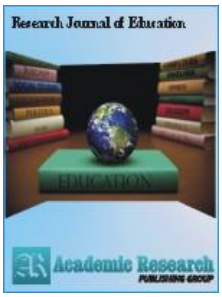

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Gender Dimensions in the Use of Mobile Phone SMS on Note-Taking and Comprehension of Audio-Taped Lecture Materials in Kogi State of Nigeria

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Abstract: This paper examined gender influence in the use of Mobile Phone Short Message Service (SMS) on note-taking and comprehension of materials presented through an audio system. Two research questions and hypotheses guided the study. The design of the study was quasi-experimental non-equivalent pretest and posttest. A sample of 400 subjects was drawn from the research population of 800 using stratified simple random sampling procedure. Two instruments were used for data collection. One of the instruments was the Audio- Taped Lecture (ATL) and the second was the Test for Assessing Comprehension (TAC). These instruments designed by the researcher were subjected to validate. Reliability coefficients of 0.88 and 0.81 were obtained for ATL and TAC respectively. Data for the study were analyzed using mean, standard deviation and analysis of covariance (ANCOVA). The results of the study included that SMS style of writing improved students' note-taking competence as well as comprehension of the notes for both the male and female students and that there was no significant difference in performance based on gender. Recommendations included that students be encouraged to use SMS writing styles for note-taking during lectures and that the use of SMS for note-taking could be tailored towards correcting gender differences in achievement.

Keywords: Mobile phone; Short message service (SMS); Note-taking; Comprehension; Gender and note taking.

1. Introduction

The discoveries and utilization of mobile phones have tremendously revolutionized human societies and behaviours globally. In fact, the much talked about globalization is because of the availability of and prompt accessibility to information. Mobile phones enable a private two-way simultaneous exchange of information between the caller and the receiver. It plays a very significant role in the transformation of the behaviours of users as well as the global economy. This gadget however, was a commodity whose usage was available to the privileged few until 1988, that a group of government owned public telephone bodies within the European Community announced the digital Global System for Mobile Communications (The World book Dictionary, 1997).

Mobile phone makes use of several components or facilities that could encourage or aid school learning. For instance, the Short Message Service (SMS) facility is being used more frequently by a growing number of mobile phone users – especially the youths instead of speaking into the phone. Most youths use this facility probably because it is relatively cheaper added to the fact that delivery is more efficient especially when network is either busy or bad.

To send and read text messages as most youths or users do, require creative skills. This is because of the coding and decoding processes that are always involved in attempts to condense information to save time and money. They combine letters and numbers to make word sounds. For example, words and phrases such as "for you", "function", 'tonight', "I love you", "why me", "together" "and thank you" are creatively designed as "4u", "4ntn", "2nite", "I Luv U", "Y me" ", "2geda" and "10q", respectively. This facility encourages brevity and probably, creativity (word creation) and could improve the users' reading and writing skills as well as cognitive ability.

This style of writing, that is popularly referred to as 'texting' which, most youths seem to have flare for, could be transferred into the classroom for note-taking. This is because of the established relevance of students' notes to their learning. Acknowledging the relevance, Bierce (2005) and Brazeau (2006) said that note taking by students is one of the ways to actively engage them in learning, especially in higher institutions where lecture method is predominantly used, but as noted by Water and Water (2007), the habit of note taking during lectures seemed to be diminishing greatly among students. Students, especially those in NCE one, tend to rely more on lecturers' handouts and textbooks.

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Students' notes, as Brazeau (2006) noted, are more preferable to lecturers' notes. This is when lecturers provide all the notes for the students to copy verbatim. This, according to Brazeau, could make students to be passive listeners because they are not given the opportunity to develop their own strategies for organizing information in their own cognitive perspective that is a vital element in facilitating learning. Studies, as reported by Browner (2007) affirmed 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. As a result Browner (2007)) suggested that lecturers should encourage students to take notes.

