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Interns' perceptions of the importance of micro-teaching for practicum

Abstract

The study investigated the views of pre-service teacher on the effect of the use of video recording for microteaching on their professional growth, development and readiness for the actual teaching practice. The programme was tried with 35 pre-service teachers in the Department of Biology Education of the Faculty of Science Education, University of Education, Winneba, for 2013-2014 academic year. As a consequence of this study carried out according to pretest-posttest design, it was found that the pre-service teachers' views of teaching changed positively and their worries decreased after the microteaching exercises. In light of the findings of the present study, it was suggested that video tape recording equipment that is arranged in compliance with microteaching technique should be frequently used in biology education for the training of science teachers.

Keywords: *microteaching, pre-service teacher, biology education, videotape technology.*

Introduction

Microteaching is a technique used to prepare student teachers for the real classroom setting (Akalin, 2005; Brent & Thomson, 1996). It is technically a scaled-down teaching. Microteaching also known as simulated encounter design and teaching laboratory (Ghafoor, Kiani, Kayani, & Kayani, 2012) is used in teachers' pre-service education to train them systematically by allowing them to experiment main teacher behaviours. By this technique, student teachers can experiment and learn each of the teaching skills by breaking them into smaller parts. Microteaching helps student teachers to improve both contents and methods of teaching and develop specific teaching skills such as questioning, the use of examples and simple artifacts to make lessons more interesting; using effective reinforcement techniques, introducing and closing lessons effectively. Immediate, focused feedback and encouragement, combined with the opportunity to practise the suggested improvements in the training session, forms the foundation of the microteaching protocol (Ghafoor *et al*, 2012). While instilling teaching skills in students during microteaching, reciprocal negotiation of the students actively presenting and watching about the performances can make great contribution to the acquisition of the skills (Tasdemir, 2006). This method offers teachers opportunities for discovering and reflecting on their own and others' teaching styles and enables them to learn about new teaching techniques.

The pre-service teacher can benefit to a great extent from microteaching applications. Firstly, the practise reveals teaching facts; and roles of the teacher (Amobi, 2005; Kpanja, 2001); helps pre-service teachers to see the importance of planning and taking decisions; reduces the complexities of normal classroom teaching, thus allowing them to concentrate on the acquisition, development and improvement of their teaching skills (Benton-Kupper, 2001).

Microteaching technique is an application in which audio-video recordings have been made possible as a result of developing technology. Audio and visual technology is an effective and reflective tool in preparing pre-service teachers for the profession of teaching. Video recordings provide pre-service teachers with the chance of evaluating themselves by engaging them in more experiences and configurations (Jensen, Shepston, Conner, & Killner, 1994). Sherin (2000) indicates that video

recordings affect the perspectives of teachers in education process. Cunningham and Benedetto (2002) emphasize that video tools support reflective learning, and Spurgeon and Bowen (2002) stress that by the help of these tools, the problems that may occur in education process can be observed and defined. The method increases the confidence and raises the awareness of personal skills. Selcuk (2001) indicates that video recordings can not only be used for demonstrating model teacher behaviours but can also be used for the analysis of microteaching. Using video recording method in microteaching applications contributes to the professional development of pre-service teachers by identifying their strengths and weaknesses and improves their competencies (Tok, 2007).

Student teachers of the University of Education, Winneba, take a course titled Pre-internship Seminar (EDP 361) in their sixth semester that prepares them for the practicum in the seventh semester. During the Pre-internship seminar course, student teachers hold microteaching sessions in which they present miniature lessons. During these sessions their peers act as their class students for the model lessons. They record their lessons with video-tapes for playback and reflection. How this practice influences their practicum in schools is the essence of this study.

