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Perception of Science Education Lecturers on Students' Teaching Practice Readiness and Delivery in four Universities of old Sokoto State, Nigeria

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Abstract

This research work surveyed the perception of Science Education Lecturers on Students' Teaching Practice Readiness and Teaching Practice Delivery of the Department of Science and Vocational Education Faculty of Education and Extension Services Usmanu Danfodiyo University Sokoto, University of Science and Technology Aliero, Department of Science Education Faculty of Education Sokoto State University and Department of Science Education Federal University Gusau. A descriptive survey design was adopted for the study. Likert scale questionnaire was used to collect data from 54 Science Education Lecturers purposively sampled out of the total population of 56 Science Education Lecturers of the various Departments. The instrument was validated by experts and a reliability index of 0.83 was established. Mean and standard deviation

were used to answer research questions while analysis of variance (ANOVA) statistics was used to test research hypotheses. From the result of the analysis, it can be found that student teachers were generally perceived to demonstrate readiness and effective content delivery in their teaching practice exercise. Although these behaviors seem to be idiosyncratic to each student, they tend to be perceived differently by lecturers in different universities, with the exception of readiness. However, overwhelming evidence in the literature suggests that student-teachers are not adequately trained to teach, and hence demonstrate fair performance during their teaching practice exercise. Strict, frequent supervision and monitoring are recommended for teacher training institutions to enhance the quality of teaching practice exercise.

Keywords: Perception, TP Readiness, TP Delivery, Teacher Education

1. Introduction

Education across the globe has been seen as one of the veritable tools for progress and survival of a nation. The development of a nation is highly dependent on the quality of education received by her citizens. For this reason, educational institutions exist primarily for the purposes of cultivating, generating and supplying of manpower needed for the attainment of aims and aspirations of the society through developmental programmes, conducting research to solve existing and anticipating problems as well as expanding other frontiers of knowledge by providing other varieties of services to the communities (Egbo, 2007) [3]. Salawu (2016) [11] ascertained that education is the tool with which values, knowledge and skills are acquired and the proper application of these concepts in the process of nation building will pave way for national development. It is therefore correct to say that Education embraces all activities the learner is involved in and outside the school.

Science is any system of knowledge that is concerned with the physical world and its phenomena which entails unbiased observations and systematic experimentation. In general, science involves a pursuit of knowledge covering operations of fundamental laws. Science according to Onah (2003) [8] is the bedrock upon which any nation can be built. This means that no country can be globally recognized without talking about its scientific advancements. To improve the level and the relevance of science, science education became a veritable tool.

Science Education is the most important way through which societies of all countries teach and learn about science, its values, concepts and objectives, and through which they can understand the importance of scientific endeavor for their cultural and socioeconomic development. Science education is described by Pember and Humbe (2009) [9] as a process of teaching or training especially, in school to improve one's knowledge about environment and to develop one's skill of systematic inquiry as well as natural attitudinal characteristics. Science education has been recognized worldwide as a pre-requisite to technological development.

This knowledge of science Education can be learnt through the institutions whose mandates includes training teachers for the

betterment of science education and the society at large. These institutions usually subject Science Student-teachers in training into teaching practice exercise to complement the theory they learnt with practical skills. This is because in all professional fields, training is a crucial aspect with an attempt of testing and assessment of skills attained by learners before the actual application in the world of work.

One of the global best practices in teacher education training programme is to expose prospective teachers in training to teaching practice. It is a necessary pre-service training experience which serves as an avenue to translate theories into practice in a real classroom situation. Nwanekezi (2011)^[7] ascertain that teaching practice is the name of the preparation of student-teacher for teaching by practical training. This Teaching Practice Exercise can be effectively carried out if the student-teachers are ready for the exercise.

Teaching Practice Readiness is defined as a combination of one's ability and willingness to do a job that indicates a situational need for differing leadership approaches to get that job done (Baker, 2002). This means that Teaching Practice readiness is the combination of Science Student-teachers ability and willingness to carry out Teaching Practice exercise. Student-Teachers' Teaching Practice readiness in teaching practice is very important in teaching practice exercise as only those students who are ready for the exercise will be passionate about it. Teaching practice readiness therefore, implies the ability and willingness of student teachers to carry out the task of teaching in schools as teacher trainee for a period prescribed by the institution. Readiness of student-teachers to carry out the exercise determine to some extent the nature of Teaching Practice Delivery expected from such student. This is because only those students who are ready for Teaching Practice will go on to have effective Teaching Practice Delivery.

Teaching Practice Delivery is the ability of the student teacher to perform the task of class room teaching-practice effectively. The successful delivery of the exercise is an indication that the student teachers are ready to take full responsibility and assume the role of a teacher as professional career.