Note-taking is a skill (Boyle, 2001; Water and Water, 2007). The more it is practised the more skilful one becomes (Browner, 2007). One of the skills for note-taking is the ability to write down important facts quickly and accurately. It involves the jotting down of facts and ideas as a cue for reviewing, reflecting and revising (Isangedighi, 2007). The best note takers according to Linquist *et al.* (2007) are often the most successful students. Weener (2004) found out from his study that the probability of a student recalling an item on a test 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 examinations (Isangedighi, 2007). Similarly Boyle (2001) noted that it allows for active engagement during lectures while according to Northedge (1997) it forces the individual learner to think. In fact, whatever the learning situation, reading, assessments or classroom lectures, students' notes will help them remember and learn (Browner, 2007).

Still as important as student note is to his/her learning, many students in their first level of studies in higher institutions of learning in Nigeria, seem to be deficient in the skill of note taking probably due to their background orientation of copying directly from the teachers' notes. This is one of the reasons why this study was aimed at training the students in the skill of note taking using abbreviations, particularly, the use of SMS style of writing. This is because teachers' instructions to students on how they could record notes should according to Boyle (2001) include teaching them how to record short hand or abbreviations. Abbreviations speed up note taking (Water and Water, 2007).

Users of mobile phone Short Message Service (SMS) particularly youths create and use abbreviated words very frequently to pass messages across to their friends and mates. These youths, particularly, those who are students in advanced institutions of learning could be trained to transfer the skill acquired from mobile phone SMS writing styles to note taking during lectures in large classes where teaching is predominantly lecture based.

However, note taking is not an end in itself (Bierce, 2005). It is against this background that students are further examined in this study on comprehension test items drawn from the notes that subjects took from audio-taped material. It is likely that a learner that listens before he writes, and not just writing anything but salient points and then using abbreviations, is more likely to recall materials in a test better than a learner that copies verbatim and who grapples with spelling problems. This is why the test items on comprehension attempted to measure immediate learning gain by asking questions basically on learning recall or knowledge level.

The study further examined how training in the use of mobile phone SMS for note-taking and comprehension could impact differently on the male and female students. This is because according to Onasanya *et al.* (2007), claims of gender inequalities in education, particularly, in mathematics, science and technology exist. Similarly, there are studies that have identified gender differences in areas such as language acquisition and cognitive abilities (Bates *et al.*, 1998; Halpern, 2000; Vasta *et al.*, 1995). But with specific reference to gender usage of Information and Communication Technologies, report from gender issues in Information and Communication Technologies for Agriculture and Rural Development in Africa' the Caribbean and Pacific (2004) affirmed that most technological innovations affect men and women differently. The study carried out by cell phones Company (Enpocket), on consumers' use of data services for mobile phone which, Sidener (2005) reported, found out that slightly more women, 39 percent said they used text messaging, compared with 37 percent of men who use cell phones. Since this current study examined the effect of training in the use of mobile phone SMS writing styles on note taking and comprehension, will there be gender influence?

2. Purpose of the Study

The purpose of this study was to find out the influence of gender in the use of mobile phone SMS on note-taking and comprehension. Specifically, the study was intended to:

1. Determine whether the use of SMS for note-taking from audio-taped lectures could be influenced by gender.
2. Find out if there is influence of gender on students' mean achievement scores in comprehension of the notes taken from audio-taped lectures using SMS.

3. Research Questions

The following research questions were posed to guide investigation:

1. What gender differences exist in the mean scores of students using SMS for note-taking from audio-taped lectures?
2. What is the influence of gender on the mean achievement scores of subjects on a test of comprehension of the notes taken using SMS from audio-taped lectures?

4. Research Hypotheses

The following null hypotheses (H0) were formulated and (tested at .05 level of significance)

$H0_1$: Students' mean scores on note-taking using SMS from audio-taped lecture will not differ significantly based on gender.

