

Impact of Video- Self and Peer -Analysis on the Development of Presentation Skills Among Colleges of Education Students in Northwest Zone, Nigeria.

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Abstract

This study investigated the Impact of Video-Self and Peer -Analysis on the Development of Presentation Skills among Colleges of Education Students in North-West Zone, Nigeria. Pre-test, Post-test Experimental Control Group research design was used in this study. The population of the study consists of 1650 National Certificate of Education II (NCE) Chemistry Students from 5 Colleges of Education, a sample of 105 N.C.E II Chemistry Students were drawn from the population using simple random sampling technique and were categorized into Experimental and Control groups. Pedagogical Skills Acquisition Observation Check List (PSAOCL) with a reliability coefficient of 0.87 was the instrument used for data collection. One research question and one research hypothesis were raised to guide the study and analyzed using Mean rank difference and Kruskal Wallis H test. Findings from the study revealed that Pre-service Chemistry teachers' in the Experimental group exposed to Video- self, and peer -analysis acquired more skills in Presentation than their counterparts in the Control group who were not exposed to video self and peer analysis. Based on the findings of the study, it was concluded that Video -self, and peer-analysis of Teaching enabled Pre-service Chemistry teachers acquired Presentation skills. Based on the findings of the study it was recommended that Colleges of Education tutors should adopt the use of Video-analysis during Mini -teaching to enable pre-service teachers acquire Presentation skills among others.

Keywords: Video Analysis, Pedagogical Skills and Presentation skills.

Introduction

Every society requires adequate human and material resources to improve its social organization, preserve its culture, enhance its economic development and reform its political structure. This could be achieved through Science Education. Science Education is the teaching and learning of science to non-scientists, such as school children, college students, or adults within the general public (Aina, 2012). The field of science education includes work in science content, science process (the scientific method), some social science, and some teaching pedagogy. The traditional subjects included in the standards are Physics, Biology, Agriculture, Geography, and Chemistry among others. Chemistry is a catalyst for sustainable national growth and development. Ababio (2015) defines Chemistry as a branch of science that deals with the study of composition, properties, and uses of matter. Chemistry probes into the principles governing the changes matter undergo the complexity of nature, and changes that take place in the universe. Chemistry is offered at the Senior Secondary classes to help students learn important aspects of scientific concepts that would enable students to pursue a scientific career (Nwankwo & Okoye, 2011). Chemistry is a pre-requisite subject

for offering most science-oriented courses in tertiary institutions and this calls for the need for effective teaching and learning of chemistry. Despite the importance of chemistry and its educational value which is relevant to the need of individual learners, economics and technological breakthrough of a nation, and the effort of researchers to improve on its teaching and learning, there has been a consistent decline in the performance of students in public national examinations conducted by the West African Examination Council (WAEC) and the National Examination Council (NECO) in chemistry across the country (Samba & Eriba, 2012). Umahaba (2016) stated that many factors contributed to the poor academic performance among students in Chemistry at Senior Secondary School Certificate Examinations (SSSCE) and some of these factors include; ineffective teaching methods adopted by chemistry teachers, inadequate infrastructure, and lack of professionally qualified teachers among others.

Adewuyi and Ogunwuyi (2012) stated that teacher education is the provision of professional education and specialized training within a specified period for

the preparation of individuals who intend to develop and nurture the young ones into responsible and productive citizens. Teacher education is the teaching and training experiences provided not only within teachers' training institutions but also outside the institutions with the primary aim of preparing and grooming potential teachers for the teaching profession.

The pedagogical skill of teachers is seen as an important determinant of teachers' quality and professionalism. According to Tripp (2012), pedagogical skill refers to the specialized skill of the teachers for creating effective teaching and learning environment for students. Tripp(2012) defined pedagogical skills as principles and strategies for classroom management and organization, the art of teaching which involves abilities to convey knowledge and skills in ways that learners can understand, remember and apply. It involves knowledge of teaching strategies that appropriate teaching methods, thereby creating a creative learning environment and connecting prior conceptions. It includes general knowledge of a teacher about teaching tactics, needs of learners, classroom management, and communication with learners among others.

Nuangchalem (2012) argued that having knowledge of a subject matter and general pedagogical strategies, though necessary, was not sufficient for capturing the knowledge of being a professional teacher. If teachers were to be professionals, they would have to confront both issues simultaneously since teaching is said to be a continuous process. Teachers are those who possess subject content knowledge expertise and have the ability to translate the subject content to their students and engage in-class activities that facilitate free class discussion through the integration of different Teaching Skills (Olorukooba, 2007).

