The Effect of Using Technical Audio Visual- Aids on Learning Technical English Language at Technical Institutes

Asst. Instr. **Sadoon Salih Mutar**
Technical Institute of Amara

Abstract

The present study attempts to shed light on the current use of technical audio-visual aids for teaching technical English language in the technical institutes. This study investigates the effect of using technical audio-visual aids in learning technical English language. Sixty-four first year students at Amara technical institute students participated in the study. They were divided into two groups: experimental and control. The experimental group was taught by using technical audio- visual aids while the control group was taught by the traditional method. The results indicate that there was a significance difference between experimental and control groups. This difference was in favor of the experimental group. On the basis of the results conclusions were drawn and recommendation made.

Section One

1.1 Statement of the problem:

The term language may refer to the concert act of speaking in a given situation David (1985: 173). The primary objective of language learning is to acquire the ability to communicate with others in foreign language in order to help the learners to communicate in English, teachers have to create situations that could resemble as much as possible the natural contexts in which the language is used Bavaro (1989:33).

Audio – visual aids are methods of communicating with people. There are a variety of audio – visual aids which can be used Internet (1999: 1).

In teaching, technical audio–visual aids are well established and their usefulness needs no defence; yet teachers of English are not utilizing the technical audio–visual materials designed to bridge the gap between the classroom teaching and real life situations. They may neglect the role that these material play in

classroom situation .Hence, this study tries to identify effect of technical visual aids on learning technical English language.

1.2 Aim of the study:

The study aims at:
Finding out the efficiency of technical audio-visual aids in developing students ability in learning technical English language.

1.3 Hypothesis of the study:

It is hypothesized that:
1. There is no significant difference in using technical audio-visual aids between the achievement mean scores of the experimental group on one hand and control group, on the other hand.
2. There is no significant difference between the achievement mean scores of the control group in the pre test on one hand and post test on other hand.
3. There is no significant difference between the achievement mean scores of the experimental group in the pre test on one hand and post test on other hand.

1.4 limits of the study:

This study is limited to the investigation of the effect of using technical audio- visual aids on learning technical English language at technical institutes of Amara for first academic year of 2008.

Section Two

2.1 Some Objectives for Using Technical Audio -Visual Aids
- To outline the day's topics.
- To emphasize major points of a lecture.
- To summarize ideas raised in class discussion as "group memory".
- To spell out new terms.
- To present diagrams, charts and timelines.
- To show formulas, computations, or steps in proof or derivation.
- To provide complementary or redundant representation of key ideas.

2.2 Technical Audio-Visual Aids

Technical audio-visual aids are important in learning technical EFL because, they stimulate the learners and encourage them to learn foreign languages Bavara, (1989:1)

There are a variety of technical audio-visual aids which can be used by language teachers. It is important to select those which are appropriate to the method adopted for presenting English lessons. Technical audio-visual aids communicate facts and ideas through the eyes to the mind and emotions. Technical audio-visual aids include computers, videos, overhead projection, instruments and tools of industrialist (ibid: 2).The following will be used for teaching English to the experimental group:

Computer: The impact of computer on learning people:

The technological advance just presented has made the computer one of the most powerful forces in society today. They have made it possible for computer usage to spread into homes and organizations of all size. No one can doubt that the use of computer has had a strong impact on learning many people. But the computer is the driving force behind an information revolution, and as in any revolution some innocent people may be harmed Donald (1983: 93).The researcher uses the computer as a technical tool and he copies all the syllabus in detail on disk and presents every student of experimental group with this disk.

Overheads:

Overheads are also known as OHPs, slides and transparencies. They are pictures or writing printed, written or drawn onto a sheet of acetate. This can be placed on the bed of an overhead projector and via light and magnification technology an image is projected onto a white wall or screen. OHPs can be very robust and resilient from of visual aids as the technology is cheaper, less prone to break-down And glitches than computer technology, and as you can write on blank transparencies, can be very responsive to classroom needs as when the trainer wants to elaborate on something or groups wants a visual aids to feed back to class. They are also more flexible as you can change the order, and add or drop slides during a presentation according to need Bavara(1989:4).

