

## TEACHING PRACTICE EXPERIENCES AND TEACHING EFFECTIVENESS OF SCIENCE STUDENT-TEACHERS

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### Abstract

*This study examined “Teaching Practice Experiences of Science Student-Teachers and their Effectiveness” in the Department of Science Education, Faculty of Education, University of Calabar. To achieve the purpose of the study, four hypothesis were formulated to guide the study. The study utilised case study research design, the population of the study was 200 Science Education students. No sampling technique was used since the total number of the sample (200) was the same as the total number of the population. Data were collected using two instruments, one being constructed by the researcher titled “Questionnaire for research on teaching practice experience (QRTPE)” and students’ teaching practice results for 2017/2018 academic session was used for effectiveness. Pearson Product Moment Correlation Coefficient was used in analysing data at 0.05 level of significance with 198 degree of freedom. The results show that there is a significant relationship between proper orientation, financial support, teaching subject in area of specialisation and professional standard of mentors on teaching practice effectiveness. It was, therefore, recommended that the duration for teaching practice orientation should be increased, government should provide financial support to student-teachers. Science student-teachers should not be asked to teach outside their subject of specialisation and only professional teachers should be assigned to serve as mentors to the student-teachers.*

**Key words:** Teaching practice, experience, student-teachers and effectiveness



### 1 Background to the study

The word education is derived from a Latin word “Educare”, meaning “to bring out”. To educate means to bring out what is best in an individual. It is the manifestation of perfection already found in man. Education, therefore, is a process by whereby an individual acquires the ways, beliefs, habits, and standard of the society, into which he is born (Asuquo, Inaja, David & Bassey, 2005).

The most important role of our educational system is to build a brighter future for our nation’s students as professionals and as citizens. This hinges on its ability to provide students with skills. It encourages reformation of attitudes, formation of social personality, occupational placement, transmits the central heritage and completes the socialisation

process. (Bharat Kumar, 2010 and Ndifon & Cornelius-Ukpepi, 2014). Teaching practice is an important component of teacher education as it grants student-teachers experiences in the actual teaching and learning environment (Marcus & Meire 2004; Ngidi & Sibaya, 2003; Nja and Neji, 2013; Perry, 2004).

Marcus & Meire (2004) asserted that the term *teaching practice* represents the range of experiences to which student-teachers are exposed when they work in the classroom and schools. The National Universities Commission (NUC) in the Benchmark Minimum Academic Standards for undergraduate programmes in Nigerian universities (April, 2007) identified teaching practice with the course code “Edu 500”. It proceeds to describe it simply as “practised

implementation of teaching/learning strategies in the classroom as applied to the subject area” (Aglazor, 2016).

Despite the fact that currently in all Nigerian universities, teaching practice is a compulsory course which forms part of the prerequisites for graduation in the Faculty of Education. However, observations have shown that there is a decline in the quality of teaching practice being offered in the universities now. Teaching practice as being currently run in the universities is considered inadequate. There seems to be many problems facing prospective student-teachers in the course of carrying out the teaching practice which seems to affect the effectiveness of the experience. This is not unconnected to the attitudes and experiences of teachers; and it affects their productivity (Edu & Edu, 2013).

For instance, Idowu (2002) remarked that the programme is faced with a multiplicity of problems and a lot of difficulties confronting student-teachers, cooperating teachers as well as the cooperating schools and supervisors. He identified some of the problems to include psychological makeup of the trainees, pedagogical preparations, classroom adaption, mode and means of assessment. Jekayinfa, Yahaya, Yusuf, Ajidagba, Oniye, Ogiyangi & Ibrahim (2012), commenting on the quality of teaching practice, lamented that the quality of the exercise as being currently run is inadequate. This inadequacy makes students to get involved in examination malpractice (Cornelius- Ukpepi & Erukoha, 2012).