Teaching skills as defined by Rani (2011) as all activities of the teacher to foster the teaching and learning process in a classroom situation. It involves all activities of the teacher to bring about meaningful teaching and learning. These skills are applied in the actual teaching situation such as during teaching practice where the pre-service teacher put theories into practice. During microteaching, specific teaching skills are practiced at a time to acquire such skills and are practiced in a scaled-down encounter without taking into account the teaching and learning process. Therefore there is a need to reconceptualize and reorganize the teaching profession to enable student teachers to develop both content knowledge and the

skills to assist their learners to learn the concept and this could be done through practice.

Teaching skills are purposeful and goal-directed activities that are essentially problem-solving. It is a set of teacher behavior that is effective in bringing out desired changes in pupils. They are activities and behaviors that facilitate learning, instructional techniques, and procedures used by the teacher in the classroom. Teaching skills vary from very broad and general skills such as planning a lesson to very specific skills such as the appropriate length of time to wait for a pupil to answer a particular question. However, there is no definitely agreed on list of teaching skills but Muij and Reynold (2014) were of the view that teachers who are judged to be effective display the following skills in their teaching:

- a) Establishing orderly and attractive learning environment;
- b) Concentrating on teaching and learning by maximizing learning time and maintaining academic emphasis;
- c) Purposeful teaching through the use of well-organized and well-structured lessons coupled with clarity of purpose;
- d) Conveying light expectations and providing intellectual change;
- e) Monitoring progress and providing quick corrective and
- f) Establishing clear and fair discipline.

Kyriacou (2007) was of the view that the essential teaching skills involved in contributing to successful classroom practice can be identified and described as follows:

- a) Planning and preparation: the skills involved in selecting the educational aims and learning outcomes intended for a lesson and how best to achieve these.
- b) Lesson presentation: the skills involved in successfully engaging pupils in the learning experience, particularly about the quality of instruction.
- c) Lesson management: the skills involved in managing and organizing the learning activities taking place during the lesson to maintain pupils' attention, interest, and involvement.
- d) Classroom climate: the skills involved in establishing and maintaining positive attitudes and motivation by pupils towards the lesson.

- e) Discipline: the skills involved in maintaining good order and dealing with any pupil misbehavior that occurs.
- f) Assessing pupils' progress: the skills involved in assessing pupils' progress, covering both formative (intended to aid pupils' further development) and summative (providing a record of attainment) purposes of assessment.
- g) Reflection and evaluation: the skills involved in evaluating one's current teaching practice to improve future practice. This study, therefore, examined the Impact of Video self and Peer-analysis of Teaching procedure in developing some specific teaching skills such as Presentation Skills among others.

Video can be regarded as an agent of reflection and construction of knowledge about teaching through the production of records that attention to a pre-identified set of skills, behavior, and attitudes during teaching (Goran, 2019). It is believed that teachers learn more in environments that are learner-centered and purposely designed to develop knowledge, interest, and strength. Also, meaningful learning occurs when learners have the opportunity to construct meaning from multiple presentations of the same material rather than relying on a single perspective where Video provides the means to do so. (Fukkins, Trienekens & Kramer 2010). Videotapes, such as videotaped lessons or cases are tools that allow teachers to engage in reflection by observing, examining, and evaluating their teaching (Khudenko, 2011). The use of audio and visual components during reflection help to better capture the rich context of the classroom (Coffey, 2014).

The video can preserve both the verbal and non-verbal elements of a teaching situation. Students are afforded the chance to see themselves from a "self-as-observer perspective" or a different vantage point and move from reflection on vague recollections of classroom events, to more critical and evidence-based analysis of how the lesson was concluded (Rosaen, 2010). This provides the opportunity for multiple viewing of the teaching situation enabling the viewer to observe elements and events that occurred in the teaching situation that might otherwise have gone unnoticed (Zhang, Lundberg & Eberhardt, 2010). Yigit (2010) is of the view that the use of Video recording contributes more to student teachers' skills presentation. Gao, Chee, Wang, Wong, and Choy (2017) opined that the use of video-enabled participants gains pedagogical