Section Three

3.1 Population and sample selection:

The total number of sample is ninety-one male and female students. This sample has been selected randomly from the original population(the original population is one hundred-eighty one subjects). The sample is distributed as follows: thirty-two subjects have been chosen randomly to be the experimental group, and the same number represents the control group. Twenty-five subjects have been selected randomly as a pilot study. Two subjects who failed a year have been excluded to avoid their past experience.

3.2 Equivalence of the sample Subjects

The different variable may cause a variance in the testees' achievements. Students' general level of achievement, socio-economic status may play an effective role and make a difference in their achievement in English Good et al (1941:361).

3.2.1 Age of Student

By applying a t-test formula for two independent samples, it is found that there is no significant difference between the experimental and control groups in age. The computed t-value is 0.52 under 62 degree of freedom and 0.05 level of significance. While the tabulated value is 2.00 which means that the two groups are equal in their age (see Table 1).

Table (1)
The Mean, Variance, and "T" Value of Students' Age (in month)

Group	Number of Subjects	Mean	Variance	df	Computed t-Value	Tabulated t-Value	Degree of freedom
Experimental	32	12.66	61.78	62	0.52	2.00	0.05
Control	32	22..59	63.23				

3. 2.2 Level of Parents' Education

Another variable that has been controlled is the level of parents' education. The following arrangement is used to classify the students' parents according to their education levels.
 - Primary education and below
 - Secondary education
 - Institute and university education
 - Higher studies ,(MA and Ph.D.)

3.2.2.1 Level of Father Education

Chi–square formula is used to find out the significance difference between the two groups in this variable and it is found that the computed chi-square score is 0.31 and its counterpart tabulated one is 7.82, which means that the experimental and control groups are equal in their father education level(see Table 2).
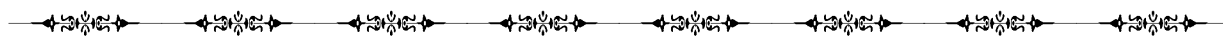
Table (2)
Frequencies of Fathers' Education Level of the Two Groups

Group	primary below	Secondary	University	Higher Studies MA & Ph.D	total	Computed X^2 value	Tabulated X^2 Value
Experimental	8	11	12	1	32		
Control	7	10	13	2	32	0.31	7.82
Total	15	21	25	3	64		

3.2.2.2 Level of Mother Education

Both of the two groups are equal in this variable .From Table (3) chi-square score is 0.36 and the tabulated chi-square value is 7.76 which state that there is no significant difference between the two groups in their mothers' education level.

Table (3)
Frequencies of Mothers' Education Level of the Two Groups

Group	primary below	Secondary	University	Higher Studies MA & Ph.D	total	Computed X^2 value	Tabulated X^2 Value
Experimental	15	7	10	_	32		
Control	13	9	10	_	32	0.36	7.67
Total	28	16	20	_	64		

3.3 Achievement of Student in the Pre-test

Testing before teaching should be used to equate the two groups, since the amount of previous knowledge is an important learning factor Lado(1972:383).This variable is used to equalize the subjects of the experimental and control groups in their previous knowledge concerning the material that would be taught during the experiment. Table(4) shows that the t-value which is computed by using t-test

formula is 0.86 ,while its counterpart tabulated t-value is 2.00 which indicates that there is no significant difference between the two groups' knowledge in Technical English language.

3.4 Instructional Material

The instructional material taught to both groups of students is included all the syllabuses of curriculum of technical English language and these syllabuses include the following:
- Comprehension
- Vocabulary
- Spelling
- Writing
- Translation

Table (4)
The Mean, variance, and "T" Value of the Students' achievements' of Technical English Language in the Pre Test

Group	Number of Subject	Mean	Variance	df	Computed t-Value	Tabulated t-Value
Experimental	32	10.21	2.56	62	0.86	2.00
Control	32	10.89	3.12			

3.5 Construction of the test

The first thing to be made is the selection of the test contents. The contents should cover all the aspects of technical English language and should be as suitable as possible to the student's ability .Therefore, the content, behavioural objectives, and the scores of the test have been specified as shown in Table(5).
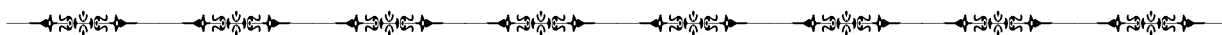
Table (5)
Specification of the Content and Behaviors of the Achievement Test

