

EFFECTS OF TEACHER EFFECTIVENESS AND SEX ON THE ACADEMIC ACHIEVEMENTS OF JUNIOR SECONDARY SCHOOL STUDENTS IN MATHEMATICS IN EKITI STATE

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Abstract

This study examined teacher classroom practices and gender as correlates of students' academic achievement on Mathematics in Ekiti state. Two main instruments were Teaching observation scale (TOS) and Mathematics achievement test (MAT) were constructed and validated to achieve the objectives set for the study. A sample of 12 teachers and 150 students selected using purposive sampling technique participated in the study. The researcher developed and validated two main instruments. Teaching observation scale (TOS) and Mathematics achievement test (MAT) which was used for data collection. The t-test statistic was used for data analysis. Results indicated that the effectiveness of the Mathematics teachers has a significant impact on the academic achievement of students in Mathematics and there is no significant difference between the academic achievement of students taught by male mathematics teachers and those taught by female Mathematics teachers. The implications of the study were consequently discussed and recommendations were also made.

Effective teaching in the classroom can only be ensured by an effective teacher who arms him/herself with all the necessary principles, methods, motivational skills and instructional materials. Teaching entails more than mere transfer of information, ideas or values, it also involves the combination of various skills, techniques and knowledge for the achievement of the desired goal transformation of the learners' life. Teaching should be focused on the development of the head (cognitive domain), the hand (psychomotive domain) and the heart (affective domain) a teacher is expected to be versatile and well-versed in his/her chosen career.

A teacher is said to be effective when his/her pupils demonstrate an understanding of what he/she has taught them, as shown in their contributions of discussions or /and their results in class tests, end of year /promotion examination, or end-of-school final /external examination. An effective teacher, therefore is one whose classroom activities produce expected results. Teaching effectiveness could therefore be defined as the product of an effective teacher.

Therefore, the principles of good teaching according to Opinmi (2007) would include:

- i. Recognition of individual differences
- ii. Identification of pupils needs
- iii. Ability to arouse interest and maintaining it
- iv. Activity-based teaching
- v. Clear objectives
- vi. Meaningful tasks.

Oyekan(2000) and Adelekan (2009) described an efficient and effective teacher as one who is efficient reliable and courteous, equipped with professionalize, creative imagination, bustling ingenuity and depth of experience necessary for optimal performance.

It is not possible to guarantee a successful or meaningful learning of Mathematics in schools without effective teachers to translate the laudable objectives of Mathematics education into practice in the classroom. It follows therefore, who teach it that those teachers have a central role to play in implementing the objectives therein.

Maduabum(1987) asserted that teachers effectiveness in a subject is a prime determinant of students achievement in the subject. Ineffective Mathematics teachers in schools emanated from the low quality of teachers recruited to teach (Ojo, 2002). This undesirable situation is observed when teachers who do not find Mathematics interesting are compelled to teach Mathematics in primary schools. This situation made Ukoli (1965) as quoted in Ojo (2002) to wonder that those who undertake science and Mathematics in schools or are greatly hampered in the development of the mental discipline which the acquisition of scientific and mathematical knowledge demands. It is

necessary that Mathematics teachers should be able to cope with the ever expanding knowledge and ensure that learners acquire essential knowledge, skills and values.

This implies that Mathematics teachers need to be professionally qualified to enable them to work effectively with students so as to stimulate and direct their growth in desired goals. Furthermore, mastery of the subject matter does not qualify one as an effective teacher. It is a thing to possess the knowledge and another to be able to transmit the knowledge to the learners. The teachers, therefore, have to be well-prepared for their job through sound pre-service and in-service training. This sound training should at the end make the teacher tightly effective in the classroom being able not only to teach but follow the curriculum through.

Previous studies have compared the performance of subject taught by male teachers with the performance of those taught by female teachers Tatro(1995) worked on the gender of teachers on students performance. He found "that women recorded more absenteeism rates' than their men counterparts. This is an indication that perhaps the average man is likely to be more assertive and effective than his female counterparts. It was also discovered that female teachers tend to be more effective in the teaching profession than their male counterparts. Tatro (1995) in his study indicated also that female teachers received higher ratings in teaching than their male counterpart . This study therefore, sought to investigate the effects of teachers' effectiveness and sex on students in secondary school in Ekiti state.

Research Hypotheses

Two research hypotheses were formulated and tested at .05 level of significance

1. There is no significant difference in the mean achievement scores of students taught by effective Mathematics teachers and those taught by the less effective Mathematics teachers.
2. There is no significant difference in the mean achievement scores of students taught by male Mathematics teachers and those taught by female Mathematics teachers.

