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The Effectiveness of Plasma Television Integration on the Students' Achievement of Reading Skill: Focus on Ginchi Preparatory School

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Abstract:

Using the satellite technology is also believed to ensure the quality of education. It is assumed that students are highly benefited from the plasma program to develop their English language skills in general and reading in particular. This study was conducted to identify whether the students (Experimental group) who are taught by the integration of plasma television (intervention) score higher on the post-test than on the pre-test for the reading skill. Quasi experimental with the specific design of one group pretest and posttest was employed. Reading test was used as an instrument to check out the effectiveness of the program. Statistical package for social science version 20 was used in order to analyze data from the instrument. On this basis, it was concluded that the substantial difference between the pre-test and the post-test scores for the experimental group permits to confirm that, the plasma television did have a strong positive effect on the students' reading skill. Finally, it was the school English language teachers should integrate the technology in the reading classrooms so as to make the class more effective.

Keywords: Plasma, Integration, Experimental group, Pretest, Posttest.

1. INTRODUCTION

1.1. Background of the study

Using the satellite technology is also believed to ensure the quality of education. English language is among the subjects which have been selected to be aired via satellite (plasma display panel). It is assumed that students are highly benefited from the plasma program to develop their English language skills (ability to understand what is said in English language and communicate with it, and mastering the linguistic aspect of the language) than they are taught using the traditional teacher talk approach (Berhanu, 2012).

The plasma television instruction (PTV), like any other instructional technologies can be used in language teaching, specifically in reading skill.

In line with this, Hall (1986) states that ITV is further believed to be very useful to teach all the language skills, such as reading, listening, speaking and writing skill. Specifically, Rose (2004) asserts that Technology is an excellent complement in a reading classroom. Technologies extend the ways that teachers can teach, and the ways that students can learn. It expands the

opportunities for students to hear skillful, engaging, reading of text, even when their teacher is occupied with other activities.

However, a specific technology may hold great educational potential. Unless it is used properly, it may not have any positive impact at all learning. The effect of any technology on learning outcomes lies in its uses (Zhao, 2003).

Thus, it is necessary to look particularly into the effectiveness of the practice of the plasma-based ELT since assessing the effectiveness of technology in reality is assessing the effectiveness of its uses. Therefore, the study will focus on the effectiveness of plasma television integration on the Students' achievement of reading skill.

1.2. Statement of the Problem

Identifying the quality and relevance of the existing curriculum and the teaching methods employed by teachers as factors contributing to the problems of education of Ethiopia, the Ministry of Education has recently introduced instructional television for high school and preparatory school. It is believed that unlike the conventional classroom instruction, teaching foreign language via plasma television would enhance students' active involvement in learning, and hence help them develop their general language competence. Moreover, Plasma TV in education has myriads of useful benefits to students (MOE, 2004).

However, study by Tessema (2006), shows problems prevailed in PTV educational broadcast. He argue that PTV broadcast has got several limitations that relate to PTV's speed, power supply and language of broadcast. There is findings (Bitew, 2008) that support the idea that lack of the aforementioned aspects adversely affects students' learning and their success.

Similarly, the study by Kebede (2007)) identified that some of the difficulties students experienced while they were learning listening skills through the plasma TV were; lack of visual material in the listening section, problems of identifying the plasma teachers' accent, learners' poor concentration and environmental noises.

From the above research works and the researcher's closer look at the use of the medium as instructional tool at school level, the idea of fitting plasma TVs in English Language teaching has been a much-debated issue in terms of its efficiency. The language of instruction, pace and length of broadcast, awareness and skills are some of the crucial issues that the present researcher retrospect's in ELT reading classroom.

Specifically, The studies of Aberash (2005) and Haregu (2008), which have been carried out on the plasma English language teaching, emphasized the teaching of speaking and listening skills.

All the above mentioned studies about the plasma integrated English language teaching were purely based on survey studies i.e. they were not based on empirical data. So far, how effectively the plasma integrated English language teaching has been employed in reading classroom have not been studied. Hence, the present experimental study has made an attempt to see the effectiveness of plasma television in reading classroom.

1.3. Objective of the study

The following was the objective of the research:

1.3.1. To identify whether the students (Experimental group) who are taught by the integration of plasma television (intervention) score higher on the post-test than on the pre-test for the reading skill.

1.4. Research Hypotheses

In order to investigate the problem raised by the study and to achieve the stated objective, the following null hypothesis was tested:

1.4.1. Students (Experimental group) who are taught by the integration of plasma television (the intervention) will not score higher on the post-test than on the pre-test for reading skill.