Components	Contents	Behaviors	Item Score	Total
1.	**Comprehension**	1-**Define** report? 2-**Write** steps of report?	10 10	
2.	**Vocabulary**	**Explain** the meaning of ? 1. catch fire 2. in practice. 3. cut of 4. according to	20	
3.	**Spelling**	**Fill** the blanks with suitable missing letters? 1. The idea of func----is very common in technology. 2. It is as advisable to mix the moulding sand with too m---water. 3. The long of our class can be measured by m-----. 4. A triangle has three dim-------.	20	20
4.	**Writing**	**Mention** the article definitions with enough example?	20	
5.	**Translation**	**Translate** the following? 1. A transformer changes a high voltage into a low voltage supply and vice versa. 2. We can compare solution of (Hcl) and (Naoh) to determine their relative concentration. 3. Don't touch this wire? There is a danger. 4. A.T. square is used for drawing horizontal lines.	20	
	Total		100	

3.5.1 Validity of the test

Validity refers to the results that have the appearance of truth or reality. "the test is valid to the extent that it measures what the test user wants to measure and nothing else" Verma and Berd, (1981:87). Face validity is achieved by exposing the test to a jury of specialists in the fields of EFL. In the light of the jurors comments and suggestion, some items are dropped out, and others are rewritten.

3.5.2 Pilot study

After achieving the content validity and face validity, the pre-test has been administered to a sample of twenty-five students who are chosen randomly from the whole sample i.e they are out of experimental and control groups. The aim of this application is to:

1. Check the time that the students need to fulfill the test.
2. Secure the clarity of test instructions to testees.
3. Analyze the test items to find out the difficulty level and discrimination power of each item . The finding of pilot administration have indicated that the test questions are appropriate to testees.

3.5.3 Difficulty Level (DL)

It is also called item facility; which means a measure of the ease of a test item: item difficulty has to do with how easy or difficult an item is from the view point of the group of students or examinees taking the test of which that item is a part Mousavi (1999:193).

By applying difficulty level formula, it has been found that the difficulty level of the fifteen test items ranges from 0.52 to 0.70.This means that all the items of the adopted test have an acceptable level of difficulty because any items whose difficulty level ranges from 0.30 to 0.85 is acceptable Madsen (1983:182).

The following formula has been used for estimating the difficulty level of each item:

$$DL = \frac{HC + LC}{N}$$

Where :

DL : difficulty level

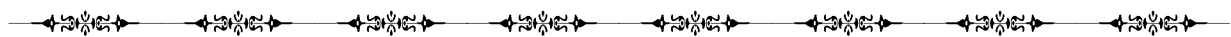HC : the number of testees in the upper group who answer the item correctly .

C   : the number of testees in the lower group who answer the item correctly.

N   : the total number of testees.

3.5.4 Discrimination Power (DP)

It means a measure of the extent to which a test item is sensitive to differences in ability among those who take the test Frahady et al (1994:73).

A suitable procedure for calculating discrimination power is to compare the responses of test takers ranking in the upper 27 and the lower 27 of the sample on the basis of the total test score.

To find the discrimination power of each item, the following formula is used.

$$DP = \frac{RU-RL}{1/2\ T}$$

Where :

RU : the number of testees in the the upper group(who got items right).

RL : the number of testees in the lower group (who got items right).

T   : the total number of testees.

Ebel (1972:339) believes that when the obtained DP of an item is 0.30 and above, the item is acceptable. If the item discriminatory index is less than 0.30, the item is a weak and needs to be modified or changed .The results obtained after the application of the formula of the item DP range between 0.30 and 0.50.All items proved to have satisfactory DP and of acceptable level of difficultly (see Table 6).

Table(6)
The item Difficulty and Discrimination power of the test

Question	Item number	Item difficulty	Item discrimination power
Q1	1	0.65	0.32
	2	0.70	0.32
Q2	1	0.58	0.30
	2	0.57	0.50
	3	0.67	0.33
	4	0.55	0.33
Q3	1	0.57	0.38
	2	0.68	0.35
	3	0.65	0.30
	4	0.54	0.37
Q4	1	0.67	0.33
Q5	1	0.61	0.31
	2	0.60	0.36
	3	0.63	0.33
	4	0.62	0.34
Average		0.61	0.34

3.6 Administration of the test
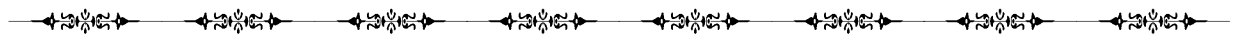
After the test has gained its validity and reliability qualification, it has been applied to the selected sample which consist of sixty- four students on the 6th , May, 2008.The test papers have been distributed to the involved testees who are asked to answer each question. All the students have finished their answers within a period of two hours. later on, the test papers are collected to be scored.