Statement of the problem

A criticism often leveled against the teaching profession has been the too rapid induction of pre-service teachers to full-time teaching responsibilities with inadequate training and preparation in universities and colleges of education in Ghana. Student teaching practice is invariably too short, poorly supervised and generally a matter of survival rather than a genuine learning situation where different techniques can be tried out, repeated, and perfected (Anamuah-Mensah & Asabere-Ameyaw, 2009). Poor performance of students at both West Africa Senior School Certificate Examination (WASSCE) and JHS Basic Education Certificate Examination (BECE) is traceable to lack of proper and thorough grasp of concepts by students and pupils due to their teachers' poor teaching skills (Anamuah-Mensah & Asabere-Ameyaw, 2009; Dey, 2013). Some teacher educators in Ghana (Anamuah-Mensah & Asabere-Ameyaw, 2009; Appiah, 2010) have observed that most Ghanaian teachers are not well prepared in content and pedagogy. Dey (2013) noted that the greatest challenge confronting education in Ghana was the poor teaching methods of teachers, especially newly trained teachers. He appealed to management of teacher training institutions to examine the type of training being offered and review it to enable the products to perform satisfactorily. He noted that many student teachers fail to acquire enough content and teaching skills to the detriment of students' and pupils' learning.

Student teachers take courses in content, methods of teaching, microteaching, pre-internship seminars and proceed for internship in basic and senior high schools before graduating. Though students take the above courses and pre-internship seminar in the sixth semester that is suppose to prepare well for their internship, the effective implementation of what they have learned during teaching practice in SHS schools leaves much to be desired (UEW-Supervisors' Interviews, 2010).

The purpose of the study

The purpose of the study was to investigate whether:

(i) With the practice of microteaching pre-service teachers in the Department of Biology Education can prepare themselves more effectively for their pending teaching practice and also be well prepared to teach SHS biology in future.

(ii) any changes occur in the perceptions of the student teachers about in-class teaching skills with regards to teaching SHS students before and after micro-teaching applications.

(iii). there is any significant difference in perceptions between male and female student teachers of their in-class teaching skills with SHS students before and after the application of micro-teaching.

Hypothesis

1. There is no significant difference in perceptions of student teachers' in-class teaching skills before and after the application of micro-teaching.
2. There is no significant difference in perceptions of male and female student teachers' of their in-class teaching skills before and after the application of micro-teaching.

Significance of the study

The results of the study will be of much benefit to student teachers, teacher educators in teacher training institutions and curriculum experts. Student teachers will be acquainted with the importance of micro-teaching and the role of each skill in preparing professionally effective and reflective teachers. They will also be afforded the opportunity to master the skills inherent in a laboratory environment before they enter the actual classroom.

The teacher educators/lecturers will benefit from the findings of the study. This is because detecting the impact of official and unofficial microteaching skills on students' performance will improve the conduct, organization and evaluation of micro-teaching in universities and colleges of education in Ghana.

Research Method

The design

A single group pretest–posttest design was adopted to measure the changes in student teachers' perception of their in-class teaching skills with regards to teaching SHS students before and after micro-teaching practice over a period of approximately 4-months in a course titled *pre-internship seminar* during the academic year 2014-2015.

The participants

The participants of the study consisted of 35 biology pre-service teachers of the Department of Biology Education of the Faculty of Science Education at University of Education, Winneba, Ghana. They had earlier taken a methodology course titled 'improvisation techniques' at the department for the 2013-2014 year as pre-requisite. Sixty three percent of the students of the study group were males (n=22) and 37% of them were females (n=13).

The Instrument for Data Collection

A questionnaire used by Gorgen (2003) titled: 'The Views and Opinions of Teacher Candidates about Lecturing in the Classroom' that contained 31 items was adapted for this study. The adapted questionnaire was developed as three-point Likert scale containing 21 items, ranging from Yes agree (3 points), Partially agree (2 points) to No disagree (1 point). The questionnaire's validity and reliability (.94) were already established in the original study (Gorgen, 2003). The number of items was reduced to 21 in this study because the other items were peculiar to the settings in which they were first used. In this study, the validity of the content and appearance was established through expert opinions of three senior lecturers. The Cronbach alpha coefficient of reliability of the adapted questionnaire is .89.