1.5. Operational Definition of Terms

The following terms may not be familiar to the reader. Pilot responses suggest that some readers may benefit from these definitions. The terms used in this study may carry a different interpretation in a different context. So, to avoid some possible confusion, the following are operational definitions of some of the terms used in this study.

Plasma: Satellite television based instruction, refers to locally as ‘plasma’.

Integration: is to mean when the plasma mode of instruction (technology) is integrated with face to face instruction.

2. METHODOLOGY

2.1. Research Design

2.1.1. One group pretest-posttest Design

New teaching strategies are touted as effective practices in studies that measured one group with a pretest, implemented a treatment manipulation, and then measured the same variable, as was measured with the pretest , with the post test.

It is one of the most commonly used quasi-experimental design in educational research (Cohen, Manion, & Morrison, 2007). This is often the case since students are naturally organized in groups as classes within schools are considered to share similar characteristics (Best & Khan, 1995). On the basis of this, the study was designed specifically as follows.

	Pre-test	Treatment	Post-test
Experimental Group (Random)	O1	XT	O2

Fig. 1. *Pretest-Posttest one-group design* (Adapted from Johnson & Christensen, 2004)

Where: O1 and O2 represent the pre-test and post-test assessment of the dependent variable.

XT represents the treatment condition.

2.2. Types of Variables

The dependent variable is the major variable that will be measured. The dependent variable is the variable of focus- the central variable- on which other variables will act (Griffe, 2012). So, in this study the reading skill is the dependent variable.

The independent variable in an experimental design is the treatment; it is the variable that the researcher suspects may relate to or influence the dependent variable. In a sense, the dependent variable “depends” on the independent variable (Griffe, 2012). The independent variable in this study is therefore, integration of plasma TV in the classroom. So, the study will try to measure the effect of the independent variable on the dependent one by using a pre-test and post-test to measure reading scores.

2.3. Research Population and Sample

The population selected for this experimental study was eleventh grade students at Ginchi Preparatory School. The school was chosen because it is equipped with many facilities, such as plasma display panels and the researcher familiarity with the school teachers and principals. It was expected that such facilities and familiarity would enable to follow the procedures expediently for doing the experiment.

In Ethiopian secondary schools, preparatory students are divided into two streams: natural science and social science. One section of grade 11 social science class was selected to be experimental group. The reason for this choice is that grade 11th students were more experienced and familiar with the technology. Moreover, the samples were convenient.

Eleventh grade, social science stream had a total of 39 students. The students were assigned (by school) into section A. Since the total number of students was manageable to the experiment, all students of the section were included in the study, which were later categorized as experimental group. Henceforth, section A was assigned to experimental group.

Additionally, they all students had the same exposure to English through formal classes in intermediate and secondary school. Similarly, since they came from the same area, it is reasonable to assume that they shared a homogeneous EFL background. They also matched each other in grade (eleventh), stream (social science), and school (Ginchi Preparatory School).

Table 1: *Sample distribution*

	Frequency	Percentage
--	-----------	------------

Experimental Group	39	100
Total	39	100

2.4. Treatment

The topics of instruction were selected from the curriculum of Grade 11 English text book. Accordingly; unit five, unit six, unit seven, unit eight, and nine were selected due to coincidence of the program with the time of data collection. Specifically, the reading episodes of the respective units were thoroughly presented according to the time table set by MOE for both the plasma-based and non-plasma based modes of instruction. The experimental group was exposed to 20-25 minutes of PTV instruction followed by 15-20 minutes of conventional method of teaching by the classroom teacher.

Table 2: *description of reading episodes of the plasma television*

Unit	Unit title	Episode number	Reading section title
5	Tourism	74	The impact of tourism
6	Fiction	90	Different types of text
6	Fiction	94	Phrasal verbs in and out
7	Weather and climate change	111A	Why weather forecasts are important
8	Water	130	How the world is dealing with water shortage
9	Disability and awareness	134	Disability no awareness to success

The group had total contact hours of four. The same teacher who was assigned by the school held the class. This is based on the recommendation by Ary, Jacobs and Sorrensen (2010), having the same person teach both English classes would be recommended. At the end of the experiment, which lasted for nine weeks of 2006 E.C (2014) academic year, a post-test was administered the group.

