

A STUDY OF THE IMPLEMENTATION OF THE IMPROVISED SINGLE CAMERA MICROTEACHING PROGRAMME AT THE UNIVERSITY OF PORT HARCOURT

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ABSTRACT: *This study sought to develop a model of improvised microteaching technology that can be deployed for the success of teacher education programmes in moments of fiscal deficit and equipment down time. Using a single video camera to improvise a video technology based microteaching laboratory, the study analysed the impact of video feedback on trainee teachers self confidence, quality of voice level in delivery of instruction, overall improvement of teaching skills and the inherent challenges. The study revealed that the improvised single camera model of microteaching is less technology intensive, cost effective, and a result oriented model of microteaching programme. With the challenge of high waiting time resulting from the use of one camera and the need for alternative source of electricity supply, it is recommended that the model be applied in the teacher education institutions with proper planning.*

KEY WORDS: microteaching, teaching skills, video technology, feedback, improvisation.

INTRODUCTION

Microteaching, the presentation of miniaturized forms of the demonstrations of teaching skills and activities for teacher training purposes has remained an essential component of any teacher education programme (Savas, 2012). As the name implies, the skills exhibited by the teacher during teaching are here presented in micro or small bit durations to few learners, and in a brief class period to enable the learner acquire the teaching skills. Microteaching is also used to ascertain the extent to which the trainee teacher has attained mastery of the said skills especially when exhibited during skills evaluation.

As part of the training programme for trainee teachers, microteaching is the practical skills experience provided for learners to acquire the critical teaching skills. It is an innovative, scaled down teaching encounter that aims at the development of the teaching skills of pre-service teachers (Iderima and Agwu, 2020). It can also be used as avenue of professional development for serving teachers. The history of microteaching can be traced to Stanford University where

it was started in 1963 (Anulobi and Ohagwa, 2016). Ike and Iwu (2001) observed that in an attempt to bridge the gap between theory and practice, the foremost application of microteaching focused on the skills of set induction, planned repetition, use of examples and illustrations, stimulus variation, questioning, reinforcement, non verbal communication and closure.

Microteaching is structured to expose the trainee teacher to different teaching skills in order to facilitate mastery of effective teaching skills (Remesh, 2013; Ike, 2003). The teaching activity is scaled down such that the teacher is made to use a specific teaching skill to teach a single concept of the content to a small group of learners within a short period of time. This scaled down teaching practice is repeated under definable, measurable, observable and controllable environment that facilitates the mastery of the target teaching skills (Otsupius, 2014). The practice sessions facilitate increase in the self confidence of the trainee teachers. The teaching and classroom management skills of the teacher also improves (Otsupius, 2014).

However, one critical factor of the microteaching technology is the feedback mechanism (Kpanja, 2001). The supervising teacher observes and assess the performance of the trainee teacher, highlighting the errors in performance; thereby granting the trainee teacher the opportunity of remediation of the teaching skills. In what is referred to as the manual microteaching approach, the feedback mechanism is undertaken at the end of the presentation as the supervising teacher and the other trainee teachers express their observations. The practicing trainee teacher then takes note of the observations and effects necessary corrections in subsequent practice sessions. This reflection and feedback process is however simplified in a laboratory setting where a number of video cameras are used to capture all activities in the teaching laboratory. The video is viewed by the class of trainee teachers, the supervising teacher and practicing trainee teacher. The preview process then generates the corrective feedback with which the practicing trainee teacher effects necessary corrections in subsequent practice sessions.

A strategic element of microteaching in this video technology facilitated feedback mechanism is the enablement for the trainee teacher to personally assess his/her performance and wilfully effect necessary corrections in subsequent teaching sessions. This is because video technology facilitates easy identification of errors (Kpanja, 2001). This personalised feedback mechanism which is absent in the manual microteaching approach can be described as the most productive element of the microteaching technology. This is true especially because of the intrinsic motivational impact it exerts on the skills development effort of the trainee teacher. It affords the trainee teacher the opportunity to personally review his/her performance, identify areas of error and to remedy such defects in performance in subsequent practice sessions (Godek, 2016).

In the manual approach, the supervising teacher is saddled with the responsibility to recall the errors for correction. This approach is prone to gaps and errors since the teacher may not be able to recall the details of all skills defects. More so, the corrective comments may not be as impactful on the trainee teacher as the self observation of errors which video technology facilitates (Iderima, 2019). However, as strenuous and comparatively less productive as the manual microteaching approach is, it remained the approach adopted for microteaching in the University of Port Harcourt teacher education programme all these years.

