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## Investigation into the problems encountered by Pre-Service Chemistry Teachers in Colleges of Education and Universities During Teaching Practice Exercise

<sup>1</sup>Mary-Ann, E. Udogu, <sup>1</sup>Elizabeth O. E nukora and <sup>2</sup>Cordelia O. Okonkwo

<sup>1</sup>Nwafor Orizu College of Education, Nsugbe.

<sup>2</sup>Ogbalu High School, Onitsha.

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### ABSTRACT

This study aimed at investigating the problems encountered by pre-service chemistry teachers in colleges of Education and Universities during teaching practice exercise from the student perspective in Anambra State. The study adopts a survey design. The population of the study was (280) final year Chemistry Education students both from colleges of education and universities in 2016/2017 academic session who have finished their teaching practice exercise. The researchers made use of simple random sampling techniques to select the sample size. The instrument used was a structured four point likert type questionnaire named "pre-service chemistry teachers of colleges of education and universities Questionnaire (PCTCUQ). The instrument was validated and the reliability co-efficient  $r$  of the instrument was established at 0.86. Three (3) research questions guided the study. The research questions were answered using mean and standard deviation. The study indicated that there are a lot of problems faced by pre-service chemistry teachers from colleges of education and universities during teaching practice exercise. Such as non-availability of accommodation for student-teachers, in adequate staffroom for student-teachers, lack of improvisation from the student-teachers etc. the educational implications of the study were stated based on the findings. Among others, it was recommended that pre-service chemistry teachers from colleges of education and universities should be given a comfortable accommodation and student-teachers should prepare models of teaching aids for effective teaching and learning.

Keywords: Chemistry, Teachers, Students, Colleges and Universities.

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### INTRODUCTION

Education as can be generally believed, is a veritable tool for preparing the child, youth and adult both physically, mentally, morally, socially and spiritually to enable them live and contribute positively towards the development of the society.

Whenever, the word education is mentioned, the thing that readily comes is

the action of teaching and learning in a school involving the teacher and the student. Education is a universal phenomenon, therefore, sensitive to people, place and time. It cannot be wholly transplanted like seedling from one nation to the other. Functional and relevant education must of necessity be adapted to the needs, peculiarities,

problems and aspiration of people or society which it is serving.

Nigerian education is a part of that universal phenomenon. According to Plato: By education, I mean that training which is given by suitable habits to the first instincts of virtue in children, when pleasure and pain are rightly implanted in non-rational souls. The particular training in respect of pleasure and pain, which leads you to hate and love what you ought to hate and love is called "Education".

[1], followed this example when he said: Education is an activity which aims at practical results in contrast with activities which aim at theoretical results. When we think of what 'Practical and theoretical result are, we can think of science as aiming at theoretical results. Activity seems to imply a process, and we can agree with both terms, since in education, teachers and learners are active. No educational system can rise above the quality of it's teacher. The quality of teaching determines the quality of learning and the qualities of teaching and learning are directly proportional to the quality of the teacher.

Teaching is an interaction involving the learner, the subject matter and the teacher in a conducive environment [2]. She further stated that bringing curriculum materials to the doorsteps of children in an organized way and this involves "teaching". Some scholars have referred to teaching as a process of

interaction between the teacher and students as a way of working with subject matter of instruction and a system of actions intended to produce learning. In the same vein, teaching refers to the process of imparting knowledge and skills from a teacher to a learner. Both the teachers and parents live with the children from their infant stage through adolescence into adulthood, it is an activity carried out by an individual a teacher who is capable of imparting knowledge, skills, and values that cannot be easily challenged by the society.

[3], defines teaching as the conscious and deliberate effort by a mature or experienced person to impart information, knowledge, skills and so on to an immature or less experienced person with the intention that the later will learn or come to believe on good grounds what he is taught.

Teaching in Nigeria has been revolutionarized. It is no more a case of being "Educated" but a case of being "Trained" teachers. Nigerian teachers must be educated, trained and adequately prepared and well grounded for the great task ahead.

To provide professional education for teachers, colleges of education and facilities of education in universities have been established to undertake the process of training the would-be-teachers.

Teacher Education is an educational programme that involves the upbringing

of the would-be-teachers through quality training in order to acquire skills, attitudes, knowledge and values and to be able to impart knowledge and skills to the learners. Teacher education is a cyclic affair in which both the content area, theoretical and pedagogical skills are packaged for the trainees in order to prepare them adequately to meet the requirement of the profession.

