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Evaluating the Performance of Student-Teachers' Pedagogical Skills Prior to Teaching Practice Using Multimedia Microteaching Laboratory in Colleges of Education Yobe State, Nigeria

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Abstract:

Pedagogical skills are basic tools teachers should possess for effectiveness in their service. Therefore, teaching the student teachers those skills is not an easy task; hence the need for multimedia microteaching laboratory which aids pre-service teachers to acquire them under controlled laboratory setting. The research designs adopted for study was quasi experimental research design using pretest and post-test. The study was be guided by three research objectives, three research questions and three null hypotheses and was tested at (0.05) level of significance. The population of the study was 4,334 NCE II Students of Umar Suleiman college of Education Gashua, Federal College of Education (Technical) Potiskum and College of Arabic and Islamic Studies Potiskum. A purposive random sampling technique was used to determine the sample from population, in the ratio of 30:30 student teachers drawn from both male and female student. The instrument used for data collection was microteaching skills rating scale (MSRS) developed by the researchers. Data collected was analyzed using descriptive and inferential statistics, at (0.05) level of significance. The result revealed that; Multimedia Microteaching Laboratory approach improved pre-service teachers' pedagogical skills prior to teaching practice. Multimedia Microteaching Laboratory was presumed to be better approach in improving males' students' pedagogical skills prior to teaching practice than their female counterpart. This shows that the increase in the pedagogical skills of the Federal College Education pre-service teachers was significantly higher than the increase in the pedagogical skills of State-owned College per-service teachers.

Keywords: Pedagogy, teaching practice, multimedia, microteaching laboratory

1. Introduction

Student teachers needs to be well acquainted with the needed skills in order to demonstrate competence and effectiveness brought about the whole idea of micro-teaching. Microteaching reduces the complexities of normal classroom teaching, thus allowing the student teacher to concentrate on the acquisition of a pedagogical skill. It makes the students teachers to be bold and develop confidence by following steps and procedures involved in the microteaching, Otsupius (2014) citing Ambili in (2013), Microteaching is an excellent way to build up skills and confidence, to experience a range of lecturing/tutoring styles and to learn and practice giving constructive feedback. Microteaching helps teachers improve both content and methods of teaching and develop specific teaching skills such as questioning, the use of examples and simple artifacts to make lessons more interesting, effective reinforcement techniques, and introducing and closing lessons effectively. Immediate, focused feedback and encouragement, combined with the opportunity to practice the suggested improvements in the same training session, are the foundations of the microteaching protocol. Egunjobi, Nwaboku and Salawu (2011) described microteaching as a program that prepares student teachers for the main teaching practice. They explained that microteaching is an indispensable course for student teachers. This is because they need to observe and acquire for teaching tasks. Isa and Jusoff (2011) considered microteaching as the ultimate sessions where the undergraduates put into practice theories. Also, Singh (2011) described microteaching as a safe practice, a vehicle for continuous training and a new approach to supervision. In addition, Konstantinos (2012) defined microteaching as a method of teacher training that is current and effective for acquisition of specific teaching skills. Micro-teaching is a technique in teacher education which provides an opportunity to marry theory with practice (Celik 2001). This is an

opportunity for trainee teachers to focus on specific teaching behavior and to practice various teaching skills under controlled conditions (Allen and Eve 1968). Microteaching is a teacher training technique which helps the student teachers to master the skills of teaching (Saxena and Khajanchee 2012). Recently, Tidwell (2013) viewed microteaching as a session of practice teaching that is videotaped for the teacher to watch. Microteaching is suitable for potential, new and existing teachers to review their teaching techniques and receive feedback from fellow teachers and administrators. The feedback received is used for making corrections to their teaching style accordingly. As every human activity or behavior is geared towards achieving a purpose so also, microteaching has aim, goals and objectives. Microteaching as an innovation in education has intention of training pre-service teachers in skills acquisition so as to make them effective and professional.