Manual mode of microteaching

The manual mode of microteaching technology is usually adopted when a microteaching laboratory is not available. It is undertaken in a classroom where the student teacher presents a mini lesson as practice session after the supervising teacher had modelled the specific teaching skills. While the practicing trainee teacher exhibits the said teaching skills during practice session, the other students that constitute the class of learners and the supervising teacher observe for skilful teaching and possible errors. At the end of the presentation, they review the skills so displayed with appropriate comments which then constitute the feedback that guides the practicing trainee teacher to effect correction in subsequent practice sessions. Evidently, the self observation feedback provided via video technology is totally absent in the manual approach. The manual approach also fail to provide evidence of the emotional elements of the practicing trainee teacher's actions and the self efficacy thrusts which eventually boosts his/her confidence in classroom teaching and boldness in public speaking (Agwu and Iderima, 2020).

The improvised single - camera mode of microteaching

Amidst the continued absence of microteaching laboratory in the University of Port Harcourt, efforts were made in the 2019/2020 academic session to improvise the microteaching laboratory setting, using a single camera video technology. Actually, this improvised single camera method would not be able to capture all the relevant activities in the classroom alongside the different teaching skills exhibited by the trainee teacher as much as a standard multi - camera microteaching laboratory can facilitate. This is because of a design implication which is inclined to capture as much of the essential activities as possible within the limits of one – camera provision. In this vein, the production director, (the researcher) had designedly directed that the camera should focus on the trainee teacher while the mini lesson presentation lasts. The camera would capture the supervising teacher and learners during questions and comments session (Agwu and Iderima, 2020). And so certain students and supervising teacher reactions that serve as cut – away that reveal the overriding emotions and mode of the class fail to be captured.

Aim of the study

The study shall identify the minimum equipment, facilities and human resource requirements for successful improvised microteaching exercise. And the significance of the study lies in its capacity to develop a model of improvised microteaching technology programme that would serve the training needs of teacher education programmes during equipment downtimes, budget cuts and total absence of microteaching laboratory.

Objectives of the study

The study shall:

- 1) Identify the minimum equipment and facilities requirements for the improvised microteaching exercise
- 2) Identify the technical human resource needs and associated tasks for successful improvised microteaching project
- 3) Ascertain the operational challenges inherent in the improvised microteaching exercise
- 4) Find out faculty perception of the overall outcome of the improvised microteaching project

- 5) Ascertain the comparative impact of video feedback on trainee teacher confidence, voice level and improvement of teaching skills

Research questions

The study shall provide answers to the following research questions

- 1) What is the type of equipment and facilities that were deployed in the improvised microteaching laboratory project?
- 2) What range of technical personnel and what functions did they perform for the success of the improvised microteaching laboratory project?
- 3) What is the nature of operational challenges encountered in the improvised microteaching laboratory programme?
- 4) How do faculty perceive the overall outcome of the improvised microteaching project?
- 5) What is the comparative impact of video feedback on trainee teachers' confidence, voice level and control and overall improvement of teaching skills using the improvised microteaching programme?

METHODOLOGY

The study was undertaken with an intact class of the current third year Political science students of the Department of Educational Management, Faculty of Education, University of Port Harcourt. However, 47 students were able to obtain video feedback, having viewed the video record of their individual microteaching sessions while 18 students failed to obtain the video feedback because their microteaching sessions were not recorded. This group depended on the observatory comments of the supervising teacher and their class mates for feedback and corrections on subsequent practice sessions.

A reflective review of the improvised microteaching laboratory project was relied upon to reveal the human resource, equipment and facilities deployed for the programme. Research instruments were used to obtain relevant data from the supervising teachers and the trainee teachers. These data were analysed descriptively to obtain answers to the research questions.

Human resource, equipment and facilities

The technical system of the microteaching laboratory incorporates multiple floor-type video cameras with tripod stands. A Cameraman is assigned to each video camera. There are the audio and video consoles with associated operational personnel for selection and mixing of audio and video signals. Intercommunication devices are also installed to facilitate the functions and operational interaction between the production director, the studio cameramen and the vision/audio console operators. Alternatively, modern microteaching laboratories may be equipped with the ceiling and wall – mount types of digital video cameras. These cameras are not manned by separate cameramen per se. They are controlled by the vision mixer using the inherent motorized mechanism. Other personnel of the microteaching laboratory include the production director, lighting technician, audio recording control technician and studio hands for signal patching and connectivity tasks. These human resource needs, equipment and functionality requirements are grossly minimized in the improvised microteaching approach.

The following is a description of the technical equipment, connectivity, human resource and functionally requirements of the improvised microteaching project.

Equipment and connectivity

The following technical equipment and connectivity devices were used to facilitate the vital video technology constituent of the improvised microteaching project.