Ogonor & Badmus (2006) submitted that student-teachers are not often properly groomed to put into practice current pedagogy and interactive skills that have been learnt theoretically. Studies have also revealed some other problems that bedevil the teaching practice exercise. Some authors lamented that teachers of partnership schools did not provide specific aid to student-teachers to improve their teaching skills and strategies. Nakpadia (2011) remarked that the period of twelve weeks is too short, as it does not provide the student-teacher the ample opportunity to effectively gain the experience which the exercise is intended to

impart. The author remarked that some supervisors do not even have time to sit down and discuss their observations and comments with the student-teacher. The short discussion between the supervisor and the student-teacher after the lesson, which should afford the student-teacher an opportunity to appreciate his strengths and weaknesses, is often ignored because the supervisor is often in haste to move to the next school.

Adekunle (2002) acclaimed that the unserious attitude of the secondary school students towards the exercise often results to the student-teachers not gaining the skills, confidence and knowledge to cope with the classroom situation.

Bhargava (2009) stated that student-teachers often complain that they forget the content/matter, feel nervous when their lecturers sit at the end of the classroom and observe. The author remarked that the behaviour of student-teachers changes; comfort level becomes low, and they find themselves in an artificial situation. At this point, their main consideration is how to get good remarks in the teaching practice examination.

## 1.2 Theoretical framework

### Social Learning Theory:

This theory was propounded by Albert Bandura in 1963. The theory proposed that people learn through observing other behaviours, attitudes and outcomes of that behavior. Most humans learn observationally through modelling. They observe others as they form an idea of how a new behaviour is performed. And, in later occasions, this coated informal observation serves as a guide for action. The theory explains human behaviour in terms of continuous reciprocal interaction between cognitive behaviour and environmental influences.

The following steps are involved in the observation learning/modelling process.

Attention: In order to learn, you need to pay attention. Anything that distracts your attention is going to have a negative effect on observation learning process.

**Retention:** The ability to store information is also an important part of the learning process. Retention can be affected by a number of factors, but the ability to pull up information later, and act on it, is vital to learning.

**Motivation:** Finally, in order for observational learning to be successful, you have to be motivated. Reinforcement and punishment play an important role in motivation, while experiencing these motivators can be highly effective.

The implication of this theory to the study is that mentors, supervisors and co-coordinators of teaching practice play an important role in the modelling of behaviours for teaching practice effectiveness.

## 2.1 Research Methodology

The research design employed for the study was the case study design. The design is considered most appropriate considering that the population of the study is finite, and it is characterised by efforts to learn as much as possible about the population. The population of this study comprised all the final year students of Science Education in the 2017/2018 academic session. They were 200 students. The sample size of this study was all the final year students (200) in Science Education of 2017/2018 academic session who have undergone teaching practice. This was the same with the size of the population because of the small size of the population and as such

there was no sampling technique used. Two instruments were used for the study: the first is the students' teaching practice result (STPR). STPR was students' teaching practice result that was obtained from the teaching practice supervision of 2017/2018 academic session. The second instrument is the Teaching Practice Experiences Questionnaire (TPEQ). The TPEQ was made up of 20 items and 4 section. Each section represents a variable or the researchers' hypothesis. The questions were presented in the 4 type Likert Scale, labelled SA- for Strongly Agree; A- for Agree; D- for Disagree; and SD for Strongly Disagree. Pearson Product Moment correlation was used to establish the reliability of TPEQ. The reliability ranged from 0.65 to 0.84. Two statistical tools were used for data analysis. These were independent t-test and Pearson Product Moment Correlation Analysis.

## Results and Discussion

### Hypothesis one

There is no significant relationship between good orientation and bad orientation given to science student-teachers and teaching practice effectiveness.

To test this hypothesis, independent t-test was used to analyse the data collected in respect of this hypothesis. The hypothesis was tested at 0.05 level of significant. The summary of the result is presented in Table 1.