Professionalism in teachers will be attained if student-teachers are exposed to best practices in content and process of teacher education curriculum to enable them acquire not only sound content knowledge but also pedagogic-content knowledge to become effective and efficient teachers. Since the acquisition of a repertoire of pedagogic skills is critical for professional standards to be attained, it becomes imperative for micro-teaching practical to be an integral part of teacher production (Ijioma et al 2014). Pedagogy commonly understood as an approach to teaching which refers to more broadly the theory and practice of education, and how this influences growth and development of learners. Pedagogy taken as an academic discipline is the study of how knowledge and skills are exchange in educational context and it considers interactions that take place during learning. (Jo Westbrook et al 2013). Pedagogy itself is a contested term, but involves activities that evoke changes in the Learner. Jo Westbrook et al (2013) in Watkins and Mortimore (1999) define pedagogy as 'any conscious activity by one person designed to enhance learning in another. According to Bernstein (2000) in (Jo Westbrook et al 2013) pedagogy 'is a sustained process whereby somebody acquires new forms or develops existing forms of Conduct, knowledge, practice and criteria from somebody or something deemed to be an appropriate provider and evaluator. Bernstein contrasts two models of pedagogy that focus on the teacher's organization, management, discourse and response to the students and which provide a useful theoretical framework with which to understand different pedagogic approaches. This review found Alexander's definition of pedagogy most helpful, wherein teaching 'is an act while pedagogy is both act and discourse' (Alexander 2001) in Jo Westbrook et al (2013) Pedagogy comprises teachers' ideas, beliefs, attitudes, knowledge and understanding about the curriculum, the teaching and learning process and their students, and which impact on their 'teaching practices', that is, what teachers actually think, do and say in the classroom. Teacher beliefs are contextually based, and Alexander's definition also encompasses social, cultural and political aspects. Teachers' thinking and ideas are manifested in their overall pedagogic approaches, garnered from the kinds of teaching and learning experienced as school students themselves, the approaches promoted in initial teacher education (ITE) and continuing professional development (CPD), those specified in the current school curriculum and those pervasive in colleagues' classrooms. Recent curriculum reforms have moved away from 'teacher-centred' pedagogic approaches to more 'student learner or child centred or active learning approaches. Less explicitly and sometimes more distantly, pedagogic approaches are also informed by theories of learning, such as behaviorism and social constructivism. (Jo Westbrook et al 2013).

Pedagogy is all about learning, teaching and development influenced by the cultural, social and political values we have for children. This is why Quality teaching is defined as pedagogical practices that facilitate for diverse children their access to knowledge, activities and opportunities to advance their skills in ways that build on previous learning, assist in learning how to learn and provide a strong foundation for further learning in relation to the goals of the early childhood curriculum. (Farquhar, 2003) Pedagogy refers to knowledge, skills and attitudes that are needed to teach subject effectively

Teaching practice is a form of work-integrated learning that is described as a period of time when students are working in the relevant industry to receive specific in- service training in order to apply theory in practice. Edith, Kiggundu and Samuel, (2009) Marais and Meier (2004) in Edith and Samuel (2009) assert that the term *teaching practice* represents the range of experiences to which student teachers are exposed when they work in classrooms and schools. Marais and Meier (2004) further argue that teaching practice is a challenging but important part of teacher training, where the effectiveness of the teaching practice can be diminished or eroded by a range of challenges, such as geographical distance, low and uneven levels of teacher expertise, a wide-ranging lack of resources as well as a lack of discipline among a wide cross-section of learners and educators. These challenges, if not addressed, may affect student teachers' performance during teaching practice and may in the long run affect their perception of the teaching profession. Teaching practice is an exercise which student teachers are exposed to for their practical training. Ajileye (2013). Teaching practice refers to a situation where the college of education student teacher is posted to primary/post-primary schools of their choice in order to demonstrate the acquired teaching skills for a specified period of time (Garba (2018). Student Teaching Practice is a kind of apprenticeship stage during which the students are sent out to school to gain practical and professional experience by translating all the educational theories they have acquired or learnt during training into practice (Fagbulu, 1984) in (Jo Westbrook et al 2013).

2. Multimedia Microteaching Laboratory

Perlberg (2019) sees microteaching laboratory as an effective way to provide a safe practice ground for student teachers for it possesses most of the features of real classroom. At first many shows the typical tension of neophyte teachers (in experience teacher), but as it is a laboratory exercise, tension is soon reduced and training can be focused on acquisition of teaching skills and techniques related to pupils with different abilities, aptitudes, characteristics and needs. There is also opportunity to master curriculum material. In microteaching laboratory several sources of feedback can be employed. The simplest is the oral feedback of laboratory supervisors which is inherently subjective and therefore a

systematic observation and recoding of verbal and nonverbal interaction in the lesson is preferable. The relatively non-threatening atmosphere in the laboratory creates better communication between the supervisor and the trainee especially when his feedback is objective. The microteaching elements of the laboratory help the supervisor to focus and concentrate his observation, giving greater accuracy of feedback. He added that important source of accurate feedback is obtained through audio- tape recordings. Recent technological developments have resulted in small, portable tape recorders operated by batteries which are relatively low priced. Even though audio recordings are limited to the verbal classroom interaction, they still enable to provide objective feedback which can be played back as often as necessary. In another development, in his recent survey of accredited institutions indicates that fifty- nine percent of the institutions involved in microteaching used video tape more than seventy- five percent of the time, whereas only five percent of the institutions used audio tape more than seventy- five percent of the time. Therefore, the above statement shows that the institutions used video tape during microteaching has out weight the institutions used audio tape.