- 1) One video camera
- 2) One camera tripod stand
- 3) Three video camera batteries
- 4) One video lamp with batteries
- 5) One television monitor/speaker
- 6) Audio/Video signal cables with connectors
- 7) Electrical power and extension facility
- 8) External (Lapel) Microphone
- 9) White board and markers

Human resource needs

- 1) Video cameraman
- 2) Assistant video cameraman
- 3) Production director/Microteaching coordinator
- 4) Class teacher/Microteaching facilitator or Supervising teacher
- 5) Students

Function of the Video camera

The video camera captures the video signal of the scenes of the microteaching sessions. Though the essential video clips are the moments of exhibition of the critical microteaching skills, such moments are not explicitly momentary as to be captured with still photographic camera. The microteaching tasks are performed as continuous activity. And so video technology, which is imbued with the attribute of motion visual is applied to capture the context of performance of procedural teaching skills exhibited by the trainee teachers.

Function of the cameraman

The cameraman is responsible for operating the video camera. He ensures that the video shots are steady by using the tripod stand. In the absence of a preview monitor which is used for judgemental decisions on the frame of camera shots, the production director relies on the cameraman for all decisions on the type of camera shots for every aspect of the improvised microteaching programme. He therefore captures the video clips of specified shots as adjudged appropriate as well as the process of activities that take place in the microteaching sessions as instructed by the production director. The cameraman applies motion video photographic skills of pan, tilt and zooms to capture the respective shots during the microteaching exercise. He also ensures optimum quality of video signal by controlling the effects of back light and choosing the colour filters as lighting situations demand. If the size of trainee teachers become so large and the microteaching sessions linger as to overwhelm the regular capacity of the cameraman, the need for a second cameraman becomes apparent. This is to facilitate functional continuity of the video graphic tasks in the face of fatigue on a single cameraman. The strain on the cameraman resulting from uninterrupted task performance shall then be reduced. Still in this vein, if the microteaching sessions linger to the dark hours of the day, possibly as a result

of large number of students scheduled for the day, as experienced in this study, the second cameraman would then activate the video lam already provided for the service. He also ensures that the camera battery and the battery of the video lamp are readily charged to avoid interruption of the video recording session.

The improvisation strategy

The cameramen and production director (Researcher) are members of staff of the Department of Curriculum Studies and Educational Technology. The video camera is a property of the department while the television monitor was sourced from the faculty. The improvisation strategy adopted to facilitate the microteaching programme had to source for the following equipment and devices to ensure the success of the programme

- 1) Video camera batteries
- 2) Tripod stand
- 3) Video lamp and batteries
- 4) Audio and visual cables and connectors
- 5) White board and markers

Challenges encountered

The plan to use electricity generating set was aborted because of lack of funds. The irregular supply of electric power therefore constituted a major challenge to the success of the improvised microteaching project.

Data collection

Questionnaire responses were obtained from the seven supervising teachers of the microteaching programme concerning;

- the Adequacy of the number of video cameras,
- technical quality of the audio and visual signals,
- overall success rating of the improvised microteaching programme

The 47 trainee teachers who had access to video feedback and 18 others who lacked the access also provided ordinal responses on the improvement of voice quality, enhancement of confidence in public speaking and overall improvement of teaching skills as the gains of the microteaching exercise.

RESULTS

Research question 1:

What is the type of equipment and facilities that were deployed in the improvised microteaching laboratory project?

Answer: The following video equipment and devices were used to implement the improvised microteaching programme

- 1) One video camera
- 2) One camera tripod stand
- 3) video camera batteries
- 4) One video lamp with batteries

- 5) One television monitor/speaker
- 6) Audio/Video signal cables with connectors
- 7) White board and markers

Research question 2

What range of technical personnel and what functions did they perform for the success of the improvised microteaching laboratory project?

Answer: The following technical personnel performed the respective functions in the improvised microteaching programme.

1) Video cameraman and the assistant. These persons were responsible for the video graphic tasks. While the cameraman handled the video camera most of the time, the assistant provided some relief whenever the need arose.

2) Production director

The production director performed a liaison function between the supervising teachers, trainee teachers and technical service personnel; facilitating the day to day tasks of the microteaching exercise.

3) Supervising teacher. As the officer in charge of microteaching for the class, the supervising teacher undertook the training function and classroom management and control of every activity. He modelled the respective miniaturized teaching skills for the students, administered the microteaching practice sessions equitably, noted every error in student's teaching skills and adequate performance and presented commensurate comments as feedback for correction and reinforcement of performance respectively in subsequent practice sessions.

Research question 3.

What is the nature of operational challenges encountered in the improvised microteaching laboratory programme?

