

Full Length Research paper

Effect of training in the use of mobile phone short message service on note-taking and comprehension of students in Kogi State, Nigeria

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This study investigated the effect of using mobile phone short message service (SMS) on note-taking and comprehension of materials presented through an audio system. Two research questions and two hypotheses guided the study. The study employed a quasi-experimental non-equivalent pretest, posttest control group design. A sample of 400 subjects was drawn through stratified random sampling procedure. Two instruments-Audio-Taped Lecture (ATL) and Test for Assessing Comprehension (TAC) were designed and used to collect the data for the study. These two instruments were validated and reliability coefficients of 0.88 and 0.81 were obtained for ATL and TAC respectively. The research questions were answered using mean and standard deviation statistics while the hypotheses were tested using the analysis of covariance (ANCOVA) at 0.05 level of significance. The results of the study included that SMS style of writing improves students' note-taking competence as well as comprehension. Based on these findings, recommendations that were made included the teaching and learning of strategic note-taking using SMS style of writing and also that lecturers should make deliberate and conscious efforts to encourage their students to write notes during lectures.

Keywords: Training, mobile phone, note-taking, students, Kogi state.

INTRODUCTION

There are studies (Annis, 1980; Simbo, 1988; Boyle and Weishaar, 2001; Weener, 2004; Lindquist et al., 2007) that have variously established positive relationship between note-taking and achievement on tasks drawn from the contents of the notes. The study of the relevance of students' notes to achievements began with C.C. Crawford in the 1920s (Eric Digest, 1988). Since then, other related studies that emerged have individually established the relevance of lecture notes to achievement. For instance, according to Lindquist et al. (2007), the best note-takers are often the most successful students and to Titsworth and Kiewra (2004), boosting note-taking raises achievement.

In as much as students' notes are important to learning, it should be noted however that notes are not ends in themselves and that there are different approaches or methods to note-taking as reported by other various studies such as the study of Sambo (1988) and also the

work of Race (2008). These different approaches notwithstanding, the relevance of students' lecture notes to improving learning cannot be underrated or ignored. The probability of a student recalling an item on a test according to Weener (2004) will be greater if that item is present in the notes than if it is not present. This is because note-taking encourages consultations with other study or course-mates and provides records to study for examination (Isangedighi, 2007), allows for active engagement during lectures (Boyle, 2001), and forces an individual learner to think (Northedge, 1997).

But as important and supportive as students' notes are to review and learning, most students in higher institutions of learning in Nigeria particularly those in their first year of studies hardly take notes during lectures. They fold their arms most often and listen at best to the lecturer which obviously cannot be the best way to learn. Browner (2007) reported a study that most adults' attention to a

lecture begins to decline markedly after about 10-15 minutes and that many students do not learn best through listening but by skillful combinations of listening and note-taking.

This attitude of indifference or apathy to note-taking in the class by students may not be unconnected with their orientation in secondary school where they took notes directly from the board or sometimes through dictation. In addition, some of these students may not be able to cope with the speed of some lecturers and again they may have difficulty in combining listening with writing effectively.

Note-taking is a skill (Waters and Waters, 2007) that students need to develop. To take down notes well, students need to develop speed, actively listen and then put down salient points. To be able to write fast, students need to be instructed to use shorthand, eliminate unnecessary words and to abbreviate as much as possible (Boyle, 2001; Wikipedia, 2008).

Short Message Service (SMS) is a form of writing that is characterized by the use of abbreviations, phonetic spellings, and alpha-numeric combinations as well as omission of some redundant letters in a word in very fashionable ways. For instance, "thank you", "before", "tonight", and "In Jesus name" are written as "10q", "b4", "2nyt", and "IJN", respectively. This form of electronic writing is popularly called "texting" and it is unique in its form. It is a major communication "high way" for students because it is cheaper than voice call and sometimes delivery is efficient even when network is bad. Some educators according to Kolb (2010) are now doing some integration of text messaging into their core curriculum having known that the preferred form of communication is quickly changing from a phone call to text messages. The purpose of this work therefore is to verify whether students who received training on how to use SMS style of note-taking in the classroom performed better in note-taking than their counterparts that did not receive the training. In addition, the study equally examined students comprehension of the notes to find out whether there are differences in achievement between the trained subjects that used SMS for note-taking and the untrained ones that used the conventional note taking method.