$H0_2$: There will be no significant gender differences in the mean achievement scores of subjects on comprehension of notes taken from audio-taped lecture using SMS.

5. Method

This Study used the quasi experimental research design. Specifically, the pretest, posttest non-equivalent control group design was employed. This study was carried out in Kogi State, Nigeria. The study areas were Kogi East and Kogi Central where the two educational institutions run under the purview of Kogi State College of Education, Ankpa and Federal College of Education, located at Okene. The population of this study was made up of 800 Nigeria Certificate in Education (NCE) students of the two institutions aforementioned who accepted using SMS facility on their phones regularly.The sample for this study was made up of 400 subjects drawn from the two institutions of study through stratified simple random sampling techniques.

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

Model answers were prepared separately for scoring the two instruments. The first instrument, which was Audio-Taped Lecture, had a Model Note (ATLMS), as its marking scheme. Audio-Taped Lecture Marking Scheme (ATLMS) served as the researcher's standard for note-taking on this particular learning content. Any good note taken by students was expected to include features or salient points on this model note. That is, students' notes in this lesson were to be compared with ATLMS which, was the researchers' standard for scoring them on note taking task. For each sentence, information or responses correctly noted, the subject was awarded 2 marks. If the 50 responses or information were correctly noted, the subject would score 100 percent.

For the researcher to assess subjects on comprehension he used the second instrument (TAC). This instrument was made up of 20 short answer demanding objective responses. Each question correctly answered was scored 5 marks.

These two instruments were face validated by three experts from the department of Educational Foundations, university of Nigeria, Nsukka. Using test-retest method, thirty equivalents NCE one students of Alhikima College of Education, Ankpa (a privately owned College of Education, established in 2006) were trial-tested on the instrument and the reliability co-efficient of (ATL) was obtained as 0.88. The second instrument (TAC) had reliability co-efficient of 0.81. In addition to the trial testing of these instruments, ATL was again, subjected to inter-scorer reliability using the scripts of this same group of 30 students at the pre-testing stage and a reliability coefficient of 0.94 was obtained when another lecturer in Kogi State College of Education, Ankpa, re-marked the scripts.

After the administration of a pretest, the researcher used three weeks with six contact (hour) periods to train subjects on the concept and features of SMS and how they could be used for note-taking. The data for this study were subjected to analyse using mean, standard deviation, and ANCOVA.

6. Results

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

6.1. Research Question 1

What gender differences exist in the mean scores of students using SMS for note-taking from audio-taped lectures?

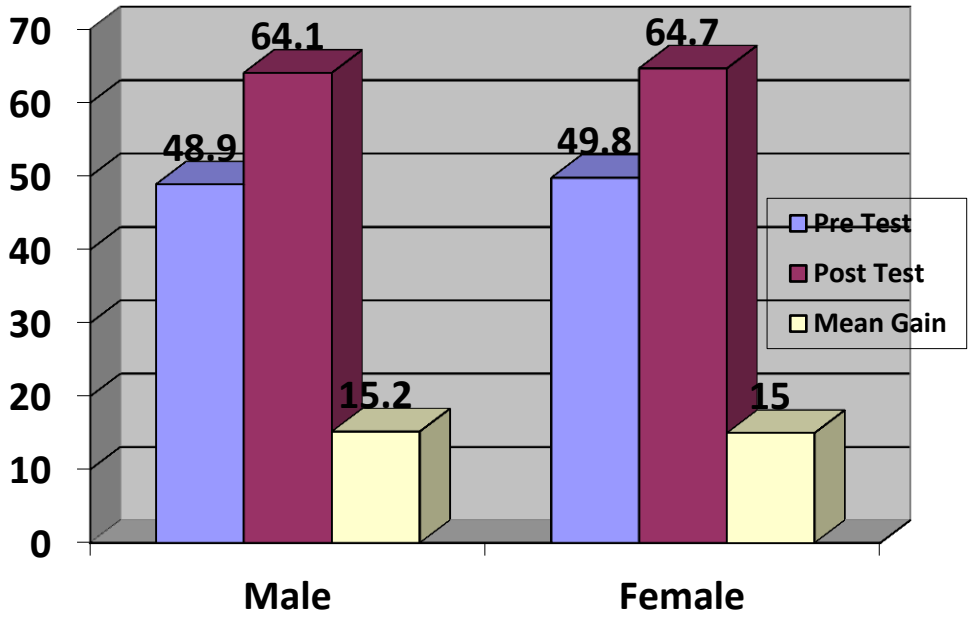
Data that answered this question is shown on Table 1

