TEACHING PRACTICE EXPERIENCES OF CHEMISTRY EDUCATION STUDENT TEACHERS’ IN THE FACULTY OF EDUCATION, UNIVERSITY OF JOS: CHALLENGES AND POSSIBLE PANACEA

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ABSTRACT
This study investigated teaching practice experiences of Chemistry Education student-teachers’ challenges and possible panaceae in Faculty of Education, University of Jos. In this study, the population comprised 120 students of Chemistry Education students in the University of Jos who participated in the 2018/2019 academic session teaching practice exercise. The instrument used for the data collection was a student structured questionnaire developed from the research questions. It contained 26 items, the instrument used was a 4-point Likert form; of strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD) and were administered to 92 students of 300 and 400 level Chemistry Education students of Department of Science and Technology Education University of Jos. The research questions were answered using the mean and chi-square statistical tools. The findings showed that some of the participating school teachers were not supportive of the student-teachers and also government is not efficient enough on measures that could help restructure the teaching practice programme. However, some recommendations were made thus: that resource rooms of the various schools should be equipped and expanded to enable students have access to them, also government should appeal to non-governmental organization like the private sector, individuals and industries to assist in supplementing educational materials and learning resources that would prepare students. Finally, government should provide stipends to alleviate the financial burden of students.

KEYWORDS: Teaching practice, Chemistry education, Challenges

INTRODUCTION
A professional teacher just like any other professional has prescribed services he/she renders to a society. It is therefore very imperative for individuals who desire to become teachers to acquire the necessary skill and meet the demands of the profession. One of such demands is the teaching practice exercise. Teaching practice is a practical teaching activity by which student-teachers are given an opportunity in actual school situations to demonstrate and
improve training in pedagogical skills over a period of time (Saidu, 2016). It is a pre-service professional preparation for interested individuals who aspires to become teachers with a credible vision for sustainable human development (Okonkwo, 2014). During the teaching practice exercise, a would-be-teacher is sent out by his training institution for the purpose of putting into practice the skills he/she has learnt under the guidance of an experienced teacher. Usually micro-teaching exercise is being organized by the education course lecturers to provide experiences prior to the commencement of the actual teaching practice so that the would-be-teacher may be exposed to the principles and ethics of teaching. Students engaged in the teaching practice exercise are made to understand that only teachers who have successfully passed both the theoretical content in the subject matter of EDU 216 or EDU 316 for Chemistry Education students and compulsory practical training examination which is carried out under supervision are considered trained and certified. They are considered fit for the award of a pass grade in the teaching profession. The exercise enables the student-teachers to adjust and overcome some of the practical problems of teaching often encountered in the classroom.

The importance of teaching practice exercise cannot be undermined or belittled because it deposits an immeasurable value to the pupils or students, the student teachers, the participating school and Ministry of Education in general. It exposes the student teachers to a dynamic social life system of the school as they interact with learners, staff, and use of physical facilities and participate in curricular activities (Saidu, 2016). Teaching practice also helps to develop a healthy relationship towards the students, the community and members of the teaching profession for a sound curriculum implementation (Ochai, 2010).

There are many challenges that confront the student-teachers who go for teaching practice for the first time after completing their 200 level examinations in Chemistry Education at the University of Jos. Majority of students who qualify for the teachers training programme are not always ready to enter the classroom. This problem is not farfetched from their teaching practice experiences. One gets the impression that some student-teachers are inadequately prepared for the real situation during their teaching practice. Usta and Korkmaz (2010) posit that prospective teachers have difficulty about time because their technological content knowledge is not sufficiently developed, it is also known in the literature that prospective teachers are not sufficient in integrating technology into their lessons (Kaya, 2010; Kilic, 2011) and they need much time to do this. Ozay-Kose (2010) also stated that prospective teachers had some deficiencies about classroom management. Candidates also stated emphatically about the difficulties encountered in finding test equipment and using them properly. Similarly, it is declared in some studies that lack of test materials affect the presentation of prospective
teachers. Sudip (2010) came up with a challenge of inability to differentiate between the needs of the individual child.

