

# Micro-Teaching and Teaching Subject Methodology as Correlates of Science Students' Achievement in Teaching Practice Exercise in Nigerian Colleges of Education

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**Abstract:** *Micro-teaching and teaching subject methodology as correlates of science students' achievement in Teaching Practice exercise in Nigerian Colleges of Education was investigated in this study. The study adopted a survey research design of the ex-post facto type. The sample comprised 210 part three science students of 2011/2012 academic session of College of Education, Ikere-Ekiti, Ekiti State. Two research hypotheses were formulated for the study. Data were collected through an inventory and analyzed with the use of correlation analysis statistic. The results showed that: relationship existed between micro-teaching and science students' achievement in Teaching Practice exercise (that is,  $r\text{-cal}=0.437 > r\text{-tab}=0.195, P<0.05$ ) and strong relationship also existed between teaching subject methodology and science student' achievement in Teaching Practice exercise (that is,  $r\text{-cal}=0.941 > r\text{-tab}=0.195, P<0.05$ ). That is, the two variables could be used to predict science students' achievement in Teaching practice exercise. It is recommended that emphasis should be laid on the teaching and learning of micro-teaching courses (that is, EDU 213 and EDU 224: micro-teaching theory and micro-teaching practicum respectively) as the duo has significant influence on teaching practice. Similarly, emphasis should be laid on the teaching subject methodology of various departments in the school science as the course(s) have a significant role in the performance of science students in teaching practice exercise.*

**Keywords:** Micro-teaching, teaching subject methodology, teaching practice, achievement and science students' teacher

## 1. Introduction

Education is adopted as a tool for effective national development and growth so as to produce citizens that are dynamic both in thought and deeds, self-sufficient, effective, united and show civil responsibility [5]. The increasing awareness of the importance of education to the up liftment of the individual and societal standards has awakened in people and nations; a conscious effort is now being made at devoting the meager available resources to acquiring qualitative education [3].

Education is the act of imparting and acquiring knowledge through teaching and learning, especially at a school or similar institution [4]. As also stated in [5], that no education system may rise above the quality of its teachers, and that the minimum qualification for entry into the teacher profession shall be the Nigeria certificate in Education (NCE) and that all teachers in educational institutions shall be professionally trained. [2] Noted that teacher competence and preparation are fundamental issues that must be probably addressed if our educational system must be transformed from the present level of decay to a standard that member nations could respect and that matches the 21<sup>st</sup> century.

As stipulated in [9], teaching practice is a compulsory course for all students registered for NCE programme. The policy further stressed that the whole of 300level first semester should be devoted to teaching practice i.e. starting from mid September to April. This covers two terms of school year or 26 weeks. The important areas of emphasis for teaching practice which include: instructional planning and studies in

teaching methods; instructional technology; micro-teaching; minimum of ten supervisors per student before final computation of each student's teaching practice score; posting of students to school where they can practice their major courses of study; standard teaching load; each student teacher is to be allocated a teaching load between a minimum of ten and a maximum of eighteen teaching periods per week. Teaching practice is a course with 6 credit units and that only students who passed EDU 213-micro-teaching theory would qualify to offer EDU 224- micro-teaching practicum and students who pass EDU 224 would qualify to go on teaching practice.

Teaching practice exercise in education is like industrial attachment/training for prospective engineer to acquire practical experience. Every student undergoing teaching training in any teacher training institution is expected to have acquired practical training exercise before the final award of the certificate. As the name implies, Teaching Practice is a course of study like other course but in a practical form. Teaching practice is the process by which teachers in training (student-teachers) are made to practicalise teaching in fulfillment of the requirement for Teachers' Certificate. Teaching practice exercise is undergone by students who take Education as their major course of study. Oyekan was quoted by [6] that teaching practice is an activity by which the student teachers are given an opportunity in actual school situations to demonstrate and improve training in pedagogical skills over a period of time. The trainees (students) are posted to schools, normally lower than their institutions of learning, to teach the student subject areas of their specialization for a specific period. This allows student teachers to have ample

chance and the real life situations to apply theories and principles of education they have been taught in their institutions [7]. Similarly, [1] opined that teaching practice affords teacher trainees ample opportunities to apply relevant theories studied in essential subjects such as psychology, principles and methods of teaching and sociology of Education to their practical teaching and interaction with staff and pupils of co-operating Colleges. Teaching practice exercise helps the trainees to acquire practical skills through direct experience. Moreover, [6] cited Oyekan that teaching practice is an activity by which the student teachers are given an opportunity in actual school situations to demonstrate and improve training in pedagogical skills over a period of time. Students on teaching practice are supervised during the exercise by their supervisors.

Micro-teaching is a system where a student-teacher is made to teach a small group of learners for about 10 to 20 minutes focusing on some essentials skills [10]. Similarly, [8] defines micro-teaching as a procedure by which you teach a small class of students a short lesson with specific objectives and teacher performance criteria. [1] Quoted Passi and Shah that micro-teaching was effective in developing the skills of questioning, reinforcement, silence and non-verbal cues, illustration and use of examples.

Various subjects require specific ways of teaching to foster understanding of the subject matter on the learner. Science teaching method involves scientific teaching. [11] asserts that scientific teaching brings the rigor, creativity, critical thinking, and spirit of scientific research into the classroom. Incorporating current understanding about how people learn, the scientific teaching approach includes active learning, diversity, and assessment. Teaching generally is the act of impacting knowledge. But experiences of these researchers and reports from other supervisors shows that the performance of science students on practical teaching is appalling and various reasons were adduced to this ugly development among which are poor performance in Micro-teaching and not well mastery of science subject teaching methodology among others. It is against this backdrop that this study is out to investigate the correlate of micro-teaching and teaching subject methodology on science students' achievement in teaching practice exercise in Nigerian colleges of education.