Table-1. Pretest and posttest mean scores of male and female students on note-taking.

Group	Number	Pretest		Posttest		Mean Gain
		$\bar{X}$	SD	$\bar{X}$	SD	
Males	250	48.89	16.36	64.13	14.20	15.24
Females	150	49.77	16.33	64.74	14.93	14.97

Table 1 shows that at the pretest and posttest, the female subjects were better slightly in note-taking with mean achievement scores of 49.77 and 64.74 respectively than their male counterparts whose pretest and posttest mean achievement scores were 48.89 and 64.13 respectively. Both the males and female subjects evidently improved sufficiently in their note-taking efforts at the administration of the posttest instrument with mean gain of 15.24 and 14.97 respectively.

Figure-1. Bar graph of pretest, posttest and mean gain of students for a test on notes taken using SMS from audio-taped lectures



$H0_1$: Students' mean scores on note-taking using SMS from audio-taped lecture will not differ significantly based on gender.

Result of the analysis done on this variable is shown on Table 2.

Table-2. Analysis of covariance for the male and female subjects' means scores in note-taking task

Source	Type111 sum of squares	df	Mean square	F	Sig.
Corrected Model	51860.803[a]	2	25930.401	96.996	.000
Intercept	41490.205	1	41490.205	155.199	.000
PreNT Score	51284.460	1	51284.460	191.836	.000
Sex	314.968	1	314.968	1.178	.278
Error	106131.907	397	267.335		
Total	1894326.000	400			
Corrected total	157992.710	399			

a. R squared =. 328 (Adjusted R Squared =. 325)

Table 2 reveals that the stated null hypothesis of no significant influence of gender on subjects mean scores on note-taking task is accepted because the value of significance of f = 0.278 is greater than the alpha level or value of 0.05. What this implies is that gender differential is not a significant factor to consider in note-taking.

6.2. Research question 2

What is the influence of gender on the mean achievement scores of subjects on a test of comprehension of the notes taken using SMS from audio-taped lectures?

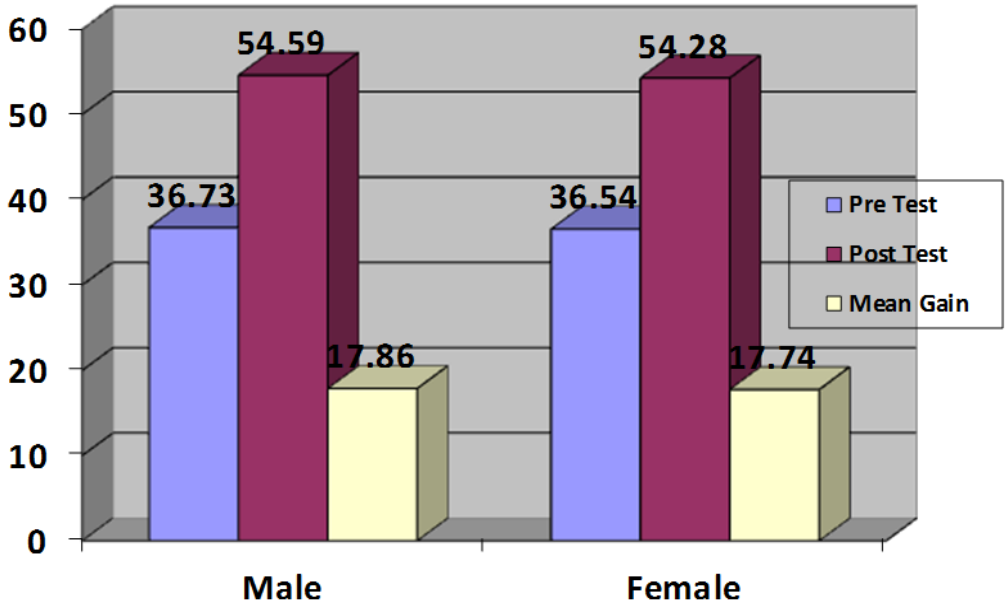
The answer to this question is shown on Table 3.

