EVALUATION *In* AFRICA *In* Honour of E. A. Yoloye

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Edited by

Joseph O. Obemeata
Sam O. Ayodele
M. A. Araromi

Evaluation in Africa

In

Honour of Professor E. A. Yoloye

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38 SCHOOL SUPERVISION, A PREDICTOR OF STUDENTS' ACHIEVEMENT IN SECONDARY SCHOOL PHYSICS IN OYO STATE

J. Gbenga Farombi

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Introduction

Chantavanich, et al, [1990] described supervision or monitoring the school activities as a means to ensure that regulations are observed. School supervision is the act of visiting schools or classrooms in order to assess the state of teaching and learning. This consists of making sure that teachers prepare their lesson notes, attend classes and staff meetings promptly, keep record of what they ought to teach and what they actually taught. It also includes ensuring that both teachers and students do not leave, becoming ineffective in most cases.

Supervision is necessary in order to ascertain that goals and objectives are properly transformed into outcomes. This suggests that supervision can be carried out along the three components of evaluation, these include: the goals [which can be translated to objectives]; the transaction [three are carried out in order to achieve the stated goals; and the outcomes of the transactions. At each stage of these components, supervision is necessary. This is because, if at the beginning of formulating the goals, some inherent problems were not looked into, it will be difficult to measure if the goals are achieved or not. In the same vein, if the transactions are supervised, it is likely that the outcomes will be defective.

It is the aim of this study to find a correction between the performance of students in Physics and the level of school supervision in Oyo State secondary schools.

Statement of the Problem

This study sought to identify the pattern of time resource utilisation of Physics students and to find the relationships between school supervision and students' performance in secondary school Physics in Oyo state.

Research Questions

The following research questions were used to guide the study:

Q1: What is the pattern of supervision by school management in Oyo State?

Q2: What are the composite and relative contributions of supervision to students achievement in Physics in Oyo State?

Procedure

Population, Sample and Sampling Technique

The principals and SSI Physics students in all the senior secondary schools in Oyo State constituted the population of this study. Oyo state was purposely chosen because of the investigator's knowledge of the location of the schools in the state. SSI physics students were used because SSI student's obtained can be used to improve their quality in subsequent classes. Multistage sampling techniques were used in this study, these include: local government level, school level, and subject level.

1. Sampling at Local Government Level

Out of the 33 local government areas in Oyo State, 6 were randomly selected.

2. Sampling at School Level

There were 106 schools in the 6 local government areas selected, forty schools were chosen using probability proportional to size in each local government area. Schools selected had at least:

[i] 30 physics students in SS1

[ii] a stable physics teacher for SS1

3. Sampling at Subject Level

The actual number of students randomly selected is between twenty-five and twenty-nine in each of the forty schools, the school principals also partook in the study. So in all, there were one thousand and twenty nine Physics students, and forty principals.

Research Instruments

Two research instruments were used for this study:

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1. Physics Achievement Test [PAT]

The Physics Achievement Test [PAT] consists of two sections, A and B. Items were drawn from mechanics and properties of matter [this formed section A] and Heat [this formed section B] of Ordinary Level Physics teaching syllabus.

PAT is made up of 30 items with options A, B, C and D. Originally, 200 PAT items were developed [for SS1 physics students] and validated [Farombi, 1990]. From these 200 items, 30 items with almost equal distractive indices, high and positive discriminating values and difficulty indices between 0.40 and 0.60 were selected. An investigation of the scheme and record of works of all the schools used in the study showed that the topics from which PAT items were picked had been covered. The Kuder-Richardon 20 was used to establish a reliability estimate of 0.778 for the test. It should be noted that the Kuder-Richardson 20 according to Thorndike [1973] is appropriate for reflecting the internal consistency of dichotomously scored items.

2. School Questionnaire [SQ]

SQ is divided into 2 sections, these include: the background information and the pattern of supervision in the school setting. The background information [GBI] addresses the issue of name, local government area, location [urban , less urban and rural] and age of school, the total number of students and staff [teaching and non-teaching]. The secondary section addressed the issues of supervision of school in terms of frequency of supervision of the following: diaries, record of works, register, lesson notes and others. Two experts at the Institute of Education, University of Ibadan, validated this instrument.

Methodology of Data Analysis

PAT was dichotomously scored using acrobat programme for right or wrong. Every student who shaded the correct option was scored 1 while shading the wrong option earned zero. Student's total scores therefore represented their achievement in physics. Schools were used as unit of analysis. The responses of various students in a particular school were treated as if they were from a respondent. Frequency distribution which is defined by McGall [1971] a tally of number of times each score value occurs in a group of scores is used to answer research question 1. While multiple regression defined by McGall [1971] as a variety of techniques that describe relationship between variables and predict one variable using one or several variables is used to answer research question 2.

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Results and Discussion

Research Question One:

What is the pattern of supervision by school management?

[See table on the next page]

Majority of the school principals [60 percent] delegated the supervision of the school record to the Heads of Department while few of them actually supervised the school records. Most schools [70 percent] had their teachers' lesson notes supervised on a daily basis and the rest on a weekly basis. The sulpervision of diaries and records of work are done once a week in most schools. Students' names are called twice daily in most schools l[70 percent] while the rest marked their register once a day.