[4], stated that teacher education programmes exist in Nigeria Certificate in Education (NCE), Bachelor's Degree in Education (B.Ed), Post Graduate Diploma in Education, Masters- Degree in Education, Doctorate Degree in Education Programmes (P.H.D) for colleges of education and universities respectively. Teacher education institutions are not only imparting theoretical knowledge but also impart practical knowledge and skills in teaching different subjects to the trainees.

Some have described teaching as an art. They believe that teaching is a result of the imagination which can be made more concrete through practice and not by formal study. Evidently, good teaching is an art but at the same time it does demand skills and understandings from many fields which tends to make it scientific in nature.

Hence, it is concluded that teaching is both an art (theoretical) and science (practical and experimental). Teaching practice is carried out for NCE after

2years of training and for (B. Ed) after 3 year of training, teaching practice exercise is been carried out by the training students. When we talk of teaching practice, we have the impression that it is an exercise where the students teacher is given the opportunity to put into practice those theories he or she has learned in the classroom, sometimes, it involves a lot of skills and mental activities in order to be able to make use of the pedagogical concepts learned in the classroom. The invaluable experience is usually acquired by exposing student-teachers to environment (schools) similar to those in which they hope to work after graduation. This apprenticeship period is very important in the life of a trainee teacher as it should offer him the first experience in acquiring practical knowledge and skills of organizing learning. Teaching practice is therefore as important to a would-be-teacher as industrial training is to a would-be-scientists.

[4] asserts that the term teaching practice represents the range of experience to which students are exposed when they work in classroom and schools, they further argued that teaching practice is challenging but important part of teacher training, most especially in developing countries such as Nigeria, where effectiveness of the teaching practice can be diminished or eroded by a range of uneven levels of teacher expertise.

Chemistry is one of the most important branches of science which enables learners to understand what happens around them. It helps them to solve simple problems they encounter daily.

[5], defined chemistry as one of the three main branches of pure science which deals with the composition, properties, and the use of matter.

[6], stated that the most interesting aspect of chemistry is that it applies to our daily lives.

[7], chemistry is a discipline in which high standard of conduct must be amplified by teachers and researchers in ways that students cannot fail to observe and adopt.

[7], opined that chemistry, therefore, involves human development in the three domains of human experience namely, cognitive, affective and psychomotor.

During Teaching Practice period the student teachers put into practice all the theoretical concepts they have acquired in the course of their programme. In translation of the theories they learnt in classroom into practical, student teachers

#### STATEMENT OF THE PROBLEM

Teaching practice is an exercise in which the student-teacher is guided to acquire practical skills and competences necessary for effective delivery after training and what their professional field looks like. There is a great difference between theoretical aspect of teaching and practical aspect of teaching.

come across a lot of challenges which they have to battle with for effective teaching and learning to take place.

In preparing and guiding the students over the years, it has been observed that there has been a yawning gap that required to be effectively filled. There has been a lot of concern about teaching practice, on how to provide practical experience for teacher trainees to acquire practice or refine their teaching skills, it's effectiveness and purpose how far this has been achieved.

The study is to investigate the problems faced by pre-service chemistry teachers in colleges of education and faculty of education in universities during teaching practice exercise.

Observations, however, have shown that there is a decline in the quality of teaching practice being offered in the colleges of education and faculty of education in Universities.

[8], pined that as the role of teacher has grown pass being an ordinary teacher but includes consultation, collaborative,

planning and other kinds of joint work, it is now needful for the teacher to become more knowledgeable and more skillful in transmitting the education curriculum to the students live in order to help become a respectable individual. For these to be a reality there is need for effective and adequate teacher education and a reflective teaching practice as part of the process. It is against this background that this study investigates some of the problems chemistry pre-service teachers in colleges of education and faculty of education in Universities encounter during their teaching practice exercise.

#### **Purpose of the Study**

The purpose of this study is to investigate the major problems pre-service chemistry teachers from colleges of education and faculty of education in Universities, encounter during their teaching practice exercise.

#### **Specifically, the study is to**

1. Ascertain the problems faced by student-teacher of colleges of education and faculty of education in Universities.

2. Ascertain how the pre-service chemistry teachers from colleges of education and faculty of education in universities contributes to the problems they encounter during the teaching practice exercise.
3. Identify possible solutions to the problems faced by pre-service chemistry teachers during teaching practice exercise.