The result of this study is hoped to improve students' note-taking competence as well as improvement in educational tasks generally because of the relevance of students' notes to learning and the activity based nature of the classroom that note-taking is likely to promote. The study will as well inform the lecturers to insist on students' notes and also slow down speed of lectures to encourage students to take notes.

The two research questions that guided the study are

1. What is the effect of training on the mean score of subjects on note-taking from audio-taped lecture?
2. What is the difference in students' mean

scores for the trained and non-trained students on a test of comprehension drawn from the content of the notes taking from audio-taped-lecture?

Two null hypotheses (HO) were formulated and tested at (.05 level of significance)

HO1: There will be no significant difference in the mean scores of trained and non-trained students on note-taking from audio-taped lectures.

HO2: The mean achievement scores on comprehension of the notes taken from audio-taped lectures will not differ significantly for the trained and non-trained subjects.

METHOD

The design of this study is quasi-experimental. Specifically, it employed the pretest, posttest non-equivalent control group design. A total of 800 Nigeria Certificate Examination (NCE) level one students of Federal College of Education (FCE), Okene, and Kogi State College of Education (KSCOE), Ankpa that qualified on the screening test administered by the researcher constituted the population for the study. Out of this population, 400 subjects were drawn as sample from these two institutions using stratified random sampling techniques.

Two instruments, namely: Audio-Taped Lecture (ATL) and Test for Assessing Comprehension (TAC) were designed by the researcher and used for gathering the relevant data. ATL was used to assess the students' note-taking competence while TAC assessed students' achievement on comprehension of the content items of the notes taken from audio-taped lecture.

Marking guides were prepared differently for scoring the two instruments. Audio-taped lecture marking scheme (ATLMS) served as the researcher's standard for acceptable note-taking on the topic treated through the audio-recorded lecture and it was made up of 50 key points in an outline form. Every correct point made in the student notes would be awarded 2 marks. The same procedure applied in assessing students' comprehension or understanding of the notes taken. TAC had 20 short answer demanding questions and for any one rightly scored, the candidate earned 5 marks.

These two instruments were face validated by three experts from the Departments of Educational Foundations and Science Education, University of Nigeria, Nsukka. Using test-retest method, 30 equivalent Nigeria Certificate Examination (NCE) students of Alhikma College of Education, Ankpa, were trial tested on the instrument and the reliability coefficient of ATL was obtained as 0.88 while that of TAC was 0.81. In addition to the trial-test conducted, ATL was again subjected to inter-scorer reliability using the scripts of this same group

Table 1: Pretest and posttest mean scores of subjects on note-taking

Group	Number	Pretest		Posttest	
		X	SD	X	SD
Experimental	222	49.57	17.67	78.19	14.16
Control	178	48.87	14.96	50.54	14.68

Table 2: Analysis of covariance of experimental and control groups Mean scores in note-taking (NT) task

Source	Type III sum of squares	Df	Mean square	F	Sig.
Corrected Model	124486.012 ^a	2	62243.006	737.479	.000
Intercept	39552.820	1	39552.820	468.637	.000
PreNT Score	48959.581	1	48959.581	580.092	.000
Group	72940.178	1	72940.178	864.223	.000
Error	33506.698	397	84.400		
Total	1894326.000	400			
Corrected total	157992.710	399			

a. R squared = .788 (Adjusted R Squared = .787)

of 30 students and a reliability coefficient of 0.94 was obtained when another lecturer from Kogi State College of Education, Ankpa, re-marked the scripts.

To collect data for the pretest, the instruments were personally administered by the researcher first to the experimental group and then later to the control group in view of their different geographical locations. But since the researcher is not teaching in FCE, Okene-he used a trained research assistant.

After the administration of a pretest, the researcher used three weeks with six contact (hrs) periods to train subjects in the experimental group on SMS writing and how they could use it for note-taking while the control group had equivalent hours on a placebo. After this treatment and placebo, the posttest data was collected using the two instruments ATL and TAC and the collected data were analyzed using mean, standard deviation and ANCOVA

RESULTS

The result of this study is presented in line with the research questions raised and the hypotheses formulated.