Procedures

A questionnaire that measured the changes in the student teachers' perceptions of their teaching skills before and after taking a course in pre-internship seminar was used to collect data. The student teachers responded to the same questionnaire before and after the pre-internship seminar (which incorporated micro-teaching with recorded videos) course. Each student teacher planned and presented a micro-lesson of 15-20 minutes to their peers. They video recorded their micro-lessons for later play back and reflection. Whilst a student teacher was presenting the lesson, a colleague kept the time and the recording of the lesson by video-camera. A class discussion of the micro-lesson was

done; then the recorded video of the lesson was watched and evaluated by the lecturer and classmates and feedback was given to the student teacher.

Results

Videotape recording used as a microteaching tool in teaching biology during a pre-internship seminar course and its effects on pre-service teachers' views on learning to teach biology in the class are analysed.

Table 1
Paired t-test Results of Pre-test and Post-test Scores of Pre-service Teachers

	N	Mean		SD		df	t	p
		Pre-test	Post-test	Pre-test	Post-test			
1 Preparation for Instruction	35	2.12	1.35	.73	.56	34	4.86	.002*
2 Confidence In Class	35	2.32	1.58	.64	.67	34	5.97	.004*
3 Classroom Management	35	1.97	1.36	.72	.60	34	3.98	.005*
4 Evaluation of Instruction	35	2.24	1.30	.73	.55	34	5.99	.000*
5 Instructional Skills	35	2.23	1.34	.68	.55	34	5.82	.000*

*p<.001;
**p<.01;
N = 35

As it is seen in Table I, the mean score (M = 1.35) for the post-test for preparation for instruction, is lower than the mean score (M = 2.12) of the pre-test and the difference between the means is statistically significant (t (34) = 4.86, p <.002). These results indicate that after the introduction of audio-visual tape recording in microteaching and replay for reflection, the pre-service teachers knew how to prepare for instruction. Furthermore, there was a decrease in pre-service teachers' worries of having insufficient knowledge of the subject, readiness for teaching and how to simplify the subject matter for SHS students' understanding.

Also in Table 1, the behaviour regarding confidence in the classroom and their pre- and post-test scores and t values are given. The post-test mean of the items that dealt with confidence in the classroom (Mean =1.58) is lower than the pretest mean (2.32). The mean difference was found to be statistically significant (t (34) =5.97, p<.004). It is understood from this t-value that, the worries of the pre-service teachers resulting from the possibility of being criticized by supervisors for making mistakes while teaching, their inability to deal correctly with students' questions, being nervous when standing in front of students, all decreased to a great extent after the use of video cameras for the microteaching exercise.

Also as revealed under Table I, the post-test mean (M=1.36) of classroom management is lower than the pretest mean (M=1.97). The difference between the two means was statistically significant [t (34) = 3.98; p<.005]. From these results, it was observed that the worries of pre-service teachers arising from their perceived inability to deal with troublesome students, lack of self-control of one's feelings in class, inability to manage the class and feeling anxious of not being able to manage group activities/discussions decreased to a great extent after microteaching using videotape recording for

replay and reflecting. There was a perceptual change that they can now manage a SHS class effectively and hence an appreciable reduction in their anxieties about teaching SHS science.

The post-test mean ($M = 1.30$) of the construct 'evaluation of instruction' is significantly lower than the pre-test mean ($M = 2.24$); with a calculated $t(34) = 5.99$. From these results the level of anxieties of the pre-service teachers stemming from the possibility to monitor students' participation and progress, ability to provide students with prompt and constructive feedback and to ask questions that are of higher order decreased to the minimum after taking the microteaching course and also employing the use of video-recording for their practice.

The last item dealt with instructional skills of the pre-service teachers. The post-test mean ($M = 1.34$) is lower than pre-test mean ($M = 2.23$) as a result of changes in perception. Their mean difference is found to be statistically significant; $t(34) = 5.82, p < .000$.