#### **Research Questions**

1. What are the major problems faced by pre-service teachers from colleges of education and faculty of education in universities during their teaching practice exercise?
2. To what extent do pre-service chemistry students from these institutions (colleges and universities) contribute on the problems they encounter during their teaching practice exercise?
3. What are possible solutions to the identified problems?

#### **RESEARCH METHOD**

The research design adopted for this work is survey research design. The study was conducted in Anambra state made up of three political zones consisting Anambra

Central, Anambra North and Anambra South. See table below.

S/N	Names of Institutions	No of students
1	Nwafor Orizu College of Education, Nsugbe (NCE)	80
2	Nwafor Orizu College of Education, Nsugbe in affiliation with University of Nigeria Nsukka (B.ED)	52
3	Nnamdi Azikwe University Awka (B.ED)	48
4	Federal College of Education (technical) Umunze (N.C.E.)	40
5	Federal College of Education(technical) Umunze in affiliation to Nnamdi Azikwe University (B.ED)	25
6	Chukwuemeka Odumegwu Ojukwu University Uli (B.ED)	35
	<b>Total</b>	<b>280</b>

The population of this empirical work constituted all the (120) year three NCE students and all the (162) year four degree students in the department of Chemistry Education (final year students of 2016/2017), from colleges of education and universities within the area of study. The instrument used for data collection was structured questionnaire prepared by the researchers.

This instrument comprises of two sections A and B. Section A dealt with the respondent personal data, while section B dealt with the problems under investigation. The instrument was validated by experts in the fields (two lecturers from Chemistry Education and

one measurement and evaluation lecturer all from Nwafor Orizu college of education and Nnamdi Azikiwe university Awka. The reliability of the instrument was sought using Cronbach alpha technique after pilot study and was established at 0.86 alpha value.

The instrument was administered to the respondents and data collected analysed using mean ( $\bar{x}$ ) and standard deviation (SD) for research questions.

The mean values of 0.00 to 2.49 were rejected, while 2.50 and above were accepted. The decision for each of the questionnaire item was made from the above analysis and was represented using

(A) for 2.50 and above and rejected (R) for mean between 0.00 and 2.49.

### Result Interpretation and Presentation

**Research Question 1:** What are the major problems faced by pre-service teachers from colleges of education and faculty of education in university during their teaching practice exercise.

**Table 1:** Major problems faced by pre-service chemistry teachers during teaching practice exercise.

S/N	Items	X	SD	Decision
1	There are no available accommodation for teaching practice teachers	3.31	0.75	Accepted
2	The period allocated to chemistry on the time table is not enough	2.87	0.92	Accepted
3	Lack of teaching aids in practicing schools	3.68	0.52	Accepted
4	Student teachers are not well motivated with incentives	3.37	0.4	Accepted
5	Permanent teachers are not willing to help	2.52	0.85	Accepted
6	Principals are not cooperative	2.15	0.95	Rejected
7	Non-availability of adequate staff room	2.94	1.37	Accepted
	<b>Average Mean</b>	<b>2.97</b>		

Result in table 1, shows that the major problems faced by the pre-service chemistry teachers during teaching practice exercise are no availability of accommodation for teaching practice teachers, the period allocated to chemistry on the time-table is not enough, lack of teaching aids in practicing schools, student teachers are not well motivated with incentives, permanent teachers are not willing to help, non-availability of adequate staff room. The

items in 1, 2, 3, 4, 5 and 7 attest to this because their mean values are above 2.50 and item 6 was rejected because its mean value is below 2.50 and the general grand mean is 2.93 which attest that the research question is accepted.

**Research Question 2:** To what extent do pre-service chemistry students from these institutions contribute to the problems they encounter during their teaching practice exercise.