**Table 1**

**Result of independent t-test of the influence of orientation given to science student-teachers and teaching practice effectiveness (N = 200)**

Variables	N	$\mu$	SD	t-cal	t-critical
Good orientation	106	12.91	1.979	17.75	1.97
Poor orientation	94	7.76	2.124		

Significant at  $P < 0.05$ ,  $df = 198$ , critical  $t = 1.97$ ,  $t$ -calculated 17.75

The result summarised in the Table 1 indicates that the calculated  $t$ -value of 17.75 was greater than the  $t$ -critical value of 1.97 at 0.05 level of significance with 198 degree of freedom. The null hypothesis, which stated that there is no significant relationship between the orientation given to science students-teachers and teaching practice effectiveness was rejected while the alternate hypothesis was upheld. Hence, there is a significant relationship between proper orientation given to science student-teachers and teaching practice effectiveness.

**Hypothesis two**

There is no significant relationship between lack of financial support for science student-teachers and teaching practice effectiveness. Pearson Moment Correlation Analysis was used to analyse the data collected in respect to this hypothesis. The hypothesis was tested at 0.05 level of significance. The summary of the result obtained from the analysis is presented in Table 2.

**Table 2**

**Results of Pearson Product Moment Correlation Analysis of relationship between financial support given to science students teachers and teaching practice effectiveness (N=200)**

Variables	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	$\sum XY$	r-cal
Financial support given to science student-teachers	13324	37665.12	19007.02	0.71
Teaching practice effectiveness	13629	18886.795		

**P < 0.05, df = 198, r-critical = 0.159**

The result summarised in Table 2 indicates that the calculated r-value of 0.71 is greater than the r-critical value of 0.159 at 0.05 level of significance with 198 degree of freedom. The null hypothesis, which stated that there is no significant relationship between lack of financial support given to science student-teachers and teaching practice effectiveness was rejected while the alternate hypothesis was upheld. Hence, there is a significant relationship between financial support given to science student-teachers and teaching practice effectiveness.

**Hypothesis three**

There is no significant relationship between the teaching of subject of specialisation by science student-teachers and teaching practice effectiveness.

**Table 3**

**Result of Pearson Moment Correlation Analysis of the relationship between the teaching of subject of specialisation by science student-teachers and teaching practice effective (N=200)**

Variables	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	$\sum XY$	r-cal
Teaching of subject of specialisation	13266	40828.22	19020.43	0.69
Teaching practice effectiveness	13629	18886.795		

**P < 0.05, df = 198, r-critical = 0.159**

The result, as presented in Table 3, indicates that the calculated r-value of 0.69 is greater than the critical r-value of 0.159 at 0.05 level of significance with 198 degree of freedom. The null hypothesis was rejected while the alternate was upheld. Hence, there is a significant relationship between the teaching of subject of specialisation by science student-teachers and teaching practice effectiveness.

### Hypothesis four

There is no significant relationship between the professional standard of mentors and teaching practice effectiveness. To test this hypothesis, Pearson Product Moment Correlation Analysis was used at 0.05 level of significance. The summary of the result is as presented in Table 4.

**Table 4**

**Result of Pearson Product Correlation Analysis of the relationship between professional standard of mentors and teaching practice effectiveness (N=200)**

Variables	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	$\sum XY$	r-cal
Professional standard of mentors	13088	51425.28	19048.24	0.61
Teaching practice effectiveness	13629	18886.795		

**P < 0.05, df = 198, r-critical = 0.159**

The result, as presented in Table 4, indicated that the calculated r-value of 0.61 is greater than the critical r-value of 0.159 at 0.05 level of significance with 198 degree of freedom. With this result, the null hypothesis was rejected while the alternate was upheld. Hence, there is a significant relationship between the professional standard of mentors and teaching practice effectiveness.

### Discussion of findings

The first hypothesis stated that there is no significant influence between good orientation and bad orientation given to science student-teachers and teaching practice effectiveness. The null hypothesis was, however, rejected because the calculated t-value (17.75) was found to be greater than the tabulated t-value (1.97). The implication of this result is that there is a significant relationship between orientation given to science student-teachers and teaching practice effectiveness.