With the behaviours regarding teaching process there was a significant difference between pre- and post-test means. These results show that the worries of the pre-service teachers resulting from their inability to know how to introduce lessons, getting confused while teaching, anxious of what kind of motivation to use in directing students' interest towards learning, inability to vary their strategies of teaching and how to end lessons decreased to a great extent as a result of the microteaching. The results show that all five behaviours improved significantly between pre- and post-tests. This means that microteaching as a preparatory course helps improve instruction and communication skills of student teachers.

Table 2
Paired t-test of Perceptions of Pre-service Teachers' Worries about Teaching in the Class

Test	N	M	SD	Df	t	Sig(2-tailed)
Pre-test	35	66.19	8.25	34	8.96	.000*
Post-test	35	44.00	6.67			

$p < .001; t_{crit} = 1.96$

As indicated in Table 2, the pre-service teachers' post-test mean score (Mean = 44.00) for worries about teaching in the class is significantly lower than pre-test mean score (Mean = 66.19) The ($t(34) = 8.96; p < .001$) is greater than the critical value of $t = 1.96, p < .05$. Therefore the null hypothesis of no significant difference was rejected. These results indicated that the practice of microteaching with the integration of videotape sessions for teacher trainees decreased their worries about teaching; in other words, their self-confidence for teaching increased as a result of the microteaching application at $p < .05$.

Table 3
Results of Independent Samples t-test on Male and Female Pre-service Teachers' Perceptions of their Classroom Teaching before the Microteaching Course.

Test	N	M	SD	df	t	Sig(2-tailed)
Male Pre-test	22	66.10	1.02	33	0.77	.37
Female Pre-test	13	65.98	0.89			

$p < .05; t_{crit} = 1.96, df = 33$

Results in Table 3 reveal that the mean perception scores of pre-service teachers of their classroom teaching before the application of microteaching was the same for both sexes [male = 66.10 (SD = 1.02) and female = 65.98 (SD = 0.89)] respectively. The calculated t-test [$t_{(33)} = 0.77, p = .37$] was lower than the critical t-value of 1.96, $p < .05$. The null hypothesis was maintained. Hence, there was no significant difference between male and female student teachers in their worries about in-class teaching before the application of microteaching.

Table 4

Independent Samples t-test on Male and Female Pre-service Teachers' Perceptions of their Classroom Teaching after the Microteaching Course.

Test	N	M	SD	df	t	Sig(2-tailed)
Male Post-test	22	78.75	1.22	33	0.87	.41
Female Post-test	13	78.55	1.18			

$p < .05$; $t_{crit} = 1.96$

Results in Table 4 reveal that the mean perception scores of pre-service teachers of their classroom teaching after their participation in the microteaching was the same for both sexes [male = 78.75 (SD =1.22) and female = 78.55 (SD = 1.18)] respectively. The calculated t-test [$t_{(33)} = 0.87$, $p = .41$] is lower than the critical t-value of 1.96, $p < .05$. The null hypothesis was maintained. Hence, there was no significant difference between male and female student teachers in their worries about in-class teaching after the application of micro-teaching.

Conclusion and Suggestions

The results show that student teachers' anxieties about classroom teaching decreased significantly between pre- and post-tests scores. This means that microteaching using videotapes for feedback replay and re-teach helps improve teaching and communication skills of the pre-service teacher.

It is observed that incorporating videotape recording in microteaching session would heighten participants' interest and afford them ample opportunity to assess their performance exactly as it is without a modicum of doubt. The technique increased the students' interests, excitements and wishes to participate in the course. Furthermore, it is confirmed that after microteaching application students know better how to start the course and their worries stemming from not being able to answer the questions of the students, experimenting chaos in using course tools, their lectures' falling short, and the fear of lecturing in front of the students decreased. On the other hand, worries of the students resulting from making mistakes while teaching, not knowing how to correct the mistakes they make during the course, the possibility of being criticised, not knowing how to react against irrelevant questions from the students and not being able to run the lesson smoothly decreased to a great extent as a result of microteaching.

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