**Table 2:** Problems contributed by pre-service chemistry students during teaching practice exercise.

S/N	Items	x	SD	Decision
8	Pre-service teachers reject accommodation	1.28	0.5	Rejected
9	Pre-service teachers prefer coming from their home than the accommodation given to them	1.51	0.36	Rejected
10	Pre-service teachers choose their time which they find convenient	2.88	0.89	Accepted
11	Student teacher travel out leaving their period	2.27	0.83	Rejected
12	Student teachers do not improvise	2.55	0.7	Accepted
13	Pre-service teachers do not request for teaching aids	2.3	0.66	Rejected
14	Student teachers expect some motivational incentive from teachers	3.48	0.59	Accepted
15	Student teachers expect some motivational incentive from student	2.62	0.86	Accepted
16	Student teacher expect payment from school	3.44	0.26	Accepted
17	Permanent teachers give student teachers too much work load	3.44	0.2	Accepted
18	Staff room provided for the student teachers is not conducive for them to carry out their work	3.44	0.2	Accepted
	<b>Average mean</b>	<b>2.65</b>		

From table 2 above, the mean rating and standard deviation of the extent pre-service chemistry students from the institutions contribute to the problem they encounter during their teaching practice exercise from the table item 1,2,4, 6 have mean below 2.50 which suggests that the respondents rejected

the statement on the questionnaire, while items 10, 12, 14, 15, 16, 17, 18 shows that there mean values are above 2.50 and thus the respondents accepted the statement on the questionnaire.

**Research Question 3:** What are the possible solution to the identified problems

**Table 3:** The possible solutions to the identified problems.

S/N	Items	X	SD	Decision
19	Student teachers should always try to accept what is given to them as accommodation	2.48	0.22	Rejected
20	The school should provide a comfortable accommodation for the student teachers	3.75	0.43	Accepted
21	Student teachers should request for more time for practical	3.14	0.2	Accepted
22	Student teachers should be giving enough time in the timetable	3.47	0.22	Accepted
23	Student teachers should stick to time allocated to them	3.44	0.22	Accepted
24	Student teachers should to prepare models of teaching aids e.g. periodic table	3.48	3.79	Accepted
25	They should be provided with enough teaching aid in the practicing school	3.56	1.24	Accepted
26	Student teacher should desist from expecting incentive	2.20	0.24	Rejected
27	The school should try to provide enough incentive for the student teachers	3.46	0.24	Accepted
28	Permanent teachers should help student teachers in the aspect of constructing lesson notes	3.46	0.2	Accepted
29	Permanent teachers should reduce work load given to student teachers	3.75	0.24	Accepted
30	Principal should monitor the relationship between the permanent teachers and the student teacher	3.22	1.08	Accepted
31	Principal should monitor the relationship between the student teachers and the student	3.74	0.24	Accepted
32	The school should provide adequate staff room for the student teachers	3.28	0.22	Accepted
<b>Grand mean</b>		<b>3.31</b>		

From table 3, it shows the possible solutions to the identified problems. The mean values in items 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31 and 32 are above

the acceptable mean value of 2.50. The item number 19, 26 were rejected because it is below the acceptable value of 2.50.

## DISCUSSION OF THE FINDINGS

The finding of the study as presented in (table 1) revealed that the problems faced by the pre-service teachers from college of education and faculty of education in universities during their teaching practice exercise are non availability of accommodation for teaching practice teachers, the period allocated to chemistry on the time table is not enough, lack of teaching aids in practicing schools, student teachers are not well motivated with incentives, permanent teachers are not willing to help, non-availability of adequate staffroom.

This work has revealed that student teachers smell the rat in a bid to engaging in the three months practice exercise simply because they lack comfortable accommodation during the exercise.

Accommodation as an essential factor has been given a critical study during the course of research for this empirical study and the outcome revealed that most student teachers are not given free accommodation in their host school of practice, some do not even see an apartment to rent as most of the areas are timid and lack commercial houses, and they even pay double of the rent.

According to [9] maintains that effectiveness of teaching practice is marred as a result of lack of modest living accommodation for the teaching practice students. Hence, the problem of

accommodation cannot be over-emphasized in this empirical research. This tallies with the study.

The empirical work also takes notice of the period allocated to chemistry on the time table is not enough and hence cannot account for competency and comfortabilty in teaching field as teaching is not just an ordinary task but involves the acquisition of skills and methodology as well as it's mastery. This tarries with the study findings. [10] maintains that appropriate teaching aids, a well prepared lesson note brings about effective teaching and learning but when this is absent, teaching is tampered with.

[4], who maintained that lack of effective motivation of student teachers is manifested in individual indifferences to learning. That is lack of interest in learning, weak drive towards goal attainment and little identification with school subjects. This concurs with the research findings.