Erin-Park (2011), based on his studies, attributed the challenge of teaching experience to preparation of lesson plan. Consequent to the forgoing submissions, a good number of factors conflict with teaching practice experience which includes the various outputs and inputs related to teachers’ quality such as professional development experiences, adequate planning periods, stage freight, and adequate content preparation of teachers and availability of instructional materials. Some researchers have examined the relationship between teachers’ quality and teachers’ retention (Ingersoll, 2011). National organizations have defined minimum content preparation standard to improve teaching and learning as opined by Interstate New Teachers Assessment and Support Consortium (ITASC) (2014) and National Council for Accreditation of Teachers Educators (NCATE, 2011). In support of the observations, many researchers have studied about a phrase referring to the difficulty of shifting from theoretical training and academic knowledge to the actual work of teaching Johnson et al, (2013).

This study was therefore conceived, designed, and undertaken in order to analyze some of the factors relating to teachers’ quality input (i.e course work, grade point average and teachers test scores). Quality teaching and student learning are tightly interconnected, together they form two sides of a triangle, the third side of the triangle is often overlooked, but it is also integral to teaching quality and students learning quality instruction and preparation for teachers. According to Inter-Agency Network for Education and Emergency (2015), a research was carried out about effective professional development in fragile context and made a recommendation that efforts should be put in place to develop, apply, measure and institutionalize standards for teachers’ collaboration.

The research on teachers’ collaboration is unequivocal collaboration with colleagues and culture of trust and knowledge sharing that collaboration produces-has been linked to increased teachers’ effectiveness and improved test score gains (Kraft & Papay, 2014). Also Nakpodia (2011) suggested the extension of teachers’ education courses from four to five years degree and NCE teachers respectively; and the call for an extension of students teaching practice period from an average of twelve weeks to one calendar year. Akpomi (2010) also stressed that the government of Nigeria in her effort to achieve philosophy of Education has set up an implementation committee for the National Policy on Education knowing fully that the importance of teaching practice and internship in teachers’ education cannot be over emphasized. The committee therefore recommends that those methods of training teachers need to be rationalized so that they reflect the nation’s education philosophy, policies and
structures, the massive training of untrained primary school teachers should be done by the method on the job training. The selection and training of lead teachers who will provide personal instruction to teacher’s trainee and supervise them well.

It is believed that education is a powerful weapon which you can use to change the world, one of the instrument in the hand of government to bring about this change is the teacher, it is in the light of this that many teachers training institution such as faculty of educations in universities, colleges of education, institute of education and polytechnics, among others have been criticized for failure to produce competent teachers who are properly grounded with pedagogy content as well as ability to collaborate professionally in the work environment, for instance many educational scholars have observed that transition of theoretical knowledge to practical work experience has been a major concern in the teaching profession and this is a sharp suggestion that student teachers are not properly groomed before inducting them into the teaching profession by the teachers registration council of Nigeria (TRCN) hence what majority phrase as “half-baked teachers”. The National Policy on education (FGN, 2014) state the interest of the government in producing highly motivated, conscientious, efficient and innovative classroom teachers for all levels of our educational system. This is in conflict with the current practices in our schools where the student-teachers deliberately avoid reporting to work at the hosting school within the period of the teaching practice exercise except on information that the chances of the supervisors visit is high. It is in the light of this that most teachers training institutions visit the hosting schools more than once to ascertain the condition of their students within the time frame of the exercise.

Among other problems, student-teachers are faced with the problem of adequate lesson preparation, adequate evaluation of lessons and the grading of test scores. It is on the base of the issues raised that has prompted the researcher to investigate teaching practice experience of chemistry education student-teachers in University of Jos.

The main aim of this study was to investigate some of the experiences encountered by Chemistry Education student-teachers of University of Jos in the course of their teaching practice exercise, and to facilitate a successful completion of the study. The research was based on the following objectives which are to:

1. explore the gains of teaching practice experience on students-teachers development in the teaching profession
2. examine the effectiveness of teaching practice programme by the student-teachers
3. examine the relationship between teaching practice experiences and student-teachers’ quality
4. examine the role of government in restructuring the teaching practice programme

RESEARCH QUESTIONS
The following research questions were answered.

1. What are the gains of teaching practice experience on student-teachers development in the teaching profession?
2. What is the effect of the teaching practice programme on chemistry student-teachers?
3. What is the relationship between teaching practice experiences and student-teachers’ quality?
4. What is the role of government in restructuring the teaching practice programme?