Table-3. Males and Females pretest and posttest mean scores on comprehension.

Group	Number	Pretest		Posttest		Mean Gain
		$\bar{X}$	SD	$\bar{X}$	SD	
Males	250	36.73	14.93	54.59	14.07	17.86
Females	150	36.54	14.58	54.28	10.86	17.74

Table 3 and Figure 1 reveals that at both the pretest and posttest administrations of test instrument on comprehension, the males proved to be slightly better in their mean performance scores of 36.73 and 54.59 respectively over those of the female subjects whose pretest and posttest mean scores were 36.54 and 54.28 respectively. The mean gains were 17.86 for male and 17.74 for females. In this comprehension task, both the males and female subjects showed drastic improvement in their posttest mean performance scores,but the standard deviation scores showed that the improvement was better and more spread for the female subjects than the male subjects. There was a reduction from 14.58 to 10.86 for the female subjects while for the males, it reduced to 14.07 from 14.93.

Figure-2. Bar graph of pretest, posttest and mean gain of students on a test of comprehension of the notes taken using SMS from audio-taped lectures



H0$_2$: There will be no significant gender differences in the mean achievement scores of subjects on comprehension of notes taken from audio-taped lectures using SMS.

The data analyzed for this variable is shown on Table 4.

Table-4. Analysis of covariance for the male and female subjects' means scores in comprehension

Source	Type111 sum of squares	Df	Mean square	F	Sig.
Corrected Model	26493.522[a]	2	13246.761	33.869	.000
Intercept	77392.499	1	77392.499	197.877	.000
PreC Score	26075.264	1	26075.264	66.669	.000
Sex	404.146	1	404.146	1.033	.310
Error	155272.476	397	391.115		
Total	1453135.000	400			
Corrected total	181765.998	399			

a. R squared =. 146 (Adjusted R Squared =. 141)

As with hypothesis 1, hypothesis 2 of no significant effect in the mean achievement scores of gender on a test of comprehension is equally accepted because the alpha level of 0.05 is less than the value of significance of 'F' which was 0.310. This therefore, means that gender does not differently affect students' mean achievement scores in comprehension.

7. Discussion

Tables 1 and 2 reported the mean achievement scores of students in note-taking and also the result of the test of significance that was performed based on gender using analysis of covariance. Specifically, the evidence on Table 1 showed that there was drastic improvement in note-taking skills after the subjects were trained to use SMS writing styles for both sexes. The mean achievement score of the female subjects was however, slightly higher than those of their male counterparts on a task that required note-taking during lectures at both the pretest and posttest administrations of this instrument. What this implies is that the female subjects slightly proved to be better note-takers than their male counterparts. This study is in agreement with the study carried out by cell phone content company reported by Sidener (2005) that slightly more women, 39% said they used text messaging compared with 37% of men who use the cell phones. Similarly, Virpi *et al.* (2004) in their own study equally found out that female subjects used overt study strategies particularly, note-taking more often than the male subjects. This shows that several of these female students may be good listeners and organizers. These attributes are typical of most married women and particularly those who are mothers.