The theory reviewed which serves as a guide to this research work is Vygotsky (1978)^[12] social constructivist theory of cognitive apprenticeship. Cognitive apprenticeship is a theory that emphasizes the importance of the process in which a master of a skill (teacher) teaches that skill to an apprentice (student teacher). Learning in cognitive apprenticeship occurs through legitimate peripheral participation, a process in which newcomers enter on the periphery and gradually move toward full participation.

A lot of studies have been conducted to explore pre-service teachers' perceptions regarding their readiness and delivery of teaching practice. Rosas and West (2011)^[10] carried out a study to explore pre-service teachers' perceptions regarding their readiness to teach mathematical concepts and their preparation to integrate mathematical topics in instruction. Joza and Al Malihi (2015)^[5] investigated EFL elementary school teachers' perception of their own readiness to teach young learners at one of Saudi Arabian schools, King Saud Universit, Riyadh, Saudi Arabia. Napoles & MacLeod (2013)^[6] conducted a study to examine how teacher delivery and student progress influenced pre-service teachers' perceptions of overall teaching effectiveness in North Carolina; Utah.

2. Statement of the Problem

Over the years it has been observed during the researcher's teaching practice exercise years as an undergraduate student of the Department of Science Vocational Education UsmanuDanfodiyo University (UDUS), Sokoto, and through discussion with lecturers and students of the faculty that there were report of cases of lecturers visiting students on teaching practice exercise and most times the aforementioned students will not be present at the place of their teaching practice assignment. In most cases student-teachers will be caught unprepared by the supervising team without lesson note or lesson plan. The grade scores of teaching practice students of the faculty among other things is a thing of concern particularly that of science and vocational education where in 2016/2017 no student had scored an A grade in teaching practice course in department of science and vocational education (2016/2017 Teaching Practice Result). Similarly, this has been observed in FUGUS, SSU and KSUSTA. It is in this context that the research aimed at finding out the perception of Science Education Lecturers on Student-teachers Teaching Practice Readiness and Teaching Practice Delivery among lecturers of UDUS, FUGUS, SSU and KSUSTA.

3. Objectives of the Study

The objectives of the research are to find out whether;

1. There is difference in the perception of Science Education Lecturers on Teaching Practice Readiness of student-teachers in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education
2. There is difference in the perception of Science Education Lecturers on Teaching Practice Delivery of Students-teachers in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education

4. Research Questions

The following research questions were raised:

1. What is the perception level of Science Education Lecturers on Teaching Practice Readiness of student-teachers in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education?
2. What is the perception level of Science Education Lecturers on Teaching Practice Delivery of Students-teachers in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education?

5. Null Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

H₀₁: There are no significant Differences in Science Education Lecturers' perception of student-teachers Teaching Practice Readiness in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education.

H₀₂: There are no significant Differences in Science Education Lecturers' perception of student-teachers Teaching Practice Delivery in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education.

6. Method

In this research work a descriptive survey research design was adopted. The population of the study consists of all Science Education Lecturers that are also part of the

teaching practice supervision in UDUS, FUGUS, SSU and KSUSTA Faculty of Education which train and award professional certificates to teachers. The total population of the study is 56 Science Education Lecturers which comprised 13 Science Education Lecturers in UDUS, 15 Science Education Lecturers in FUGUS, 17 Science Education Lecturers in SSU and 11 Science Education Lecturers in KSUSTA. Purposive sampling technique was adopted in selecting Science Education Lecturers of the various four Universities. Purposive sampling technique was employed because the population is small hence the need to use the whole population with the exception of Lecturers who are part of the researcher’s research assistants. A questionnaire was designed by the researcher entitled TP Readiness Questionnaire (TPRQ) with mainly close-ended items. The items were scored on five (5) point responds (likert scale), consisting of options and was scored from 5-1. Strongly agreed= 5, agreed= 4, undecided= 3, disagreed= 2, strongly disagreed=1. The questionnaire has two (2) parts A and B. Part B is divided in to two sub-sections. The instrument was validated by two experts. The reliability coefficient index of 0.83 of the instruments was established. Mean and standard deviation were used to answer research questions. The corresponding Hypotheses were tested using inferential statistics of analysis of variance ANOVA.

7. Results

Research Question One; What is the perception level of Science Education Lecturers on Teaching Practice Readiness of student-teachers in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education?