2.5. Instrument (Test)

2.5.1. Description

The study involved a pre-test and a post-test, which covered the reading skill. The researcher developed an achievement test. It was used as both a pretest and posttest to assess the effectiveness of intervention on the dependent variable. The test comprises (20) multiple choice items of four parts and four alternatives. At the beginning of the test paper, the instructions of the test were introduced and the subjects were asked to choose the correct answer. The time

allocated for the test was (40) minutes. Concerning the marking scheme, there is one mark for each item, so the total score is out of (20). For the detail of the instrument please refer to Appendix-A.

2.5.2. Test Validity

A test is valid when "it measures what it is supposed to measure" (Oller, 1979, p. 70). Therefore, to ensure that the test employed in the present investigation is valid, the face, construct, and content validity were evaluated. The test items were evaluated by some experts in the field to validate the suitability of the test items to the students' abilities, the clarity of the instructions, the feasibility of test items, the suitability of the allotted time, and the test organization. Necessary changes to the test items were made based on the feedback from the teachers. For example, modification on the format of test and time allocation was made.

2.5.3. Test Reliability

For external reliability, the test-retest method was used, where a pilot study was conducted on 20 students. The test was piloted to make sure that the written format and the length of time allowed were appropriate. The test was administered for approximately 40 minutes.

The same test was retested on the same students, after an interval of three weeks. Pearson Product Moment Coefficient was used to measure the correlation between the test-retest results. The results of the test showed a high correlation, which reached .863. The consistency of the correlations between test-retest scores suggested that the reading test was correlated and thus had a high reliability.

For further examination of the test's internal consistency, Cronbach's Alpha formula was applied to the data from the pilot study mentioned above. The value of Alpha reached .88, which is statistically considered high. So, the test was found statistically reliable.

2.6. Statistical Methods

The software package most commonly used in applied linguistic and educational research is 'SPSS' (statistical package for social science) (Zolatan, 2007). The significance of the difference in the average pretest- posttest change for two groups could be determined by a t-test (Ary, Jacobs and Sorrensen (2010).

So, in order to analyze the pre-test and post-test, the data was computed by means of the statistical package SPSS version 20. The kinds of analyses that were used included Pearson Product Moment Coefficient, which indicates the degree of relationship between two sets of numbers as well as the frequencies, percentage and means.

The pair and the independent sample's t-test were also used to determine whether the difference in means between the two groups – if it existed – was significant at the .05 level. The above statistical types were additionally used to compare the following: the pre-test means for both groups, the pre-test and post-test means for both groups, and the post-test means for both groups.

In order to control the influence of the pre-test on the post-test, an analysis of covariance (ANCOVA), which is a "method of statistically controlling for extraneous variables" (Lauer, 2006), was used. That is to say, it was employed to adjust "the post-test scores for the influence of the pre-test so that the adjusted post-test scores are not biased due to the pre-test" (ibid, p. 58).

3. DATA PRESENTATION, ANALYSIS AND RESULT

3.1. Statistical Analysis of the EG's Pre-Post Tests

In order to achieve the major objective, which was "identifying whether the integration of plasma television in English language reading classroom have positive effect on the reading skill of grade eleven students." the specific research objectives would be achieved first.

The first specific objective was: "To identify whether the students (Experimental group) who are taught by the integration of plasma television (intervention) score higher on the post-test than on the pre-test for the reading skill." And the first hypothesis was: "Students (Experimental group) who are taught by the integration of plasma television (the intervention) will not score higher on the post-test than on the pre-test for reading skill."

The scores obtained by the students in this group were calculated to compare the pre-test with the post-test. Next, the scores were calculated to find the difference between the two mean scores.

Table 3 presents these mean scores along with the standard deviation.

Table 3: *Overview of mean scores of the reading pre-post-tests for the experimental group*

	N	Mean	Std. Deviation	Std. Error Mean
Score 1	39	18.2321	6.13202	1.00519
Score 2	39	21.3043	4.35708	.71814

The above table shows clearly the fairly big difference between the experimental group's pre-test mean and post-test mean scores. More precisely, the analysis revealed that the experimental group achieved a mean score of about 18.2321 in the pre-test; whereas for the post-test, the mean score increased to 21.3043.

To determine whether this difference between the pre-tests and the post-tests is statistically significant, a t-test was applied as shown in Table 4 below.