Table 1: Pattern of Supervision in the Schools

Variable	Level	Frequency	%
Supervision of School Records	never supervised by the Principal delegated to HOD delegated to senior staff	-- 15 24 1	-- 37.5 60 2.5
Supervision of Physics lesson notes	daily weekly monthly left to individuals	12 28 -- --	30 70 -- --
Supervision of diaries as it relates to Physics	weekly monthly termly	35 3 2	87.5 7.5 5.0
Supervision of record of works as it relates to Physics	weekly monthly termly	34 3 3	85.0 7.5 7.5
Supervision of Physics students using class registers.	Twice daily once daily when necessary	28 12 --	70 30 --

Research Question 2:

What are the composite and relative contributions of supervision to student's achievement in Physics?

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Table 2: [a] Regression Summary of Supervision Summary.

Multiple R	0.54039
R Square	0.29202
Adjusted R Square	0.28975
Standard Error	0.14656

Table 2 [b] Analysis of Variance

Source of Variation	DF	Sum of Squares	Mean Square	F - ratio	Significance of F
Regression	5	234.03570	46.80714	2.7223	0.0363
Residual	33	567.40020	17.19395		

Table 2 [c] Parameter Estimate

Variable	B	SE B	Beta
Supervision of students using register	2.525305	1.416282	0.353941*
Supervision of diaries	-4.037465	1.506331	0.472459*
Supervision of record of work	-1.151057	1.384926	0.356258*
Supervision of lesson note	2.688403	1.762147	0.370613*
Supervision of school record	-1.199690	1.377601	-0.231117
[Constant]	0.791040	2.110416	

* = significant at $p < 0.05$

ns = not significant at P . 0.05

Results in tables 2 [a - c] show that the combination of all the variables in school supervision has a multiple correlation of 0.54039 with the students' Achievement in Physics. However, the combination of these variables explained 29.2 percent of the variance in students' achievement in Physics as shown by the coefficient of determination [$R^2 = 0.29202$]. The analysis of variance further shows that there is a clear trend of students' achievement in Physics increasing with school supervision with an F-ratio of 2.72230 significant at $p < 0.05$.

Results as shown under parameter estimate indicate that partial correlation coefficients of supervision of school record has negative relationships with students' achievement in Physics. While partial correlation coefficients of the remaining variables have positive relationship with students' achievement in Physics.

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The standardised regression coefficients were used to determine the relative contributions of each of the variables in school supervision to the explanation of students' achievement in Physics. The significance of each variable's contribution was tested, and it was observed that supervision of students using register, supervision of diaries; supervision of record of work and supervision of lesson note contributed significantly to the explanation of students' achievement in Physics.

Discussion

The supervision of lesson notes was done daily in some schools [30 percent] and weekly in the remaining schools [70 percent]. However, writing of lesson notes and supervising it on a daily basis is somehow tedious, but if it can be done, it is likely to equip the teacher at any given time to teach his students with or without further preparation, and consequently, it is likely to raise students' achievement. Usually, teachers, after teaching for a week, are expected to fill in the school diary [on the last day of the week] the contents taught during the week, this will assist whoever is to supervise to do so at the beginning of the following weeks. In this study, the supervision of diaries is carried out weekly in most schools [87.5 percent], monthly in some schools [7.5 percent], and termly in the remaining schools [5 percent].

The teacher usually fills record of work at the beginning of a new term. At that instance, he specifies what he is to teach for that term on a weekly basis. Then, the supervisor [usually, the HOD or designated senior staff member] looks at the record of work vis-a-vis the diary where work already done are recorded. It then becomes possible for the supervisor to note whether the teacher has fully satisfied what he said he was going to teach. Within the frame of this study, most teachers [70 percent] indicated that they supervised their students [using attendant register] twice a day, the first supervision is done in the morning while the second is done in the afternoon. The remaining teachers [30 percent] claim that they supervised their students once a day.

It is required of a teacher whenever he gives assignments either to be done at home or at school to check whether the students were able to do it or not and to correct those who did not get the assignment right. However, only 22.5 percent of them often mark the assignments given to students.

The level of supervision of record of work had significant effect on students' achievement in Physics. It can be argued that if the supervision of records of work is done such that those who did not cover the prescribed

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part of the curriculum were call to book and those who finish their work for particular weeks were praised, it is likely that most teachers will cover the amount of content in the subjects they are handling within the stipulated time and hence, the achievement level of the students is likely to be raised.

Conclusion and Recommendation

The pattern of supervision in secondary school in Oyo State as it concerns Physics can be said to be encouraging. Although, the supervision was delegated to other staff members as few principals supervised the schools themselves. Again, the variables considered in this study were found to predict students' achievement in Physics. It can therefore be recommended that this type of supervision should continue in secondary school Physics and other school subjects. It is a general belief that supervision is best done in sparsely populated schools and not in densely populated schools. It can also be recommended that empirical study on this type of study should be carried out both in Physics and the remaining school subjects. Most studies on achievement use students as unit of analysis, it can be recommended as used in this paper to use schools or even local government areas as unit of analysis in some related studies.

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