Table 1a. Table of factors of challenge - supervising teachers' responses

S/N	Variables	No of Respondents	Mean	Std Dev
1	Adequacy of No of Video Cameras	7	1.43	0.535
2	AV Quality	7	4.14	0.69

Table 1b. Table of factors of challenge - trainee teachers' responses

Challenge Factors		Frequency	Percent	Valid Percent
Valid	Inadequate no. Equip	29	44.6	50.0
	Need CD	6	9.2	10.3
	Poor Electric Power	12	18.5	20.7
	Inadequate time allocation	11	16.9	19.0
	Total	58	89.2	100.0
Missing	System	7	10.8	
Total		65	100.0	

Answer: The major challenge encountered in the improvised video technology microteaching exercise as reported by the supervising teachers and the trainee teachers is the use of only one video camera for the exercise. The mean score of 1.43 (Table 1a) for adequacy of the number of video cameras available for the programme by the supervising teachers indicate a rating that is less than the LOW level of the Likert scale.

Table 1b shows the data of trainee teachers' responses. It indicates that the major challenge of the programme is the inadequate number of video cameras. They also opine that lack of steady supply of electric power is the next major challenge, followed by inadequate time allocation to practice sessions and the need for trainee teachers to have the video clips of their practice sessions for previewing at moments of convenience and self study.

Research question 4

How faculty perceive the overall outcome of the improvised microteaching project?

Table 2. Table of supervising teachers' responses on level of success

S/N	Variables	No of Respondents	Mean	Std Dev
1	Success rating	7	4.57	0.53

Answer: The 4.57 mean rating of the level of success of the improvised microteaching programme by supervising teachers as shown in table 2 indicate an approximately very high level of success.

Research question 5

What is the comparative impact of video feedback on trainee teachers' confidence, voice level and control and overall improvement of teaching skills in the improvised microteaching programme?

Table 3. Table of trainee teachers' responses on the impact of video feedback

Feedback	VoiceImprove	EnhancConfid	ImprovSkill
With video Mean	4.0638	4.3191	4.0851
N	47	47	47
Std. Deviation	.81838	.62923	.92853
No video Mean	2.7778	3.5000	3.7222
N	18	18	18
Std. Deviation	1.30859	1.33945	1.27443
Total Mean	3.7077	4.0923	3.9846
N	65	65	65
Std. Deviation	1.12809	.94742	1.03821

Answer: The descriptive data of trainee teachers responses presented in table 3 represents comparative ratings by trainee teachers who viewed the video records of their microteaching practice sessions and depended on same for personalised feedback in addition to supervising

teacher's comments on their performance and those who had no access to the video records and therefore depended on the comments of the supervising teacher alone. These ratings were on the dimensions of:

- Voice improvement and control in delivery of instruction
- Enhancement of teacher confidence in public speaking
- Overall improvement of teaching skills

Trainee teachers who had access to video feedback rated the mean gain of the microteaching exercise, as shown in table 3, for the improvement of voice quality as 4.6. But those who lacked access to video feedback had a 2.78 mean level of improvement in voice quality. The dimension of teacher confidence saw a mean rating of 4.32 by teachers who had access to video feedback while those who lacked such access had a mean rating of 3.5. On improvement of teaching skills, trainee teachers who had access to video feedback had a mean rating of 4.9 as the gain of the microteaching exercise while those who lacked the access had a mean rating of 3.72.

DISCUSSION AND CONCLUSIONS

The improvised video technology microteaching project is actually a simplified approach to implementation of the microteaching programme. It requires one video camera, one television monitor and a few associated devices. The major human resource requirement is one cameraman with an assistant and a production director; a member of faculty who acts as liaison personnel.

The major challenge is the enormous waiting time that the groups of trainee teachers encounter as a result of the use of only one video camera. However, effective planning can reduce the waiting time, especially where cost implication do not permit the acquisition of more video cameras. Another major challenge as revealed in this study is the issue of steady supply of electric power. This agrees with Otsupius (2014) observation that lack of steady supply of electric power constitutes a challenge to the success of microteaching programmes in teacher education institutions. The improvised microteaching technology is generally cost effective when compared with the provisions of full microteaching laboratory. It attends to different dimensions of teaching skill ranging from the development of teacher confidence in public speaking to improvement of voice quality during the delivery of instruction and overall improvement of teaching skills. It is also a successful approach to the development of the skills of an effective teacher.

Recommendation

The improvised video technology microteaching programme is actually a simplified, cost effective and result oriented model of the microteaching laboratory programme. This model of the microteaching programme is hereby recommended to teacher education institutions for teachers' professional development trainings and skills development of trainee teachers in times of budget cuts and fiscal deficits.

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