paper qualification, instructional materials and motivation system.

Introduction

A step from home, the school is the most important place for students to learn and develop their educational and social competencies. Teachers play pivotal roles in providing education to the students, the performances of the teacher directly affect the students. Every school strives to recruit good and qualified teaching staff that can deliver quality education to its students. Only highly qualified and committed teaching staff or teachers can fruitage effective results by producing effective and efficient students, who can contribute to their country in the future¹. Therefore, it is crucial for schools to be mindful of those factors affecting the performances of the teachers, since only qualified and dedicated teachers can give best education to the students. Thus, for the quality of education the performance of teachers matters a lot.

Teachers paper qualification: Despite the fact that Government has invested a lot of educational policy guiding paper certification, there are some persistent problems in our secondary schools. The shortage of qualified teacher was prompted out in many of our secondary schools particularly in the rural community².

This invariably affect the use of instructional materials in the teaching-learning activities. Also, the students' population may be much such that its perturb the teaching and learning condition. Above all, an incompetent teacher who lacks the

pedagogical skills may not be able to utilize the available instructional materials effectively even when the population is moderate.

Survey conducted on Biological Science teaching in secondary schools in Nigeria. The study was confined to the nine states outside the war zones. The survey was designed to examine certain critical aspects of Biological Science teaching in secondary schools, both the teachers, support facilities and equipment, text book, chemicals, prepared slides, community resources and incentive to teachers was studied. He arrived at the following conclusions: That a large number of teachers are untrained and that there is alarming turn-out of teachers at different schools for a better job³. Also, it was commented that if any sciences are to be taught well, it should be taught practically, hence the need for certification for effective teaching, within and outside the laboratory/classroom speaks about the performance of the teacher⁴. In view of the above, it is, therefore, important to evaluate once again if there has been any significant relation between teacher performances and his paper qualification. Similarly, another study pointed out that the desperation for certificates is evident in the influx of unqualified candidates seeking admission into Nigerian tertiary institutions and going against all odds to secure the admission⁵. The study pointed out clearly that many students seeking admission into the apex level of the educational system are not coming in for the purpose of knowledge acquisition but the certificate. The study further stressed that most students are after the white

paper so that they can through pressing the right buttons, occupy enviable positions and offices in the society. This trend, if not checked is tantamount of not only affecting performance of teachers and students but derailing of Nigerian educational system, as well as leads to total collapse of other system in Nigeria.

Instructional materials: Instruction materials can be defined as those resource materials which the teacher utilized to facilitate effective teaching and learning process. Improvisation refers to teacher's made resource (instructional materials) from local sources⁶. Students learn the working principles in the improvised materials they make or help teachers to make; it creates and develops long lasting technological awareness in the students. It was observed that there is an ever-growing quest for teacher's made materials (improvisation) which began in response to the scarcity and expensiveness of science equipment in Nigeria⁷.

Hence the improvisation of some of the science instructional materials from locally available material will help to get enough science teaching materials for the growing number of secondary schools in Nigeria. One way to measure the performance of teachers in the classroom is to observe their classroom practices, this necessitate the used of instructional materials to facilitate learning activities.

Motivation systems: Motivation is derived from the Latin word "*movere*". It is often equated with the words "aims", "desires", "drives", "goals", "incentives", "motives", "needs", "wants" and "wishes" in research studies⁸⁻¹². In this study, motivation refers to the performance investment level of teachers in their school work. Some "motivator factors" or satisfiers which contribute to job satisfaction include achievement, recognition, work itself, responsibility, and advancement¹³. They correspond to Maslow's higher order motivational needs of self-esteem and self-actualization¹⁴. The study also investigated the motivational system available and how it affects the chemistry teacher performances.

The Purpose of the Study

The study aimed at investigating some factors affecting the performances of Chemistry teachers in senior secondary school, Yola North LGA. Adamawa State, specifically, the study sought to: i. Identify the importance of emphasis on paper qualification. ii. Determine the effects of instructional materials on the performances of Chemistry teachers. iii. Determine the effects of motivation system on the performances of Chemistry teachers.