Table 1: Mean and Standard Deviations of Respondents in Perceptions of science education lecturers on Student Teachers’ teaching practice Readiness

| School | N | Mean | Std. Deviation |
|--------|----|------|----------------|
| UDUS | 11 | 1.30 | 0.11 |
| FUGUS | 15 | 1.30 | 0.25 |
| SSU | 17 | 1.20 | 0.07 |
| KSUSTA | 11 | 1.20 | 0.08 |

Source: Field work 2021

Table 1 shows lecturers’ perceptions on pre-service teachers’ readiness during teaching practice. A total of 12 items were analyzed on a five-point scale. These items were collapsed into 3-scale: Agree, Disagree and Undecided and subsequently merged into one composite variable. To interpret participants’ response, an interpretative scale was developed, thus, mean value > 2.1 = Disagree; mean value < 2.0 = Agree; mean value of 2 to 2.1 = Undecided. From the results, respondents from UDUS had a mean response of (M=1.30, SD=0.11); FUGUS (M=1.30, SD=0.25); SSU (M=1.20, SD=0.07); and KSUSTA (M=1.20, SD=0.08). On the basis of these results, it can be inferred that student teachers demonstrate strong readiness towards their teaching practice activities.

Research Question Two: What is the perception of Science Education Lecturers on Teaching Practice Delivery of

Students-teachers in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculty of Education?

Table 2: Mean and Standard Deviations of Respondents in Perceptions of science education lecturers on Student Teachers’ teaching practice Delivery

| School | N | Mean | Std. Deviation |
|--------|----|------|----------------|
| UDUS | 11 | 1.56 | 0.26 |
| FUGUS | 15 | 1.65 | 0.26 |
| SSU | 17 | 1.39 | 0.23 |
| KSUSTA | 11 | 1.36 | 0.10 |

Source: Field work 2021

Table 2 shows lecturers’ perceptions on student teachers’ content delivery during teaching practice. A total of 13 items were analyzed on a five-point scale. These items were collapsed into 3-scale: Agree, Disagree and Undecided and subsequently merged into one composite variable. To interpret participants’ response, an interpretative scale was developed, thus, mean value > 2.1 = Disagree; mean value < 2.0 = Agree; mean value of 2 to 2.1 = Undecided. The results indicate the following response across the schools: UDUS (M=1.56, SD=0.26); FUGUS (M=1.65, SD=0.26); SSU (M=1.39, SD=0.23); and KSUSTA (M=1.36, SD=0.10). The results suggest that on average, the participants responded positively on student teachers’ delivery during teaching practice exercise.

Ho1: There are no significant Differences in Science Education Lecturers’ perception of student-teachers Teaching Practice Readiness in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education.

Table 3: Difference in Perception of lecturers on Student Teachers’ T. P. Readiness

| Category | N | Mean | Std. Deviation | F | Sig. | Decision |
|----------|----|------|----------------|------|-------|----------|
| UDUS | 11 | 1.30 | 0.11 | | | |
| FUGUS | 15 | 1.30 | 0.25 | 1.75 | 0.168 | Retain |
| SSU | 17 | 1.20 | 0.07 | | | |
| KSUSTA | 11 | 1.20 | 0.08 | | | |

Source: Field work 2021, $\alpha \leq 0.05$

From the result presented in table 3, a one-way ANOVA was conducted to test for significant difference in lecturers’ perception on student teacher teaching practice readiness among the four Universities under study. Subjects were categorized according to their university. There was no significant difference in perception of student teacher readiness during their teaching practice exercise among lecturers of the four Universities (F = 1.75; p-value = 0.16). However, an inspection of the mean scores shows that respondents from UDUS (M = 1.30; SD = 0.11) had a higher perception while those from KSUSTA had the lowest perception (M = 1.20; SD = 0.08). Based on these results, the research hypothesis was therefore accepted.

Ho2: There are no significant Differences in Science Education Lecturers’ perception of student-teachers Teaching Practice Delivery in teaching practice exercise in UDUS, FUGUS, SSU and KSUSTA Faculties of Education.

Table 4: Difference in Perception of science education lecturers on Student Teachers’ teaching practice Delivery

| Category | N | Mean | Std. Deviation | F | Sig. | Decision |
|----------|----|------|----------------|------|-------|----------|
| UDUS | 11 | 1.56 | 0.26 | | | |
| FUGUS | 15 | 1.65 | 0.26 | 4.86 | 0.005 | Reject |
| SSU | 17 | 1.39 | 0.23 | | | |
| KSUSTA | 11 | 1.36 | 0.10 | | | |