3. Review of Empirical Studies

Researches on multimedia in the learning environment have been quite few. Some researchers have made attempts to find the effects of aspects of multimedia programme on teaching effectiveness. For example, Genc et al 2016 investigate on the effect of the use of multimedia on student's performance in social studies in Yildiz technical university, Turkey. When the pre and post test results of the experimental group were compared, a significant difference is observed between the two tests $t(68) = -4.323, p=.000<.05$. When the mean values of experimental group were analyzed, a considerable increase is observed in the post-test results compared to pre-test result (expetest=71.57<exposttest=84.87). From this point, according to the implementation results, it could be asserted that the use of multimedia positively affects the academic success of the students, as statistically significant difference is observed between the pre and

In another development, Oscar, (2012) as cited by Onwuagbuke et al (2017) examined video tape recorder (VTR) as a tool for the promotion of effective teaching and learning in schools. The result of the investigation revealed that video-tape recorder is a powerful tool that promotes effective teaching and learning in schools. Similarly, Shanu (2016) investigated the impact of microteaching video feedback on student-teachers' performance in teaching practice. Findings of the investigation revealed that student teachers who were exposed to microteaching video feedback performed better in teaching practice than those that were not exposed to it.

In a related study, Umeh, Mogbo and Nsofor, (2015) reference by Onwuagbuke et al (2017) studied the effectiveness of VTR on micro-teaching on student teaching practice of stimulus variation skills. The findings of the study revealed that the use of video tape recorder effectively increased the performance of the pre-service teachers who were in the experimental group. Similarly, Savas, (2012) in an earlier study found that using video recordings of microteaching sessions enhanced the English teaching skills of pre-service teachers in a University in Turkey. Another study carried out in Turkey by Kilic, (2010) revealed that the microteaching model employed in the study enhanced student teachers' teaching behaviors on subject area, planning, teaching process, classroom management, communication, and evaluation. In a similar but different study, Programindaki and Arastırılması (2009) used a qualitative approach to determine the effectiveness of peer microteaching in teacher education programme in Turkey. Findings revealed that peer microteaching practices, improved self-confidence of the participants as they found the opportunity to observe themselves while gaining experience. Ekpo-Eloma, Arikpo and Ebuta (2014), in a related study found a significant relationship between the use of video technology and teacher trainees' self-appraisal and evaluation irrespective of gender. Nwana (2010) quoted by Onwuagbuke et al (2017) equally studied the effect of gender on student-teachers' VTR technique acquisition for mastering verbal communication skill in microteaching and concluded that gender had no significant effect on student-teachers' acquisition of verbal skills through VTR evaluation.

Effective development of teaching skills in teachers should target the pre-service teachers as they are the future teachers. Incorporating the development of these skills will not only make the use of these skills practicable but also provide a model for actual and seamless implementation of these skills in normal classroom situation. Alvanlkoku University of Education as a leading institution in teacher education has been functioning as a centre of excellence in educational innovation (Ohuche and Izuwah, 1988) as mentioned by Onwuagbuke et al (2017) With a well-established microteaching facility, it is auspicious to investigate the impact of the microteaching on the development teaching skills of pre-service teachers in the university. This is against the backdrop that Ijioma, Obasi and Ifegbo (2014) reiterate that microteaching has not been given prominence in degree teacher education supervised by the Nigeria Universities Commission (NUC). This was done to provide evidence of the impact of microteaching in developing teacher candidates' teaching skills in the 21st century and thus provide an empirical evidence for the inclusion of microteaching in degree teacher education programme. The study was designed to extend the peer microteaching model adopted and practiced in Alvanlkoku College of Education Nigeria Certificate in Education (NCE) programme with a view of finding out its impact in the development of some selected teaching skills by degree pre-service teachers. Compare the effectiveness of 3 different levels of the microteaching approach in enhancing the acquisition of the said teaching skills. The study also tried to determine if gender has any influence in pre-service teachers' microteaching skill development.