Research Questions: Three research question guided the study: i. What are the importance of paper qualification on the performance of Chemistry teachers? ii. To what extent are the instructional materials affect the performances of Chemistry teachers? iii. What are the effects of motivation system on the performances of Chemistry teachers?

Research Hypothesis: H0: Teacher's paper qualification, use of instructional materials and the motivation system available are not significant factors that affect the performances of chemistry teachers in senior secondary schools in Yola North LGA Adamawa State. ($P < 0.05$).

Design of the Study

The study adopted descriptive survey research design. This involved the study of the subjects in their natural setting without manipulating their environment. The Population of this study was drawn from five (5) Secondary Schools out of the available senior secondary schools that are in Yola North LGA. Adamawa State. In each of the sample schools, five (5) classroom teachers and twenty (20) students were used, making a total of 150 respondents.

Instrumentation: The researcher constructed one of the instrument for data collection; questionnaire for the investigation of some factors affecting the performances of chemistry teachers (QISFAPCT). Although, the questionnaire is the major one, this instrument was validated by three 3experts, one from measurement and evaluation department and two from chemistry education department. They carried out both the face and construct validation of the instrument. Another instrument used by the researcher in this study was the science Education curriculum from the faculty of Education, Adamawa State. The instrument was used for data collection. The reliability of the instrument was determined using Cronbach alpha analysis and it was found to be 0.81. The second instrument was not validated because it was a standardized instrument. The instruments were administered by the researcher. The administration of the questionnaires to the respondents was done by the researcher. The completed copies were collected on the spot; this enabled us to achieve 100% return of the documents which were subsequently used for data analysis.

Data Analysis

Mean statistics was used to answer the three research questions of the study. A five-point response Likert scaling items was developed to which respondents indicated their levels of agreement as follows.

Research Question 1: What are the importance of emphasis on paper qualification on the performance of Chemistry teachers?

Research question 2: What are the effects of instructional materials on Chemistry teachers' performance?

Research question 3: What are the effects of motivation system on Chemistry teacher performance?.

Discussion of research findings

Table-1 shows the responses of the teachers on the research question what are the importance of paper qualification on the

performance of Chemistry teachers? Base on the result of the analysis the teachers accepted that, paper qualification is very important as its reveals the content of the bearer, subjects areas He/She could relatively do well in terms of performance, length of service as well as his take home (incentives, salaries and

allowances). Table-2 shows the responses of students on research question one, the students strongly agreed that the paper qualification determines the teacher's remuneration as well as state clearly teacher's field of specialization.

Table-1: Teachers' opinion

Questionnaire items	SA	A	FA	D	SD	Mean	Decision
It shows the teacher's field of specialization	15	25	8	2	-	3.5	Accepted
It reveals teachers academic status	11	16	23	-	-	3.8	Accepted
It is the measure of the teachers teaching skills	15	10	9	13	3	2.8	Accepted
It determines the length of service of a teacher	13	11	17	5	4	3.5	Accepted
It determines teachers remuneration (Salaries and allowances)	5	10	30	5	-	3.3	Accepted
It determines rank and appointment among teachers (Principal, V.P, Senior master etc.	15	15	14	5	1	3.8	Accepted
It reveals subjects areas which a teacher can relatively do well	19	14	13	2	2	3.9	Accepted
It reveals teachers that need to be trained and retrained	5	10	12	15	8	2.6	Accepted
It enables division of labour among teachers	29	11	4	5	1	4.24	Accepted
It evidence of successful completion of an academic course	5	12	32	1	-	3.42	Accepted

Table-2: Students' opinion.