Table 4: *Overview of t-test value of the reading pre-post-tests for the experimental group*

df	Mean	Std. Deviation	Std. Error Mean	T. Test Value	Sig. (2-tailed)

38	-3.0722	3.36249	.55279	-5.720	.000
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Significant at the level of $p < .05$

From the above table, which shows the t-test value of the pre-post-tests of the experimental group, it can be seen that the t-test value was -5.720, which is greater than the tabulated t-test value. The correlation between the pre-test and the post-tests was significant ($r = -3.0722$, $p < .05$).

This means that there was a statistically significant difference between the experimental group pre-test and post-tests. Hence, the null hypothesis, which stated that "Students (Experimental group) who are taught by the integration of plasma television (the intervention) will not score higher on the post-test than on the pre-test for reading skill." was rejected. The result indicated that the reading skills of the experimental group improved since the application of the experiment. One can conclude, then, that the plasma television has positively affected the students' reading skills.

3.2 Conclusion

The final step now is to examine the major objective set for the present study, which was: "To identify whether the integration of plasma television in English language reading classroom have positive effect on the reading skill of grade eleven students."

The substantial difference between the pre-test and the post-test scores for the experimental group permits to confirm that, the plasma television did have a strong positive effect on the students' reading skill. Hence, the null hypothesis "The integration of plasma television will have a negative effect on the reading skill of grade eleventh students." is rejected because results showed that the plasma television had a positive effect on the reading skill of the experimental group.

The finding of the true experimental study by Hojat and Jack (2001) is also consistent with the present study. During the study it was attempted to examine the effect of television on reading comprehension in an EFL context. It was hypothesized that television has positive effect on reading comprehension. Forty male learners of English at an intermediate level of linguistic proficiency after a proficiency test were randomly selected as the participant of this study and were assigned in two groups of experimental and control on the basis of their performance in reading comprehension.

3.3. Recommendation

The recommendation that can be drawn from the foregoing conclusion is:

- The school English language teachers should integrate the technology in the reading classrooms so as to make the class more effective.

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Appendix A
Ginchi Preparatory School
Social science stream Grade 11 (2014)
Reading Test

Name of examinee----- Section-----

In this reading test, you will read a variety of texts and answer several different types of reading comprehension questions. The entire test will last for 75 minutes. There are four parts, and directions are given for each part. Mark your answers on your test sheet.

PART 1

Directions: A word or phrase is missing in each of the sentences below. From the choices given, select the best answer to complete the sentence. Then mark the letter (A), (B), (C), or (D) on your test sheet.

1. Register early if you would like to attend next Tuesday's ----- on project management.

- (A) seminar (B) reason (C) policy
(D) scene

2. Abera Kabeta resigned last Monday from his position as ----- executive of the company.

- (A) fine (B) chief (C) front
(D) large

3. The financial audit of Soft Peach Software ----- completed on Wednesday by a certified accounting firm.

- (A) to be (B) having been (C) was
(D) were

4. The organizers of the trip reminded participants to ----- at the steps of the city hall at 2:00 P.M.

- (A) see (B) combine (C) meet
(D) go

5. ----- is no better season than winter to begin training at gymnasium.

- (A) When (B) It (C) There
(D) As it

6. The recent worldwide increase in oil prices has led to a ----- demand for electric vehicles.

- (A) greater
greatness
- (B) greatest
- (C) greatly
- (D)

7. Abera has a wide range of experience, ----- worked in technical, production, and marketing positions.

- (A) having
had
- (B) has
- (C) having had
- (D)

8. Tickets will not be redeemable for cash or credit at any time, ----- will they be replaced if lost or stolen.

- (A) but
nor
- (B) though
- (C) only
- (D)

PART TWO

Directions: Read the texts that follows. A word or phrase is missing in some of the sentences. Select the best answer from the choices given to complete the text. Then circle the letter (A), (B), (C), or (D) on the sheet.

Ms. Chaltu Kebede

Addis Ababa

Ethiopia

Dear Ms.Abeba:

I am ----- to confirm our offer of part-time employment at Western Enterprises. In your role as

9. (A) Pleased
pleasure
- (B) pleasing
- (C) pleasant
- (D)

research assistant, you will report to Dr. Mohamed , who will keep you informed of your

Specific duties and projects. As we discussed on the telephone, you ----- twice a month.
Hourly

employees working fewer than

10. (A) will pay
will be paid
- (B) were paid
- (C) have paid
- (D)

twenty hours per week are not ----- to receive paid holidays, paid time off for illness, or other

11. (A) tolerable
(D) expressed
- (B) liberal
- (C) eligible

employee benefits. Your employment status will be reviewed in six months. If you have any questions, please feel free to contact me.