skills such as collaborative learning, project-based learning, and inquiry-based learning. Similarly, Mc Fadden, Ellis, Anwar, and Roehring (2014) opined that Video annotation provides a mechanism for teachers to reflect directly on their classroom practice and support reflection on the action which leads to the acquisition of Presentation Skills. Also, Coffey (2014) was of the view that the video-enabled students to view themselves multiple times to observe elements of their teaching, identify areas of weakness, and identify strategies to address them which have enabled the students to direct the attention to more complex pedagogical skills they need to acquire. Fade and Sullivan (2013) argued that the interactive video approach has the potential to amplify pre-service teachers' acquisition of Presentation Skills from video-based observation while Recesso et al (2009), and Hammersley (2004), argued that even though the use of Video analysis leads to the development of Pedagogical skills among pre-service teachers' they are usually isolated from one another and or used unsystematically and this result in teachers not being able to thoroughly or critically examine issues in their teaching practice.

During Video analysis, the viewer can pause, annotate, rewind and replay the video (Goran, 2019). The potential of video lies in its capacity to document the richer, more complex events in the classroom environment which provides student teachers with the appropriate background to observe and reflect carefully on different issues of teaching and learning (Pashchenko, 2012). Without this capacity to view themselves, students' teachers depend on memory alone to reflect upon their teaching. Video enables them to embrace the dissonance between what they remember from memory and what they view in their video clips. Repeated viewing is helpful in this regard. This helps the student teacher to avoid complacency which can serve as a barrier to their growth as educators (Khudenko, 2011).

Objective of the Study

The objective of this study is to investigate the impact of Video Analysis on the Presentation skills of Pre-service Chemistry Teachers in Colleges of Education exposed to video self and peer-analysis and those who are not exposed.

Research Question

What is the difference between the Presentation Skills acquired by Pre-service Chemistry Teachers in

Colleges of Education exposed to video self and peer-analysis and those who are not exposed?

Hypothesis

There is no significant difference between the Presentation Skills acquired by Pre-service Chemistry Teachers in Colleges of Education exposed to video self and peer-analysis and those who are not exposed.

Method

The researcher employed a pre- test post-test experimental research design. Both Experimental and Control Groups were pretested (O_1) to determine their similarities in pedagogical skills. The Experimental Group (EG) was treated using multiple interactive video activities on the acquisition of four teaching skills to teach a particular concept in chemistry (X_1). Here the video was set up during each lesson, all lesson procedures were captured and recorded through digitized video. Teaching processes were analyzed by observation, analysis was discussed and presented to the students where questions were asked and strategies for improvement were discussed. The Control Group (CG) was analyzed using peer and self-analysis (X_0) without Video. Post-tests were administered to the two groups to determine the effect of the treatment on students' pedagogical skills.

The population of the study comprised 1650 NCE II Students in the 2018/2019 Academic Session from 5 Federal Colleges of Education in North-west Zone Nigeria. The sample of the study covered a total number of 105 NCE II students from two Colleges of Education in North-West, Zone Nigeria. 80 students from Federal College of Education Zaria, Kaduna State, and 25 students from Federal College of

Education Kano State. This was done using Simple Random Sampling Technique. The detail of the sample of this study is presented in Table 1

Table 1: Sample for the Study				
Institution	Group	Male	Female	N
FCE, Zaria	Experimental	50	30	80
FCE, Kano	Control	15	10	25
Total		65	40	105

Pedagogical Skills Acquisition Observation Check List (PSAOCL) with reliability coefficient of 0.87 determined using Cronbach's Alpha statistical tool. The instruments were validated by three Professors from the Department of Science Education and two Senior Lecturers with PhD from the Department of Educational Psychology, Faculty of Education, Ahmadu Bello University, Zaria. They were presented with copies of adapted items (Pre-service Teachers Pedagogical Skills Questionnaire and Pedagogical Skills Acquisition Observation Check List) for validation. The experts were requested to: study the instrument and certify if the contents were considered to be testing based on the objectives of the study and examine whether the items are clear to avoid ambiguity.

Data Analysis

The research question was answered using Mean Rank Scores and Mean Rank Difference scores in Presentation skills of Pre-service Chemistry Students in Experimental and Control Groups while the hypothesis was analysed using Kruskal walis H test. Result is presented in Table 2 and 3.