Questionnaire items	SA	A	FA	D	SD	Mean	Decision
It shows the teacher's field of specialization	4	59	34	2	1	3.6	Accepted
It reveals teachers academic status	21	19	45	10	5	3.4	Accepted
It is the measure of the teachers teaching skills	25	30	30	5	10	3.6	Accepted
It determines the length of service of a teacher	17	23	13	40	7	3.0	Accepted
It determines teachers remuneration (Salaries and allowances)	60	20	10	10	-	4.3	Accepted
It determines rank and appointment among teachers (Principal, V.P, Senior master etc.	10	20	50	19	1	3.2	Accepted
It reveals subjects areas which a teacher can relatively do well	13	25	40	15	7	3.2	Accepted
It reveals teachers that need to be trained and retrained	10	15	35	22	18	2.8	Accepted
It enables division of labour among teachers	16	20	57	4	3	3.4	Accepted
It evidence of successful completion of an academic course	32	22	15	25	6	3.5	Accepted

Table-3: Teachers response.

Questionnaire Items	SA	A	FA	D	SD	Mean	Decision
Instructional materials enable Chemistry teachers to explain concepts within the shortest possible time.	15	30	1	-	-	3.4	Accepted
Good used of instructional materials can help solve certain language barrier problem.	5	10	35	-	-	3.4	Accepted
It is useful in supporting a topic thereby clarifying the relationship between material objects and concepts.	20	5	15	8	2	4.1	Accepted
When properly used, they help gain and hold the attention of the learners.	4	45	1	-	-	4.1	Accepted
Its help Chemistry teachers to create long lasting impression in the mind of the learners.	10	15	20	4	1	3.6	Accepted
Its enables the teacher to give firsthand information to the learner.	5	14	27	3	1	3.4	Accepted
It enables the Chemistry teachers to remember important information on the subject matter under discussion.	10	22	13	5	-	3.7	Accepted
Instructional materials save Chemistry teacher's energy.	20	13	12	3	2	3.9	Accepted

Table-4: Students' response.

Questionnaire Items	SA	A	FA	D	SD	Mean	Decision
Instructional materials enable Chemistry teachers to explain concepts within the shortest possible time.	20	50	25	1	4	3.8	Accepted
Good used of instructional materials can help solve certain language barrier problem.	23	46	31	-	-	3.9	Accepted
It is useful in supporting a topic thereby clarifying the relationship between material objects and concepts.	14	22	24	25	15	3.0	Accepted
When properly used, they help gain and hold the attention of the learners.	40	50	10	-	-	4.3	Accepted
Its help Chemistry teachers to create long lasting impression in the mind of the learners.	32	29	21	18	10	3.8	Accepted
Its enables the teacher to give firsthand information to the learner.	10	5	45	18	22	2.6	Accepted
It enables the Chemistry teachers to remember important information on the subject matter under discussion.	12	8	39	23	18	2.7	Accepted
Instructional materials save Chemistry teacher's energy.	11	20	34	15	20	2.9	Accepted

Table-3 and 4 shows the responses of teachers and students respectively on research question 2, the effects of instructional materials on Chemistry teachers' performance? Both the teacher and students accepted that the correct used of instructional materials in teaching and learning process increased the performances of the students as well as hold the attention of the learner. The mean value indicating accepted shows that instructional materials is vital to teacher as teacher performances has a direct proportional relationship with student outcome.

Lastly, Table-5 and 6 shows the teacher and students responses respectively on research question 3, the effects of motivation system on Chemistry teacher performance? Base on the result of the analysis, all the items listed if properly adhere to brings out the best performance in Chemistry teachers as both teachers and

students analysis results shows accepted. Timely payment of incentives both in teachers and students responses shows a strongly agreed, whereas teachers strongly agreed also that students positive interest in Chemistry subjects brings out their best performance. Also, students strongly agreed that regular and adequate supervision of Chemistry teachers increased their performance.

Testing of Research Hypothesis: Therefore, the responses of both the teachers and students in Table-1 and 4 on research question No. 1 give a footprint that Paper qualification determines the performances of Chemistry teachers. From the data analysis, the researcher can now state that teacher performance is greatly affected by the used of instructional materials.