Sincerely,

Tesfaye Bekele

Human Resources

Enclosure

PART THREE

Questions 12-15 refer to the following article.

The new economy has created great business opportunities as well as great turmoil. Not since the Industrial Revolution have the stakes of dealing with change been so high. Most traditional organizations have accepted, in theory at least, that they must make major changes. Even large new companies recognize that they need to manage the changes associated with rapid entrepreneurial growth. Despite some individual successes, however, this remains difficult, and few companies manage the process as well as they would like. Most companies have begun by installing new technology, downsizing, restructuring, or trying to change corporate culture, and most have had low success rates. About 70 percent of all change initiatives fail.

The reason for most of these failures is that in their rush to change their organizations, managers become mesmerized by all the different, and sometimes conflicting, advice they receive about why companies should change, what they should try to accomplish, and how they should do it. The result is that they lose focus and fail to consider what would work best for their own company. To improve the odds of success, it is imperative that executives understand the nature and process of corporate change much better. Most companies use a mix of both hard and soft change strategies. Hard change results in drastic layoffs, downsizing, and restructuring. Soft change is based on internal organizational changes and the gradual development of a new corporate culture through individual and organization learning. Both strategies may be successful, but it is difficult to combine them effectively. Companies that are able to do this can reap significant payoffs in productivity and profitability.

12. What is the article mainly about?

- (A) Corporate marketing plans (B) New developments in technology
(C) Ways for companies to increase profits (D) How companies try to adapt to new conditions

13. The word “manage” in paragraph 1, line 6, is closest in meaning to

- (A) correct (B) attract (C) handle (D) regulate

14. According to the article, why do so many attempts to change fail?

(A) Soft change and hard change are different. (B) Executives are interested only in profits.

(C) The best methods are often not clear. (D) Employees usually resist change.

15. The word “payoffs” in paragraph 2, line 13, is closest in meaning to

(A) bribe (B) legal (C) profit (D) cost

PART FOUR

Flower Power Systems meeting with Sunrise Software Company, November 2	
Flower Power Systems attendees: Chala Tola and Girma Gudisa	Sunrise Software attendees: Seid Ahmed, Abebe Tesfa, Peter Bodell
Attendees	Agenda
Seid Ahmed	Introductions and review objectives
Girma Gudisa	Flower Power Systems: project overview and development schedule
Abebe Tesfa,	Sunrise Software product overview
Guta Chala	Sunrise Software training and Consulting
Abebe Tesfa,	Technology question and answer
Seid Ahmed	Next steps

Questions from 16-20 are based on the following agenda and email message

To: Girma Gudisa

From: Seid Ahmed, Sunrise Software Company

Subject: Yesterday's meeting

Dear Girma,

Thank you for taking the time to get together with us yesterday. Everyone on our team felt that it was productive meeting. We have a better understanding of your project's needs now, and we've started looking at ways to adapt our software to meet your requirements.

While the basic function of the software is well suited to the project overall, as discussed, we will explore ways to adapt it to the needs of the different departments at Flower that will be

using it. This will incur some additional cost, as we indicated—we'll provide details about that at our next meeting, once our engineers have assessed the changes that will need to be made.

I've asked Guta Chala to prepare a document for you that indicates when the Training and Consulting Department could start providing services to you. He'll send this information to you directly—since you've worked with him in the past, it seems the most efficient way to go.

As agreed, let's set up a meeting for the week of November 26 by which time our engineers will be able to outline their approaches to your departmental needs, and we'll have the information we need to put together a contract. In the meantime, please feel free to contact me if you have any questions.

Regards,

16. Why was the meeting held?

(A) To talk about hiring costs
software users

(B) To train

(C) To discuss work on a project
contract

(D) To review a

17. Who would probably be the best person at Sunrise to answer technology questions?

(A) Seid Ahmed

(B) Guta Chala

(C) Abebe Tesfa

(D) Girma Gudisa

18. What is the main purpose of Mr. Seid's e-mail to Mr. Girma?

(A) To request a meeting with the engineering department
Guta Chala

(B) To introduce

(C) To follow up on a meeting with Flower
Flower has adapted its software

(D) To explain how

19. What service will Guta Chala department provide?

(A) Training and consulting

(B) Legal advice

(C) Publicity
software

(D) Changes to the

20. What will happen in the week of November 26?

(A) Guta Chala will make a presentation.
Sunrise will meet again.

(B) Flower and

(C) A contract will be signed.
new software will occur.

(D) Training in the