Research question 1

What is the effect of training on the mean score of subjects on note-taking from audio-taped lectures?

Data that answered this question is shown on Table 1

Table 1 show that prior to training in the use of mobile

phone' SMS style of writing for note-taking by students in the experimental group, their mean and standard deviation scores were 49.57 and 17.67 respectively. These scores particularly, the mean, for this group of subjects did not differ meaningfully from that of subjects in the control group with a pretest mean score of 48.87 and a standard deviation of 14.96 on a task that required note taking from audio-taped lecture. But after training for subjects in the experimental group on how to use mobile phone SMS for note taking, the posttest mean score for these experimental subjects improved appreciably from 49.57 to 78.19. But for the control group, it was a slight improvement from a mean score of 48.87 to 50.54. What this implied was that subjects in the trained (experimental) group that used SMS for note taking took better notes than their counterparts in the control group that used the conventional note taking methods.

Ho1

There will be no significant difference in the mean scores of trained and non-trained students on note-taking from audio-taped lecture.

The answer to this hypothesis is shown on table 2 using analysis of covariance.

From table 2, training in the use of mobile phone SMS style of writing for note taking had significant effect on the subjects' mean achievement scores. This was because the alpha or significant level of 0.05 was greater than the value of the significance of f that was .000. This therefore meant that the stated null hypothesis of no significant effect was rejected.

Table 3: Pretest and posttest mean scores of subjects on comprehension.

Group	Number	Pretest		Posttest	
		\bar{X}	SD	\bar{X}	SD
Experimental	222	37.37	16.49	71.54	13.23
Control	178	36.02	13.07	41.47	12.65

Table 4: Analysis of covariance for the experimental and control groups means scores on comprehension task

Source	Type III sum of squares	Df	Mean square	F	Sig.
Corrected Model	136160.321 ^a	2	68080.161	592.642	.000
Intercept	76973.004	1	76973.004	670.054	.000
PreC Score	21459.757	1	21459.757	186.808	.000
Group	110070.946	1	110070.946	958.174	.000
Error	45605.676	397	114.876		
Total	1453135.000	400			
Corrected total	181765.998	399			

a. R squared = .749 (Adjusted R Squared = .748)

Research Question 2

What is the difference in the mean achievement scores for the trained and non-trained students on a test of comprehension of the notes taken from audiotape?

Table 3, presented data on students' tests scores on comprehension.

From the table the experimental group showed a substantial improvement in their posttest mean achievement score from 37.37 to 71.54. For subjects in the control group the improvement was minimal. In addition, the experimental group who took better notes than their counterparts in the control group equally performed better with a posttest means score of 71.54 compared to 41.47 for those in the control group on the same task that tested understanding of the notes.

H02

The mean achievement scores of subjects on comprehension of the notes taken from audio-taped lecture will not differ significantly for the trained and non-trained subjects.

The result of the analysis of covariance for this particular variable is presented on table 4.

For hypothesis 2, the stated null hypothesis of no significant effect is rejected because the alpha level of 0.05 was greater than the value of the significance of f that was .000. This therefore, means that those trained in the use of mobile phone SMS style of writing were significantly better in their mean scores on comprehension of the notes than those in the control group that used the conventional note taking method.

RESULTS

From the results of data analyzed and presented on tables 1 to 4, the following constitute the summary of major findings for the study.

1. Prior to training in note-taking, subjects in both the experimental group and control group were not good note-takers. Their mean scores of 49.57 and 48.87 were below the acceptable mean score of 50 (Table 1).

2. After training in note-taking using SMS style of writing, subjects in the experimental group were discovered to have performed better on a task of note-taking than their counterparts in the control group that took the same notes using the conventional note-taking methods (Table 1).

3. This same group (experimental) of students who used SMS for note-taking well, equally proved statistically that they understood the contents of their notes better (test of comprehension) (Table 3) than their counterparts in the control group that used the conventional method for note taking.