RESEARCH HYPOTHESES

**Ho1:** Teaching practice experience has no impact on the professional development of chemistry student-teachers.

**Ho2:** There is no significant relationship between chemistry student-teachers teaching practice experiences and chemistry teachers’ quality.

**Ho3:** There is no significant role played by the government in restructuring teaching practice programme.

METHODOLOGY
This research employed descriptive research survey design. The choice of this research design was considered appropriate because the study attempted to find out the experiences of student-teachers on teaching practice programme organized by the Faculty of Education, and its advantage in identifying attributes of a large population from a group of individuals.

The population of the study comprised 120 (300 and 400) level Chemistry Education students of the faculty of Education University of Jos who recently participated in the 2018/2019 session teaching practice exercise. The sample of the study was made up of 92 Chemistry Education students selected through a random process.

The major research instrument used for this research was a questionnaire, this was appropriately validated by 3 experts for face and content validity, the student-teachers were administered the questionnaire to complete with or without disclosing their identities, the questionnaire was designed to obtain relevant information from the respondents. The questionnaire contained some structured questions which were divided into sections A and B. Section A contained the personal data of the respondents while section B contained the twenty six structured items.
The questionnaire used was subjected to content validation, this research instrument (questionnaire) used was subjected to content and construct validity. The data were analysed using mean and Chi-squares.

There were two main sources of data collection which are; the primary and secondary sources. The primary source was materials of statistical investigation which are collected by the researcher for a particular purpose, they can be obtained through a survey, observation, questionnaire or as experiment while the secondary data are those data collected by someone other than the user but for the research on teaching practice experiences of Chemistry Education students in University of Jos. The data collected was analyzed using simple percentages.

**RESEARCH QUESTIONS**

**Research Question One:** What are the gains of teaching practice experience on student-teachers’ development in the teaching profession?

Table 1: Mean Scores of Chemistry Students Teaching Practice Experience as it Relates to Teachers’ Development in the Teaching Profession

<table>
<thead>
<tr>
<th>S/N</th>
<th>Item</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The experiences of teaching practice have helped me develop interest in the teaching profession</td>
<td>3.43</td>
</tr>
<tr>
<td>2</td>
<td>Teaching practice exercise has helped me overcome stage freight</td>
<td>3.26</td>
</tr>
<tr>
<td>3</td>
<td>Teaching practice experience has given me the opportunity to understand individual differences</td>
<td>3.48</td>
</tr>
<tr>
<td>4</td>
<td>I have been able to develop my social intelligence through teaching practice exercise.</td>
<td>3.14</td>
</tr>
</tbody>
</table>

**Criterion:** 2.5  
**Decision Rule:** Accept as Gain if Mean $\geq 2.5$ and Reject if otherwise.

From Table 1, it can be established that student-teachers were able to develop interest in the teaching profession, boost their confidence level, understand individual differences, develop social intelligence, become acquainted with lesson preparation and different methods of assessing students, hence are accepted by the researcher as the gains of teaching practice.

**Research Question Two:** What is the effectiveness of teaching practice programme by the student-teachers?
Table 2: Mean Score of the Effectiveness of Teaching Practice Programme by Student-Teachers

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Item</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The entire subject teacher’s responsibility was handed over to me.</td>
<td>2.78</td>
</tr>
<tr>
<td>2</td>
<td>There was a good working relationship between the student teacher and the subject teacher</td>
<td>3.51</td>
</tr>
<tr>
<td>3</td>
<td>I participated in other curricula activities such as sports.</td>
<td>3.26</td>
</tr>
<tr>
<td>4</td>
<td>My lesson plan was usually being assessed before classroom delivery.</td>
<td>2.88</td>
</tr>
<tr>
<td>5</td>
<td>I taught Chemistry instead of another subject</td>
<td>2.89</td>
</tr>
<tr>
<td>6</td>
<td>I attended staff meeting during the teaching practice exercise</td>
<td>3.15</td>
</tr>
<tr>
<td>7</td>
<td>The length of the programme was short</td>
<td>3.01</td>
</tr>
<tr>
<td>8</td>
<td>I was given the school register to handle</td>
<td>2.46</td>
</tr>
</tbody>
</table>

Criterion: 2.5
Decision Rule: Accept as Effective if the Mean ≥ 2.5 and reject if otherwise.