The findings of the study in (table II) shows that pre-service chemistry students contributes to the problems they face during teaching practice exercise in the following ways.

Pre-service teachers choose their time which they find convenient, students teachers do not improvise, students teachers expect some motivational incentives from teachers, student

teachers expects some motivational incentives from teachers, students teachers expects some motivational incentives from students, student teachers expect payment from school, permanent teachers gives students teachers too much work load, staffroom provided for the students teachers is not conducive for them to carry out their work.

Student teachers are not expected to seek for incentives from neither the principal, permanent teachers and from the students. The host school has to provide a structured support for the student teacher as a key element of school placement; the co-operating teachers and school principals are also asked to provide structured support to student teachers by do not have a role in grading them. The whole school community can provide important informal support to student teachers, for example, by the welcome it extends to them and by the efforts it makes to include them in general school life experience, as well as by making school facilities available to them.

The student teachers should be provided with a proper staffroom, where they can prepare for their classes, do corrections and interact with each other. This room should also have lockers where they can safeguard their instructional materials, books and personal belongings. If a good

staffroom is not provided, effective teaching and learning will be marred.

In findings of the study in table (III) shows that possible solutions to the identified problems in the following ways. School should provide a comfortable accommodation for the student teachers, student teachers should request for more time for practical, student teachers should be given enough time in the time table, student teachers should stick to time allocated to them, student teachers should prepare models of teaching aids e.g. periodic table, they should be provided with enough teaching aid in the practicing school, the school should try to provide enough incentive for the student teachers, permanent teachers should help student teachers in the aspect of constructing lesson notes, permanent teachers should reduce work load given to student teachers, principal should monitor the relationship between the permanent teachers and the student teacher, principal should monitor the relationship between the student teachers and the student, the school should provide adequate staffroom for the student teachers.

[2] described teaching aids as those materials or objective that help the teacher to make their lesson explicit information ideals and notes to the student and disseminate information such as a way that will modify their behaviour easily.

[8] argued that very few-experienced teacher would dispute the educational value of teaching aids as a means of making learning very effective and interesting but unfortunately, most of them do not do them.

Principals/permanent teachers should help and reduce work load for the students teachers by introducing the student teacher to the students and their needs and attainments, the classroom, the plan of work for that class, class rules and procedures and the role of other staff directly involved with the students in the class. They assign the teaching of areas of the curriculum to the student teacher while retaining primary responsibility for the progress of the pupils/students. In turn, they observe the student teachers practice and provide feedback to the students teachers in an encouraging and sensitive manner. The permanent teachers should work collaboratively with the student teacher, the college/university placement tutor and the school principal and advise the principal of any serious concerns

regarding a student teacher's practice or professional conduct.

[7] remarked that the periods 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 encourage. Hence the student teacher should request for extra time in the time table to be able to cover all that is stipulated in the curriculum for that term, both the theoretical aspect and the practical aspect.

Staff room design is one of the most important, yet often neglected areas in the whole school, when it comes to priority for maintenance and refurbishment. Students teachers offices/staff zone generally fall to the bottom of the price. If the host schools want his students teachers to do their best work, they need to have an environment that facilitates them to do this. Staff-room should be designed in a way that help the student teachers to perform to the best of their ability.

### CONCLUSION

This has confirmed that manifold problems which affects the effective performance of pre-service chemistry teachers of both college of education and faculty of education in universities during teaching practice exercise. The finding of the study shows that those problems

faced by pre-service chemistry teachers of college of education and faculty of education in universities during teaching practice exercise are mostly caused by the practicing schools and the pre-service teachers. This problem have contributed to the poor performance of the pre-

service teachers and also the objectives of teaching practice for which it was set up have been rendered ineffective. Furthermore, possible solutions to these

problems are provided so that there will be effective performance on the side of the per-service teachers.

### RECOMMENDATIONS

The following recommendations were made based on the finding of the study.

- There should be a comfortable accommodation for the student teachers.
- Pre-service teachers should prepare models of teaching aids for effective teaching and learning.
- Pre-service teachers should be provided with enough teaching

aids in the practicing schools.

- The practicing school should create better relationship with the student-teachers.

Finally, the pre-service teacher during their teacher training should be made to understand the role played by evaluation in teaching and learning so that they can cultivate the habit of evaluating their students after teaching.

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