Result

Table 2: Mean Rank Scores and Mean Rank Difference scores in Presentation skills of Pre-service Chemistry Students in Experimental and Control Groups

Chemistry Students in Experimental and Control Groups					
	Test Groups	N	Mean Rank	Mean Rank Difference	Remark
Presentation Skills	Experimental Pre-test	80	54.76	1.76	Difference Exist
	Control Pre-test	25	53.00		
	Experimental Post-Test	80	149.49	82.16	
	Control Post-test	25	67.33		
	Total	210			

Results in Table 2 shows that Pre-service Chemistry Teachers in Experimental and Control Groups had a Mean rank score of 54.76 and 53.00 with a mean rank difference of 1.76 during their pre-test and 149.49 and 67.33 with a mean rank difference of 82.16 in their Post-test in Presentation skills acquisition. This shows

that Pre-service chemistry teachers in the Experimental Group who were exposed to Video self and peer analysis acquired more skills in presentation than their counterparts in the Control Group who were not exposed to Video self and peer Analysis.

Table 3: Kruskal Walis H test on the difference between the Presentation skills acquired by Pre-service Chemistry Teachers in the Experimental and Control Groups

	Test Groups	N	Mean Rank	df	X ² cal	X ² crit	P-value	Remark
Presentation Skills	Experimental Pre-test	80	54.76	3	147.247	7.815	0.00	Sig.
	Control Pre-test	25	53.00					
	Experimental Post-test	80	149.49					
	Control Post-test	25	67.33					
	Total	190						

p-value < 0.05, X² cal > X² crit at df 3

Results of the Kruskal Walis H test in Table 3 show that a significant difference exists between the Presentation skills acquired by Pre-service Chemistry Teachers in the Experimental Group and those in the Control group because the calculated p-value of 0.00 is lower than the 0.05 level of the significant set for the study.

Discussion

The result in Table 3 shows that a significant difference exists between the Presentation skills acquired among Pre-service Chemistry Teachers exposed to video self and peer analysis and those who were not exposed in favour of Pre-service Chemistry Teachers who were exposed to Video Self and peer analysis of Teaching. This shows that the use of Video self and peer analysis in observing Pre-service Chemistry teachers' Teaching Procedures enabled pre-service teachers to acquire Presentation skills. This result is supported by Yigit (2010) who was of the view that the use of Video recording contributes more to student teachers' skills in presentation, Gao, *et al* (2017) who were of the view that the use of video-enabled participants to gain pedagogical Skills such as collaborative learning, project-based learning, and inquiry-based learning. Similarly, Mc Fadden, *et al* (2014) opined that Video annotation provides a mechanism for the teachers to reflect directly on their classroom practice and support reflection on the action which leads to the acquisition of Presentation Skills. This is contrary to the view of Sherin (2001) who thought that the use of video gives greater access to classroom events than class observation without compromising authenticity while the findings in this study disagreed. Also, Coffey (2014) was of the view that the video-enabled participants to view themselves multiple times to observe elements of their teaching, identify their areas of weakness, and identify strategies to address them which enabled the students to direct the attention to the more complex Pedagogical skills they need to acquire. Tripp (2011) reported that

saturation occurs after 3-4 viewings. Fade and Sullivan (2013) argued that the interactive video approach has the potential to amplify pre-service teachers' acquisition of Presentation Skills from video-based observation while Recesso *et al* (2009), argued that even though the use of Video analysis leads to the development of Pedagogical skills among Pre-service Teachers they are usually isolated from one another and/or used unsystematically and this result in teachers not being able to thoroughly or critically examine issues in their teaching practice. In the same vein Coffey (2014), Nilson and Loughrann (2012), and Pashchenko, (2012), disagreed that the use of Video analysis leads to the development of pedagogical skills among pre-service teachers because they were of the view that teachers' skills are developed when; it is situated in the context of the classroom versus in abstract situations when teachers are exposed to multiple instances of an event across multiple contexts so that they develop an understanding of the range of practices and the learning context not necessarily with the use of Video.

Conclusion

The findings of this study revealed that Pre-service Chemistry Teachers who were exposed to Video self and Peer analysis of their teaching procedure acquired more skills in Presentation when compared to their counterparts who were not exposed to Video self and peer analysis.

Recommendations

Based on the findings and discussion, the following recommendations are made:

1. Colleges of Education Tutors should adopt the use of Video analysis during mini Teaching practice to enable pre-service teachers to acquire pedagogical skills.
2. Pedagogical Skills of Teachers should be considered when recruiting Chemistry Teachers in Senior Secondary Schools.

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