Source: Field work 2021, $\alpha \leq 0.05$

Table 5: Turkey HSD Test: Delivery

| (I) Universities | (J) Universities | Mean Difference (I-J) | Std. Error | Sig. |
|------------------|------------------|-----------------------|------------|------|
| UDUS | FUGUS | -.08974 | .09408 | .776 |
| | SSU | .16787 | .09184 | .273 |
| | KSUSTA | .19790 | .10069 | .215 |
| FUGUS | UDUS | .08974 | .09408 | .776 |
| | SSU | .25762* | .08164 | .014 |
| | KSUSTA | .28765* | .09148 | .015 |
| SSU | UDUS | -.16787 | .09184 | .273 |
| | FUGUS | -.25762* | .08164 | .014 |
| | KSUSTA | .03003 | .08917 | .987 |
| KSUSTA | UDUS | -.19790 | .10069 | .215 |
| | FUGUS | -.28765* | .09148 | .015 |
| | SSU | -.03003 | .08917 | .987 |

$\alpha \leq 0.05$

From the result presented in table 4, a one-way ANOVA was conducted to test for significant difference in lecturers’ perception on student teacher teaching practice delivery among the four Universities under study. Subjects were categorized according to their university. There was a significant difference in perception of student teacher delivery during their teaching practice exercise among lecturers of the four Universities ($F = 4.86$; p -value = 0.005). An inspection of the mean scores indicates that FUGUS has the highest perception ($M = 1.65$; $SD = 0.26$) while KSUSTA has the lowest perception ($M = 1.36$; $SD = 0.1$). Turkey HSD test (see table 5) indicate that the actual difference was between FUGUS and SSU (p -value = 0.014) and between FUGUS and KSUSTA (p -value = 0.015). Based on these results, the research hypothesis was therefore rejected.

8. Discussion

This study investigated the perception of science education lecturers on pre-service teachers’ teaching practice readiness and content delivery among lecturers of UDUS, FUGUS, SSU and KSUSTA. Four major findings were revealed from data analysis.

The first finding revealed that student teachers demonstrate strong readiness towards their teaching practice activities. However, a major setback in their readiness is their refusal to remain committed after supervision, suggesting that their teaching practice activities could be incomplete. A number of explanations have been offered as to why student teachers vacate their posted school after supervision. First reason is the lack of proper follow up supervision and monitoring of their school activities, including punctuality to school, attendance to class, and participation in school routine activities.

The second finding revealed that mix reaction trailed student teacher content delivery during their teaching practice exercise. Although significant number of respondents responded positively in favor of student teacher content delivery, however, considerable number disagreed to the claims, suggesting that not all the student teachers display effective content delivery during their teaching practice.

Hypothesis tested revealed that there was no significant difference in perception of student teacher readiness during their teaching practice exercise among lecturers of the four Universities ($F = 1.75$; p -value = 0.16). However, an inspection of the mean scores shows that respondents from UDUS ($M = 1.30$; $SD = 0.11$) had a higher perception while those from KSUSTA had the lowest perception ($M = 1.20$ $SD = 0.08$). Balyer (2017) [2], Rosas and West (2011) [10], Gladys (2015) [4] and Joza and Malihi (2015) [5] found in their study that students felt adequately prepared to teach and were indifferent in their perceptions of their ability to integrate several mathematical concepts.

Similarly, there was a significant difference in perception of student teacher delivery during their teaching practice exercise among lecturers of the four Universities ($F = 4.86$; p -value = 0.005). An inspection of the mean scores indicates that FUGUS has the highest level of perception ($M = 1.65$; $SD = 0.26$) while KSUSTA has the lowest perception ($M = 1.36$; $SD = 0.1$). The actual difference was between FUGUS and SSU (p -value = 0.014) and between FUGUS and KSUSTA (p -value = 0.015). (Adebayo, 2013 [1] Yaw, 2015; Kaldi, 2009; Yuksel, 2014). Conducted research and their findings revealed that there was a significant difference in the perception of teachers on students teaching practice delivery.

9. Conclusion

Based on the findings of the study, it was found that student teachers were generally perceived to demonstrate readiness and effective content delivery in their teaching practice exercise. Although these behaviors seem to be idiosyncratic to each student, they tend to be perceived differently by lecturers in different universities, with the exception of readiness. However, overwhelming evidence in the literature suggests that student-teachers are not adequately trained to teach, and hence demonstrate fair performance during their teaching practice exercise.

10. Recommendations

The following were recommended:

1. Strict supervision and monitoring are recommended for teacher training institutions to enhance the quality of teaching practice exercise.
2. School administrators are advised to closely monitor student teacher success, performance and punctuality in their teaching practice activities.
3. School administrators are encouraged to engage student teachers in daily school activities for them to learn skills of professionalism.
4. The teaching practice must be thoroughly monitored to ensure total compliance with the principles guiding the exercise.

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