Methodology

The study an "*ex-post facto*" research design. This design was used because here was no manipulation of the independent variables the sample used for this study was 18 teachers taken from nine secondary schools in Ido-osi local Government Area of Ekiti state. Three (300) Junior Secondary Schools II (JSII) students were selected from ten secondary schools in Ido -Osi Local Government Areas of Ekiti state

Research instrument

The instrument that was used for this study is mathematics achievement and test students teacher evaluation format (MATSTEF) MAT STEP was designed and used to evaluate students teachers on the teaching practice exercise by the lectures I the school of Education Ikere Ekiti . It consisted of personal data and five parts (iv)

- (i) Preparation (ii) presentation (iii) class management (iv) Personality (v) teaches Effectiveness (vi) But only section v that is teachers effectiveness was relevant for this study

The Mathematics Achievement test was given to experts in Mathematics education to help in establishing the face and content

Validity of the instruments

To establish its reliability, a test re-test method was adopted. The instrument yielded a reliability co-efficient value of .75. The item analysis of the instrument was also conducted in order to determine the discrimination indices and difficulty level of the items.

Procedure

The student-teacher evaluation format was conducted in the classroom while the Mathematics teacher was teaching immediately after the end of the lesson. The Mathematics achievement test (MAT) was administered to the students. The students were allowed to spend forty minutes to solve the question in the MAT

Data analysis-

To analyze the data collected hypothesis 1 and 2 shall be subjected to percentage and t-test.

Results

Table 1 : level of effectiveness of the mathematics teachers

Variables	Number of teaches
Effectiveness of teacher	6(33.3%)
Less effectiveness' teachers	12(66.7%)

Table 1 shows that out of the '18 teachers obtained "2 (66.7%) scored less than 4 marks while the remaining 6 (33.3%) teachers scored above 4 marks.

Research hypothesis 1

There is no significant difference in the mean achievement scores of students taught by effective mathematics teacher and those taught by the less effective Mathematics teacher

Table 2

t-test comparison of the Mean Achievement Score of Students taught by Effective Mathematics Teachers and those taught by the less Effective Mathematics Teachers.

Source of variation	N	Mean	S.D	D.F	t.cal	t.tab	remarks
Students taught by male teachers	80	57.5	4.30	148	+1.96	148	Not rejected H ₀ ,
Students taught by female teachers	70	43.5	3.20				

Significant at $p < 0.05$

From table 2 the t-calculated value (3.12) is greater than the t-table value (+1.96) at the degree of freedom ($p < .05$) therefore, this hypothesis is rejected. This implies that there is significant difference in the performance of students taught by effective Mathematics teachers and those taught with the less effective. Thus the effectiveness' of teachers significantly affects the achievement of the students in Mathematics

Research hypothesis 2

There is no significant difference between the academic achievement of students taught by male Mathematics teachers and those taught by female Mathematics teachers.

Table 3

Source of variation	N	Mean	S.D	D.F	t.cal	t.tab	remarks
Students taught by male teachers	90	25.16	15.11	0.78	1.96	148	Not rejected H ₀
Students taught by female teachers	60	24.43	9.04				

From the results stated in table 3, the value oft-calculated is 0 .78 while t- table is + 1.96($t\text{-cal} = .78 < t\text{-table} = +1.96$ and $p < .05$). This shows that the difference is as a result of teachers' gender as the variable on students' academic achievement in mathematics is not significant Therefore, the research hypothesis is not rejected. This means that the gender of Mathematics teachers has no significant diffidence on the academic achievement of students in Mathematics

Discussion

The analysis and findings of the study, effectiveness of the Mathematics teachers has a significant impact on the academic achievement of students in mathematics. The result that Mathematics teacher's effectiveness significantly influences student's academic achievement in MAT could be accounted for. The fact that the effective teacher plans his lesson adequately and logically, method used is suitable and systematic. Good mastery of subject matter, pupil's participation and involvement is adequate and appropriate and teaching aids are well- used. As Oyekan (2000) observed that to make teaching effective. A prospective teacher who has attended a teacher training institution and acquired the knowledge of the content and methods of teaching and know how to prepare of the classroom teaching Onocha (1999) also noted that teaching excellence is closely related to students gain in learning... The result of these findings negates the findings of Tatro (1995) who found that a positive relationship existed between teaches gender and students achievement.

Recommendations

On the basis of the findings of this research; it is recommended that:

1. Head teachers adopt leadership style that would encourage the teachers-to do their work effectively.
2. Tertiary' institutions need to inculcate in the students a deeper profession confidence and commence for minimum teachers effectiveness
3. Opportunity for further training is given to every teacher not long after the initial appointment.

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