These apart, writing text messages require patience and also are relatively more economical than voice calls. Women seem to show patience as mothers and wives than men and they are likely to be more careful and prudent with the family finance.

An assessment of the note-taking task by subjects especially those of the experimental group, after their training, revealed that the female subjects used SMS more than their male counterparts and they were equally found to be more consistent in using a designed code for a particular word throughout the number of times that such words

appeared in the notes. This finding equally agrees with the study of Borae and Joohan (2008) that women use text messaging more frequently than men and that men use voice call slightly more than women. The frequent use of SMS by the females more than the males may be responsible for the slight performance of the female subjects when they saw the opportunity to use this for note-taking. However, a test of significance that was carried out revealed that this difference was not significant just like the study of Smoreda and Thomas (2000) that was not able to find significant gender differences in the use of SMS and claimed that young people, whether men or women, use SMS to the same extent. But in note taking strategy, Virpi *et al.* (2004) however, found a significant gender associated differences in favor of females. This probably may happen due to their high organizational abilities.

The data analyzed on gender influence in comprehension presented on Tables 3 and 4 revealed that the male subjects were slightly better in their mean achievement scores on test of comprehension of materials in their notes at both the pretest and posttest administrations of this instrument with mean scores of 36.73 and 54.59 against 36.54 and 54.28 mean achievement scores for the female counterparts. The result of this study is in agreement with the studies of other researchers in science and science related courses (Mau and Lynn, 2000; Mshelia and Wamdeo, 2002).

A test of significance of the differences in the mean scores of subjects like the earlier studies of Omwirhiren (2005) and Afuwape and Oludipe (2008), found that the gender-associated differences were not significant. In fact, Hedges and Norwell (1995) reported in their study that an analysis of mental test scores from six studies which used national probability samples provided evidence that although average sex differences have been generally small and stable over time, the test scores of males consistently have larger variance.

What this implies is that the superiority of men over women and that of women over men in some subjects is thinning out seriously. This probably could be the result of women empowerment campaigns and other women awareness related programs and the confidence and exemplary performance of some women in positions of authorities in Nigeria that could be impacting positively on the achievement of women of this age. In fact, a careful look at the scores of subjects at both the pretest and posttest administrations of the two instruments namely-note-taking and comprehension showed very insignificant differences that under any serious mathematical computation could be ignored and treated as irrelevant. The finding of this study goes further to strengthen some existing research discoveries that gender gap is narrowing and that existing gender differences may be more cultural than in ability or intelligence.

8. Conclusion

The study looked at gender usage of mobile phone SMS for note-taking in the classrooms. This study was carried out as one of the ways to encourage note-taking during lectures especially as note-taking habit is dying down among students of higher institutions of learning. The findings revealed that students were better note-takers after they were trained to use the SMS styles for note-taking. The result of the study equally showed that subjects performed well on a test of comprehension that assessed their knowledge of the notes taken with the SMS styles of writing. In the use of SMS for note-taking as well as the assessment of comprehension of the notes, gender differences were not relevant and significant.

9. Recommendations

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

1. The study revealed that the use of mobile phone SMS style of writing speed up note-taking. It is therefore, recommended that strategic note taking skill should be taught to students as a subject just like 'writing' is taught and included in the school curriculum. Students should be made aware to take this course in their first year as part of their general study courses.
2. In teaching note-taking, it is recommended that students of both sexes should be exposed to this strategy of using SMS style of writing without discrimination, as the results of the study have not shown any significant difference in their mean achievement scores due to gender. The use of SMS writing style lends itself to universal use. It is not gender discriminatory.
3. 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.
4. The pretest scores of students on note-taking showed that subjects were generally not very good in note-taking during lectures. Therefore, it is recommended that school administrators should make rules that will de-emphasize reliance on lecturers' handouts and textbooks and enhance students' notes instead.

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