4. Statement of Problem

The process of transforming theoretical knowledge of pre service teachers in colleges of education to practical is undertaken during micro-teaching. Despite the period taken during micro-teaching session, student teachers are still found in-effective in the use of requisite teaching skills. This could lead to the display and mismanagement of teaching materials for the achievement of the designed objectives during teaching practice. Moreover, poor performance of the

student teachers in the demonstration of the relevant teaching skills in the teaching and learning situation has created serious vacuum in the attainment of designed learning experience during teaching practice session. Situation which stimulates parents, teachers-trainee, administrators, and ministry of education and National Commission of Colleges of Education (NCCE) in developing doubts about the competency of these categories of student teachers in transforming the learner's level of academic standard to an advance level. Therefore, the aforementioned problems inform the need to conduct a study on evaluating the performance of student-teachers' pedagogical skills prior to teaching practice using multimedia microteaching laboratory in colleges of education in Yobe state – Nigeria.

5. Objectives of the Study

This study aimed to accomplish the following objectives:

- To determine the extent of multimedia microteaching laboratory in improving pre-service teachers' pedagogical skills prior to teaching practice in Yobe State.
- To compare the difference in the pedagogical skills between male and female pre-service teachers' when exposed to multimedia microteaching laboratory prior to pedagogical practice in Yobe State.
- To compare the difference in the pedagogical skills prior to pedagogical practice between federal and state-owned colleges of education in Yobe state.

6. Research Questions

- How effective is multimedia microteaching laboratory in improving pre-service teachers' pedagogical skills?
- What is the impact of multimedia microteaching laboratory in shaping both male and female pre-service teachers' pedagogical skills?
- What are the differences in the improvement of pedagogical skills of pre-service teachers when expose to multimedia microteaching laboratory in both federal and state-owned colleges of education in Yobe state?

7. Hypotheses

- There is no significance difference in the pre-service teachers' pedagogical skills between those expose to multimedia microteaching laboratory and those taught using traditional microteaching approach.
- There is no significance difference between male and female pre-service teachers' pedagogical skills taught using multimedia microteaching laboratory.
- There is no significance difference between pre-service teachers' pedagogical skills in the federal and state-owned colleges of education taught using multimedia microteaching laboratory.

8. Methodology

In this study, quasi experimental research design was employed with experimental and control groups and pre and post-test. In the quasi experimental research design model, data are analyzed directly under the control of the researcher (Genc and Sahin, 2016). And it is regarded as the best in comparing two groups, time limit, reliability, and testing the hypothesis for cause and effect (Check and Schutt, 2012:128). Micro teaching exercises were taking place in the multimedia microteaching laboratory prior to teaching practice (NCCE, 2012:05). The study demanded observing the pre-service teachers' pedagogical skills prior to the exposure to microteaching programme. Experimental group were exposed to multimedia microteaching laboratory using microteaching pedagogy skill rating scale (MPSRS). And the control group was then exposed to the traditional microteaching programme using talk and chalk as designed by the researchers. Each and every pre-service teacher has equal right to present a mini lesson of 5-10 minutes (Agana, Bukar and Dumai, 2016:05). Three experts supervised the microteaching presentation exercise, one from school of education, a representative of the multimedia laboratory and a subject specialist of the pre-service teacher.

The population comprises of all NCE II students of Federal College of education (Technical) Potiskum, Umar Suleiman College of Education Gashua and College of Arabic and Islamic studies Potiskum Yobe state. A sample of 60 pre-service teachers was purposely selected from the population in the ratio of 30:30 male and female.

The instrument used was a microteaching pedagogy skill rating scale (MPSRS) adapted from Owuagboke, Osuala and Nzeako, (2017) which was used to rate the pre-service teacher's frequency of exhibition of required skills during presentation of mini lesson in the microteaching programme. The MPSRS contain 25 items scale which has specific options for supervisors to rate the occurrence of the pre-service teachers' behaviours ranging from; never, less frequent, frequent and very frequent. The content validity of the MPSRS was ascertained by the use of two experts in the curriculum and instruction and measurement and evaluation departments from the two colleges of education in Yobe State. They have also established the appropriateness, statement clarity, content validity as well as the content coverage of the items. And ensure items in the rating scale did not go beyond the scope of the expected teacher behaviours developed by the pre-service teachers. Possible errors in the instrument were also checked by the experts and certify if the questions/statements are appropriate for the level under study. The final instrument was trial tested using NCE II pre-service teachers in Sir Kashim Ibrahim College of Education Maiduguri in Borno State, Nigeria.

The reliability coefficient of the MPSRS was established using Pearson product correlation coefficient (PPMC). The reliability was established at 0.80 which is very reliable for the study of this nature. Then, a number of Pre-service in the Sir Kashim Ibrahim College of Education Maiduguri, Borno State was preserved to present a lesson in their multimedia microteaching laboratory and they were observed using MPSRS to assess the level of their pedagogical skills. Group 1 were exposed to microteaching using multimedia microteaching laboratory. Group 2 were exposed to traditional microteaching

technique using talk and chalk. The pre-service were rated using the MPSRS; never was rated as 1, less frequent 2, frequent rated 3 while very frequent was rated as 4 respectively.