Table 2 shows that student-teachers were actively involved in the teachers training programme by taking full responsibility of the subject teachers’ activities, having a good working relationship with the subject teacher, participating in sports, having the lesson plan assessed before classroom delivery, attending staff meetings, hence the foregoing are accepted by the researcher as effectiveness of the teaching practice programme. However, they were not allowed to mark students’ register and also the programme was short and are then rejected by the researchers.

Research Question Three: What is the relationship between teaching practice experiences and teachers’ quality?

Table 3: Mean Score of the Relationship between Teaching Practice Experiences and Student-Teachers’ Quality

<table>
<thead>
<tr>
<th>S/N</th>
<th>Item</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I was able to develop a strong working relationship with the students</td>
<td>2.78</td>
</tr>
<tr>
<td>2</td>
<td>I revised my lesson plan very well before going for each lesson</td>
<td>3.61</td>
</tr>
<tr>
<td>3</td>
<td>I used the chemistry curriculum during teaching from simple to complex</td>
<td>2.04</td>
</tr>
<tr>
<td>4</td>
<td>My chemistry classroom was usually being coordinated during each of my lesson.</td>
<td>3.52</td>
</tr>
<tr>
<td>5</td>
<td>I welcomed contributions and questions from students during each of my lesson.</td>
<td>2.33</td>
</tr>
<tr>
<td>6</td>
<td>I enjoyed using the chemicals and apparatus in the chemistry lab</td>
<td>4.66</td>
</tr>
<tr>
<td>7</td>
<td>I used the school chemistry laboratory during my teaching practice</td>
<td>3.87</td>
</tr>
</tbody>
</table>

Criterion: 2.5
Decision Rule: Accept as a positive relationship if the Mean ≥ 2.5 and reject if otherwise

Table 3 reveals that there was a positive relationship between teaching practice experiences and student-teachers’ quality by virtue of the responses provided which may include; a strong working relationship with the students, proper revision of lesson plan before
classroom delivery, using curriculum guide, proper classroom management, active participation of students, use of teaching aids and laboratories and therefore are accepted by the researchers.

**Research Question Four:** What is the role of government in restructuring the teaching practice programme?

**Table 4: Mean Scores of Government Role in Restructuring Teaching Practice Programme**

<table>
<thead>
<tr>
<th>S/N</th>
<th>Item</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I was beneficiary of incentive from the proprietors of the school during the teaching practice exercise</td>
<td>1.70</td>
</tr>
<tr>
<td>2</td>
<td>The host school took care of my feeding during the programme</td>
<td>1.48</td>
</tr>
<tr>
<td>3</td>
<td>I enjoyed accommodation provided by the school during the programme.</td>
<td>1.41</td>
</tr>
<tr>
<td>4</td>
<td>The host school paid me some allowance.</td>
<td>1.52</td>
</tr>
<tr>
<td>5</td>
<td>I was supervised accordingly before the end of the teaching practice</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I was supervised more than once.</td>
<td>3.50</td>
</tr>
</tbody>
</table>

**Criterion: 2.5**

**Decision Rule:** Accept as role played by the government if Mean ≥ 2.5 and reject if otherwise.

Table 4 indicates that proprietors played a key role in the area of supervision during the teaching practice and is therefore accepted as the role played by government in restructuring teaching practice programme. However, the government failed in the area of giving incentives to the student-teachers, feeding, provision of accommodation and allowances for the teaching practice students and is therefore rejected by the researchers as the role played by the government in restructuring the teaching practice programme.

**Hypothesis One:** Teaching practice experience has no significance impact on the professional development of the student-teachers.

**Test Statistics**

Teaching Practice Experience Has No Impact on the Professional Development of Student-Teachers

<table>
<thead>
<tr>
<th>X2cal</th>
<th>X2critical</th>
<th>D.F.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.96</td>
<td>24.99</td>
<td>15</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Decision Rule: The researchers therefore rejected the null hypothesis which states that teaching practice experience has no impact on the professional development of the student-teachers since the calculated value is greater than the critical value.