4. In these two areas of tasks namely; note taking and comprehension of the note, where subjects in the experimental group performed better than their counterparts in the control group, tests of significance showed that the performances of those in the experimental group were significantly better than those of their counterparts in the control group (Tables 2 and 4).

DISCUSSION

The evidence obtained in this study as presented on table 1 showed that prior to training, subjects both in the

experimental group and control group were not good in note taking. But after training in note taking using SMS style of writing, the performance of subjects in the experimental group improved significantly as shown on tables 3 and 4 more than those of subjects in the control group. The students that were trained to use mobile phone SMS style of writing and who were able to transfer this knowledge into the classrooms for note taking were found to have taken better notes, in terms of the essential facts to be included in a note than their non-trained counterparts in the control group that used the conventional note taking method. This finding is consistent with some earlier findings of Boyle and Weishaar (2001), Weener (2004) and Waters and Waters (2007) that abbreviations speed up note taking and that students should be encouraged to create their own forms of short-hands or code systems.

Note-taking is a skill and one note taking skill, as Waters and Waters (2007) noted, was the ability to write down important facts quickly and accurately. To be able to do this, they said that students should not use full sentences, but eliminate unnecessary words and to abbreviate as much as possible (Wikipedia, 2008). These and other strategies were what students in the experimental group that used the SMS style of writing learnt while receiving training. For instance, they were taught the use of phonetic spellings such as “10q” for “thank you”, “lda” for “elder”, omission of redundant letters like “dmonstrtn” for “demonstration”, the use of alphanumeric combinations such as “4u” for “for you”, “10da” for “tender”, the use of abbreviations like “LTM” for “long term memory”, “ABC” for “at the back cover” and eliminations of some redundant or double alphabets in a spelling like, “opoz” for “oppose” etc.

Students in the experimental group who mastered and used this training for note-taking were significantly better in their mean scores and took down relevant points than their counterparts in the control group that were not trained. As earlier pointed out, both the experimental group and control group were poor note-takers. Their performance in note-taking was below average (Table 1). This goes to prove the general apathy or lack of interest in note-taking by students of higher institutions as observed from practical experience as a facilitator of learning in one of the Colleges of Education in Nigeria.

This lack or loss of interest may be due to students' over dependence on lecturers' notes in the form of textbooks or handouts or due probably to their inability to cope with the speed of lectures that characterize most lecture methods of teaching in higher institutions of learning. Teachers' notes cannot and should not be made to substitute for students' notes in the classrooms in view of how paramount the latter is to students' learning.

Therefore, the position of this study partially supports the views of Boyle and Weishaar (2001), Brazeau (2006) and Browner (2007) that lecturers should encourage

students to take notes by going beyond this, to suggest in addition, that students' be taught or trained on how to take good notes. In fact, realizing the importance of students' notes, Brazeau (2006) said that when teachers present students with all the notes, they are being encouraged to be passive listeners. And that such student would not be provided with the opportunity to develop his/her own strategies for organizing information in his/her own perspective. Note-taking forces students to become active learners in the classroom (Browner, 2007). Boyle and Weishaar (2001) advised that teachers need to slow down the pace of their lectures and rate at which they speak and should also cue students about important lecture points to encourage students to take notes (Titsworth and Kiewra, 2004).

Results in tables 3 and 4 of this study presented data on the mean achievement scores of both the trained and the non-trained groups in comprehension. This test was on subjects' understanding of the contents of their notes. The experimental students showed better understanding of the content of their notes than their counterparts in the control group that used the conventional method of note-taking. This finding is in agreement with those of Browner (2007), Lindquist et al. (2007) who affirmed that the best note-takers are often the most successful students. Boyle and Weishaar (2001) found a positive correlation between the amounts of note taking and test scores and also as discovered by Weener (2004), the probability of a student recalling an item on a test had been found to be greater if that item is present in the notes than if it is not present. Boyle and Weishaar (2001), Smith (2006) and Isangedighi (2007) pointed out that note-taking and notes that have been taken encourage consultations with other students or course-mates, provide records to study for examinations, allow for active engagement during lectures, force the individual learner to think and also provide an external memory device for review.