The accepted responses in Table-3 and 4 shows that instructional materials are vital to both Chemistry teachers and students. In fact, teachers accepted that instructional material enables them to capture and hold the attention of learners, and strongly agreed that instructional materials enables them to explain Chemistry concepts within the shortest possible time. The accepted responses in Table-5 and 6 on motivation system

available to Chemistry teachers such as timely payment of incentives (allowances, salaries & Bonus), performance related reward, free accommodation etc. affects the Chemistry teacher performance in senior secondary schools.

Therefore; The Null hypothesis is rejected.

Table-5: Teachers response.

Questionnaire Item S/No	SA	A	FA	D	SD	Mean	Decision
The timely payment of teacher's incentives, salaries and allowances arouses the interest of Chemistry teacher.	30	15	3	1	1	4.4	Accepted
Accommodations given to Chemistry teachers as a means of motivation improve their performance.	5	25	16	4	-	3.6	Accepted
Availability of necessary facilities needed in a school to facilitate teaching/learning of Chemistry motivate Chemistry teachers.	5	10	20	4	5	2.8	Accepted
Interest of students in learning Chemistry motivate Chemistry teachers.	26	4	10	5	5	3.8	Accepted
Teacher training such as seminars, workshops etc. motivate Chemistry teachers.	3	7	10	20	10	2.5	Accepted
Regular supervision motivate Chemistry teachers to perform well.	7	10	27	7	9	3.6	Accepted
Effective School based management and administration motivate Chemistry teachers.	5	14	15	10	6	3.0	Accepted
Performance related award in schools motivate Chemistry teachers to perform well.	2	6	27	13	1	2.8	Accepted

Table-6: Students' response.

Question Item	SA	A	FA	D	SD	Mean	Decision
The timely payments of teacher's incentives, salaries and allowances arouses the interest of Chemistry teacher.	16	38	43	2	1	3.7	Accepted
Accommodations given to Chemistry teachers as a means of motivation improve their performance.	13	27	29	21	10	3.1	Accepted
Availability of necessary facilities needed in a school to facilitate teaching/learning of Chemistry motivate Chemistry teachers.	5	26	34	13	22	2.8	Accepted
Interest of students in learning Chemistry motivate Chemistry teachers.	14	13	25	27	21	2.7	Accepted
Teacher training such as seminars, workshops etc. motivate Chemistry teachers.	11	5	39	25	20	2.6	Accepted
Regular supervision motivates Chemistry teachers to perform well.	26	16	37	18	11	3.5	Accepted
Effective School based management and administration motivate Chemistry teachers.	10	24	13	26	27	2.6	Accepted
Performance related award/payments in schools motivate Chemistry teachers to perform well.	15	12	23	27	25	2.7	Accepted

Recommendations: The following recommendations are made based on the above findings: i. Teachers should be allowed to teach subjects that is related to their field of specialization as specified in their paper qualification. ii. Teachers should make correct used of instructional materials and relate their lesson to real life situation so as to reduce the abstract nature of Chemistry. iii. The Chemistry teachers should be motivated and rewarded with adequate packages. iv. The appropriate bodies should monitor teachers and students in order to leave up to their expectations and be alive with their responsibilities as supervision of instructions will reduce laxity among Chemistry teachers and their students. v. It should be necessary for the government and other Stalk holders to ensure to send Chemistry teachers for training and seminars for effective upgrading of teaching pedagogy with world standards. vi. Teachers should be trained on how to improvise for teaching aids (being a developing economy) may not have the fund to acquire all the equipment for Chemistry.

Suggestions for further studies: The researcher recommends that further studies be carry out in other local government areas of Adamawa state.

The researcher also recommend that further studies should be carry out on the following; i. Factors affecting the performances of teachers in other subjects such as physics, government etc. ii. Factors affecting the performances of teachers in tertiary institutions. iii. Factors affecting the performances of students in both junior secondary schools, senior secondary schools and tertiary schools.

Conclusion

The findings of this study show that some certain factors affect the performance of Chemistry teachers in Yola North LGA, Adamawa State. The paper qualification, correct used of instructional materials as well as the motivation system available are among the factors investigated and are found to greatly affect chemistry teacher performances.

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