**Hypothesis Two:** There is no significant relationship between teaching practice experiences and student-teachers’ quality.
Test Statistics
There is No Significant Relationship between Teaching Practice Experiences and Student-teachers’ Quality.

<table>
<thead>
<tr>
<th>X2cal</th>
<th>X2critical</th>
<th>D.F.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>185.83</td>
<td>28.87</td>
<td>18</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Decision Rule. The researchers therefore rejected the null hypothesis which states that there is no significance relationship between teaching practice experience and student-teachers’ quality since the calculated value is higher than the critical value.

Hypothesis Three: There is no significant role played by the government in restructuring teaching practice programme.

Test Statistics
There is no Significant Role Played by the Government in Restructuring Teaching Practice Programme.

<table>
<thead>
<tr>
<th>X2cal</th>
<th>X2critical</th>
<th>D.F.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.39</td>
<td>21.03</td>
<td>12</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Decision Rule The researchers therefore rejected the null hypothesis which states that there is no significant role played by the government in restructuring the teaching practice programme because they do not have enough evidence to back up such claim.

DISCUSSION
In Table 1, the findings revealed that student-teachers were elated with the teaching practice exercise because of the various gains they were exposed to, ranging from mastery of the individual differences in classroom, lesson preparation, mode of assessment and interest in the teaching profession among others. In addition, Table 2 showed that to a large extent the partnership schools were supportive of the student teachers during the teaching practice exercise but in some key areas such as handling of students’ register, most student teachers were not privileged.

Furthermore, Table 3 established that student teachers were pragmatic in disposing their professional skills rather than the regular theory based approach, however some respondents also said that there were inadequate facilities in the school where they carried out their teaching practice exercise. Facilities like laboratories, textbooks, apparatus, among others.
The findings in addition showed that proprietors were inadequate in restructuring teaching practice programme to make it more effective in areas such as stipends, facilities for teaching, accommodation and feeding for teaching practice students. Furthermore, there were elements of pragmatism on the side of the student teachers through the use of facilities and teaching aids, proper classroom management and a strong working relationship between the student teachers and the students of the participating school.

Albeit, there have been efforts by government to restructure the teachers training programme, however there are areas of loopholes in terms of infrastructural deficit and incentives to the teaching practice students which to a large extent dwindle their uprightness.

**CONCLUSION**

The trend towards professionalizing teaching makes it very imperative that teachers should be grounded with rudiments of effective teaching to continuously improve themselves during and after training, hence the need for collaborative school environment and reflective teaching by teachers and student teachers in particular. It can be drawn from the study that student-teachers were joyful with the practice of reflective teaching which helps to promote the professional growth of the students.

With the desire to consolidate on the achievement of teaching practice, student teachers were effective to a large extent through various activities they engaged in during the teaching practice exercise ranging from collaborative effort with the subject teachers to participation in various academic activities within the school. More so there was quality input and display of professional competencies by the student teachers which is encouraging to the host institutions, participating schools, students and other stakeholders capable of shaping the teachers training programme.

Student-teachers were dissatisfied with government’s nonchalant approach to live up to their responsibilities in making available stipends and providing a conducive learning environment for students which may lead to students’ apathy towards the teaching practice exercise and education in general.

**RECOMMENDATIONS**

The following recommendations were made:

1. Orientation of student teachers should be explored using various means such as workshops, seminars, conferences and discussions.

2. Faculties of Education and Colleges should organize the exercise very well so as to give the best professional practice to the student teachers.
3. Resource rooms of the various schools should be equipped and expanded to enable student teachers have access to them.

4. Micro teaching should be adequately practiced in the various institutions as a way of exposing them to practice teaching.

5. The government should appeal to non governmental organization like the private sector, individuals and industries to assist in supplementing educational materials and learning reserve that would prepare the students.

6. The government should allocate financial benefit to student teachers who go for teaching practice as a means of alleviating financial burden on student teachers.

7. ITF to provide funding as industrial teaching practice allowance.

8. TETFUND should be approached to take up the funding of teaching practice.

9. The period for teaching practice is grossly inadequate and should be extended.

REFERENCES


ITASC (2014). Evolution of policies on teachers’ deployment to disadvantaged areas.