## 2. Research Hypotheses

The following research hypotheses were formulated and tested at  $P < 0.05$ .

1. There is no significant relationship between micro-teaching and science students' achievement in teaching practice exercise.
2. There is no significant relationship between teaching subject methodology and science students' achievement in teaching practice exercise.

## 3. Methodology

The design was a descriptive survey of the ex-post facto research type. The targeted population for the study consisted of the students of school sciences, College of

Education, Ikere-Ekiti, Ekiti State of Nigeria. A purposive sampling technique was used in selecting 210 (86males and 124 females) part three Science students of 2011/2012 academic session that participated in the teaching practice exercise. The selection is done based on the subject combination as follows: Biology/ Chemistry [60]; Biology/ Geography [10]; Biology/ Integrated Science [30]; Chemistry / Computer Science [10]; Chemistry/ Integrated Science [8]; Chemistry/ Mathematics [3]; Chemistry/ Physics [3]; Computer Science/ Economics [30]; Computer Science/ Integrated Science [10]; Computer Science/ Mathematics [8]; Computer Science / Physics [18]; Integrated Science/Mathematics [4]; Integrated Science/Physics [2];Mathematics/Physics[5]; Mathematics/ Political Science [2]; Mathematics/Social Studies [2]; Physical and Health Education/ Biology [3]; and Physical and Health Education/ Computer Science [2].

The research instrument for this study was an inventory of the students involved in the study. These are:

- (i) enrolment figures (indication gender) in each combination;
- (ii) examination scores in micro-teaching (MT);
- (iii) examination scores in teaching subject methodology (TSM); and
- (iv) Teaching practice results of 2011/2012 exercise.

Each student combined two teaching subjects to make a course of study (combination), and it is mandatory for each of them to have registered and take these teaching subject methodology courses from the teaching subject combined, the average score of courses taken by each student was considered to be TSM. As stipulated in the National Commission for Colleges of Education minimum standards for N.C.E. teachers (4<sup>th</sup> Edition, 2009), the following courses were recommended as teaching subject methodology for science courses in the following departments:

- Biology [Bio 123 and BIO 224 as Biology method I & II respectively]
- Chemistry [CHE 115 and CHE 226 as Chemistry method I & II respectively]
- Computer Science [CSC 124 and CSC 224 as Teaching of computer science I& II]
- Integrate Science [ISC 113: ]
- Mathematics [MAT 123: Mathematics methodology]
- Physics [PHY 124 and PHY 225 as Physics methodology I & II respectively]
- Physical and Health Education [PHY 214: Methods of teaching PHE ]

Similarly, Micro-teaching (MT) scores used in the study were the average score of students in EDU 213and EDU 224 (micro-teaching theory and practicum).

## 4. Results and Discussion

This section presents the results obtained in the study in line with the research question raised.

#### 4.1 Research Question 1

There is no significant relationship between micro-teaching and science students' achievement in teaching practice exercise.

**Table 1:** Pearson Correlation summary of micro-teaching and science students' achievement in teaching practice exercise

Variable	N	Mean	SD	r-cal	r-table
Micro-teaching score	210	17.82	3.42	0.437*	0.195
Achievement in Teaching practice exercise	210	2.51	0.23		

\* P < 0.05

The table 1 reveals that t-cal (0.437) is greater than t-table (0.195) at 0.05 level of significance (that is, r-cal=0.437 > r-tab=0.195, P<0.05). The null hypothesis is rejected. Therefore, there is significant relationship between micro-teaching and science students' achievement in teaching practice exercise. The result agreed with the assertion of [1] quoted Passi and Shah that micro-teaching was effective in developing the skills of questing, reinforcement, silence and non-verbal cues, illustration and use of examples

#### 4.2 Research Question 2

There is no significant relationship between teaching subject methodology and science students' achievement in teaching practice exercise.

**Table 2:** Pearson Correlation summary of teaching subject methodology and science students' achievement in teaching practice exercise

Variable	N	Mean	SD	r-cal	r-table
Teaching subject methodology	210	18.41	3.82	0.941*	0.195
Achievement in Teaching practice exercise	210	2.51	0.23		

\* P < 0.05

Table 2 shows that t-cal (0.941) is greater than t-table (0.195) at 0.05 level of significance (that is, r-cal=0.941 > r-tab=0.195, P<0.05). The null hypothesis is rejected. Therefore, there is significant relationship between teaching subject methodology and score of teaching practice exercise. The result agreed with the findings of [1] that significant relationship existed between subject methodology and ATP (average performance of students in Teaching Practice). [11] also asserts that scientific teaching brings the rigor, creativity, critical thinking, and spirit of scientific research into the classroom

#### 5. Conclusion

The findings of the study revealed that micro-teaching and teaching subject methodology have positive significant relationship with science students' achievement in the score of teaching practice exercise.

#### 6. Recommendation

Based on the findings of this study, it is recommended that emphasis should be laid on the teaching and learning of micro-teaching courses (that is, EDU 213 and EDU 224: micro-teaching theory and micro-teaching practicum respectively) as the duo has significant influence on teaching practice. Similarly, emphasis should also be laid on the teaching subject methodology of various departments in the school science as the course(s) have a significant role in the performance of science students in teaching practice exercise.

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