These apart, students' that use abbreviations for note taking are more likely to have a more organized note than those who attempt to copy verbatim. This is because; the former would listen well before writing. And when writing, they were equally likely to do selective writing. They are more likely, too, to have ample time to hear the teacher well and then organize the information in their own perspectives. Such persons are more likely to recall information on the subject if demanded because of the cognitive activities and restructurings that this learner was involved. In fact, these activities would enable these set of students to make sense of what they are writing and thereby, being likely able to make immediate recall more easily than those who are too busy trying to capture all the information.

Looking at the pretest scores on tables 1 and 3 for both the experimental group and control group on note-taking and understanding of the notes (comprehension), and their corresponding posttest mean achievement scores still on the same tables, showed that there was a positive

relationship between improvement in note-taking and test scores. That is, when note taking competence improved as measured by their mean score, the corresponding mean achievement score on a test of understanding of the note equally improved. This finding supports the earlier findings of Titsworth and Kiewra (2004) that boosting note taking raises achievement. That is to say, those effective notes-takers earned higher mean achievement scores than the low or inefficient note takers on a test of comprehension of items in the notes. Simply put, the more a student improves in note taking competence the more likely he or she is to do better on a test that the items are drawn from the contents of the notes.

A part from the fact that notes that are taken could serve as materials for review, note taking is also capable of helping to promote good listening on the part of the students and it could also help them to process and organize information and then putting such information in their correct perspectives. Having to listen and to process and organize information before putting it down on paper is an exercise that could be capable of improving cognition or memory. And this is why note taking is paramount in students' learning. Notes of subjects in the control group revealed lots of gaps and cancellations due probably to their attempts to put down everything the tape was saying. And because, they could not cope with the speed, they had to create gaps and cancel. This confusion is enough to distract them internally and then making them unable to understand in this case, the tape-recorded material for immediate learning recall.

The position of this study therefore, is that the use of SMS improves note taking and that when notes improve in substance or contents, test achievement scores generated out of these notes is equally likely to improve.

CONCLUSION

Based on the findings of this study, the researcher made the following conclusions. Training in the use of mobile phone SMS style of writings if transferred into the classrooms could enhance students' skills in note taking. That is, students who were trained to use SMS style of writing for note taking took better notes than their counterparts in the control that used the conventional method for the same purpose. The same group of students who received training on how to use SMS for note taking, and who, as confirmed by their mean score, were found to have taken better notes than their counterparts in the control group, equally performed significantly better in their mean achievement scores on a test of comprehension. What this implies is that, good note-takers are usually good achievers in a task taken out of the notes and that the use of SMS can be a better strategy for improving students' note-taking competence during lectures.

RECOMMENDATIONS

The following recommendations are suggested based on the findings, conclusion of this study.

1. One of the findings of this study revealed that note-taking and achievements or test-scores are positively related. It is therefore, recommended that classroom teachers, particularly, those teaching in higher institutions of learning, should insist on students notes in addition to any other lecture materials that they may provide their students with.

2. Lecturers are to deliberately encourage their students to take notes by pacing their lectures, cue students when important points are made and also go round, especially in small classes to make sure that students take notes during their lectures.

3. Another finding of this study revealed that students who were trained to use mobile phone SMS style of writing for taking notes evidently took better notes than their counterparts in the control group that used the conventional note-taking methods. What this reveals is that abbreviations and the use of other SMS writing styles such as phonetic spellings, and alphanumeric combinations speed up note-taking. It is therefore, recommended that strategic note-taking skill be taught to students as a subject just like 'writing' is taught and included in the school curriculum. Students should be made to take this course in their first year as part of their general study courses.

4. This study was instigated by the dwindling interest in note taking by students especially those of higher institutions of learning and on the other hand, the growing interest in writing electronically using the SMS facility on the mobile phone. This interest and enthusiasm will heighten for students if they use their phones to take notes directly from lectures in the class. It is therefore recommended that mobile phone industries should improve upon the available mobile phone to be able to accommodate larger data and also a more simplified data input device.

5. Relevant governmental agencies and professional bodies should sponsor further research on areas that mobile phone could be of educational advantages. This will be better than discouraging and fighting its usage in the classrooms because of some downsides that may be associated with usage.

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