The data was analyzed using SPSS software programme, research questions were answered using mean and standard deviation, whether there was a difference between the control and experimental groups as result of multimedia microteaching laboratory used was defined via t-test and that significant value was taken as 0.05.

9. Result

Variable	N	X	SD	df	t	p	Remarks
Experimental	30	40.55	5.94	59	35.34	0.001	Significant
Control	30	37.91	8.31				

Table 1: t-test Analysis of Mean Score of Pre-Service Teachers' Pedagogical Skills for Experimental and Control Groups (Posttest)

Table 1 Revealed that the mean score of pre-service teachers' pedagogical skills for experimental and control group is significantly different with $t(59) = 35.34$ and $P = 0.001, < 0.05$. And that the mean difference of experimental group is 40.55 while the mean difference of the control group is 37.91. This shows that experimental group exposed to Multimedia Microteaching Laboratory approach developed pedagogical skills per better than those exposed to traditional microteaching approach since 0.001 is less than 0.05, therefore Multimedia Microteaching Laboratory approach improved pre-service teachers' pedagogical skills prior to teaching practice. And that null hypothesis one is thereby rejected.

Variable	N	X	SD	df	t	p	Remarks
Posttest (Males)	30	6.13	2.6	29	4.20	0.001	Significant
Posttest (Females)	30	9.07	3.6				

Table 2: t-test Analysis of Males and Females' pre-Service Teachers' Pedagogical skills for Experimental and Control Groups Significant at the $P \leq 0.05$ Levels

Table 2 Revealed that the mean score of males and females pre-service teachers' pedagogical skills prior to teaching practice for experimental and control group is significantly different with $t(29) = 4.20$ and $P = 0.001, < 0.05$ with mean difference of experimental group (males) 6.13 and 9.07 for the experimental group (females). This shows that males students in the experimental group exposed to Multimedia Microteaching Laboratory acquired pedagogical skills far better than those (females) counterpart exposed to Multimedia Microteaching Laboratory since 0.001 is less than 0.05, therefore Multimedia Microteaching Laboratory was presumed to be better approach in improving males students' pedagogical skills prior to teaching practice than their female counterpart. And that null hypothesis two is thereby rejected.

Variable	N	X	SD	df	t	p	Remarks
Federal College	30	13.43	8.2	29	6.908	0.000	Significant
State College	30	-0.188	7.9				

Table 3: t-test Analysis of Federal College and State College of Education NCE II Students' Pedagogical Skills Prior to Teaching Practice Significant at the $P \leq 0.05$ Levels

When table 3 is analyzed, it was revealed that there is a significant difference in the values of two groups $t(29) = 6.908, p = 0.000, < 0.05$ exposed to Multimedia Microteaching Laboratory in both Federal College of education (Technical) Potiskum and Umar Suleiman College of Education Gashu'a, the mean difference of the Federal College of Education was 13.43 while the mean difference of the State owned College of Education was -0.188. This shows that the increase in the pedagogical skills of the Federal College Education pre-service teachers was significantly higher than the increase in the pedagogical skills of State-owned College per-service teachers. Since 0.000 is less than 0.05 therefore hypothesis three is thereby rejected.

10. Recommendations

The researchers put forward the following recommendations:

- Multimedia Microteaching Laboratory is an effective means of enhancing pre-service teachers' pedagogical skills prior teaching practice this is due to fact that, multimedia laboratory has a variety gadget supporting the presentation of every concept from different subjects, it has the characteristics of bringing explanations closely resembles reality.
- From the findings of this study Multimedia Microteaching Laboratory is gender biased because it has proven reasonably that; it has great impact in improving male teacher trainees' pedagogical knowledge and skills than their female counter part.

- Federal College of Education teacher trainees according to this study are presumed to be better in the display of pedagogical skills when exposed to Multimedia microteaching laboratory this due to the fact that Federal colleges of education per-service teachers are more conversant expose and potentially utilized and manipulate the laboratory gadgets in teaching a specific concept within the time frame. Therefore, for us to meet up the challenges of the 21st century for having flexible teachers with pedagogical knowledge and skill prior to teaching practice then, our trainee teachers are expected to be rigorously train on use of multimedia microteaching laboratory because of its potentialities in developing and shaping the teacher trainee's pedagogical knowledge and skills.

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