The findings of this hypothesis is in accordance with Cohen & Brewer (2003), that orientation programmes empower student-teachers with the knowledge, skills and abilities to access an array of resources that can help them have more successful experiences. More specifically, an orientation programme can help to improve new student-teachers' self-esteem, which can be an important predictor of personal and academic achievement (Hickman, Bartholomew & McHenry, 2000).

The second hypothesis stated that there is no significant relationship between financial support given to science student-teachers and teaching practice effectiveness. The null

hypothesis was, however, rejected because the calculated r-value was found to be greater than the critical value. The interpretation of this is that there is a significant relationship between financial support given to science student-teachers and teaching practice effectiveness.

The findings of this hypothesis is in accordance with Global Campaign For Education Report (2006) which noted that, with increased funding and support, it is possible to increase the proportion of qualified teachers without lowering the length and quality of student-teachers' training. Ajuzie, (2001) adds that adequate financial input is crucial to the success of any system of education because the procurement of equipment, materials and other needs is dependent upon availability of funds.

The third hypothesis stated that there is no significant relationship between the teaching of subject of specialisation by science student-teachers and teaching practice effectiveness. The null hypothesis was, however, rejected on the ground that the calculated r-value was found to be greater than the critical r-value. By implication, there is a significant relationship between the teaching of

subject of specialisation by science student-teachers and teaching practice effectiveness.

The findings of this hypothesis is in accordance with Owolabi & Adedayo whose study also showed that students performed better in physics when taught by professional teachers. In a similar vein, Samuel & Ojih (2014) studied “The Influence of Area of Specialisation and Years of Teaching Experience of Geography Teachers on their Level of Competency in Teaching Map Work in Secondary Schools in Kogi State”. The results of the t-test revealed that: (i) there is significant influence of geography teachers’ area of specialisation on their level of competency in teaching map work in secondary schools. The researcher’s study found out that the advantage of teaching the subject of specialisation by a teacher cannot be over-emphasised, as this leads to quality lesson delivery, good communication skills, good classroom management, effective use of instructional materials, and attainment of the lesson specific objectives and evaluation. Scheffler (2003) writes that this kind of subject matter understanding strengthens teachers’ power and heightens the possibilities of their air. The findings of this hypothesis is also in consonance with Owolabi & Adedayo, whose study showed that students performed better in physics when taught by professional teachers.

The fourth hypothesis stated, that there is no significant relationship between the professional standards of mentors and teaching practice effectiveness. The null hypothesis was, however, rejected because the calculated r-value was found to be greater than the critical r-value. The interpretation of this result is that there is a significant relationship between professional standard of mentors and teaching practice effectiveness.

Maphalala’s (2013) work was on Understanding the Role of Mentor Teachers during Teaching Practice Session. Findings reveal that mentor teachers understood their role to be that of facilitating the socialisation of student-teachers into the teaching profession, by assisting them to gain competence in the various areas of the school functioning,

including lesson planning and presentation, classroom management and appropriate use of teaching strategies and resources.

### Conclusion

From the outcome of this study, it was concluded that the duration of the orientation exercise should be increased with its objectives. Government should provide financial assistance to student-teachers to help in coping with some of their needs. Science student-teachers should not be asked by cooperating schools to teach subjects which are outside their area of specialisation and only professional teachers should be assigned to serve as mentors to student-teachers.

### Recommendations

Based on the result of the statistical analysis of data collected for this study and the conclusion made thereof, recommendations are made thus:

1. The institutions should ensure that during student-teachers’ orientation exercise, the objectives are clearly spelt out and instructional materials to meet the objectives used in a clean and conducive environment.
2. The government should provide financial assistance to student-teachers which will help them afford accommodation, instructional materials and transportation.
3. Science student-teachers should be allowed to teach only subjects of their area of specialisation which will lead to mastering of the subject matter, effective utilisation of instructional materials and competency in lesson delivery.
4. Only professional teachers should be allowed to act or serve as mentors to science students as only a professional practitioners possess the special knowledge and skills needed for the mentoring process.

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