3.7 The Statistical Tools:

Statistical tools are used in order to analyses the collected data of this study.
1. T- Test
2. Pearson Correlation Coefficient Formula
3. Chi-sequare

Section Four

At the end of the experiment and in order to realize the aim of the study and test its hypothesis, the collected data have been analysed statistically after the administration of the post test to the two groups of students as follows:

4.1 Comparison of Experimental and Control groups in the Post test Scores

Results obtained from the application of the post test on the two groups show that the mean scores of the experimental group is 65.83 while the mean scores of the control group is 49.72 which means that the performance of the subjects in the experimental group out weight that of the subjects in the control group.

To determine whether the difference between the two mean scores of the two groups in using technical audio-visual aid is significant, t- value has been used. The results of this formula have revealed that the computed t-value is 5.27, whereas the tabulated t-value is 2.97, This comparison indicates that there is a significant difference at 0.01 level of significance and under 62 degree of freedom between the two involved groups (see Table 7). This difference is in favour of the experimental group i.e the experimental group is better than control group.

Table (7)
Mean, Variance "T" Value of the pre Test and post Test of the Two Groups

Group	No. of subjects	Mean	Variance	Df	Computed t-value	Tabulated t-Value	significance
Experimental	32	65.83	283.71	62	5.27	2.97	0.01
Control	32	49.72	203.312				
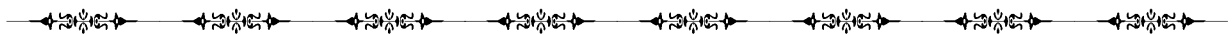
4.2 Comparison of the Pre Test Mean Score with Post Test Mean Score of the Control Group Achievement

In order to determine whether there is a significant difference among the subjects of control group in their scores of the pre test and those of the post t. test formula is conducted. The computed t-value is 2.56 which indicates that there is no significant difference as compared with the tabulated t-value, which is 3.63 at 0.01 level of significance under 30 degrees of freedom. It means, that there is no significance difference between the two mean scores of the students' achievement in the pre test on one hand and that in post test, on the other hand (see Table 8).

Table (8)
Mean, Variance and T- Value of the Pre Test and Post Test Scores of the Control Group

test	No. of subjects	Mean	Variance	Df	Computed t-value	Tabulated t-value	Level of significance
Pre	32	11.05	4.86				
Post	32	11.78	5.21	30	2.56	3.63	0.01

4.3 Comparison of the Pre Test and Post Test Scores in the Experimental Group

In order to determine whether there is a significant difference among the subjects of the experimental group in their scores of the pre test and those of the post test in using technical audio-visual aids of teaching technical EFL, t-test formula has been used.

The computed t-value is 24.95, which indicates that there is a significant difference between the pre test and post test scores of the experimental group as compared with the tabulated t-value, and for the benefit of the post test scores which is 3.89 at 0.01 level of significant and under 30 degree of freedom. (see table 9).

Table (9)
Mean, Variance and "T" Value of the Pre Test and Post Test Scores of the Experimental Group

Test	No. of subjects	Mean	Variance	DF	Computed t-value	Tabulated t-Value	Level of significance
Pre	32	10.89	3.11				
Post	32	61.31	9.93	30	24.95	3.89	0.01

4.4 Conclusions

It is concluded that:

1. There is a significant difference in using technical audio- visual aid between the scores achievement of experimental group and control group, the benefit of achievement is in favor of experimental group, this means that learning technical EFL by using technical audio- visual aid is more effective.

2. There is no significant difference between the achievement scores of pre-test of experimental group and control group, this means that both groups are in the same level of learning.

3. There is a significant difference between the achievement scores pre-test and post test of experimental group, the benefit of achievement in favor of post-test, this means that learning EFL by using technical audio- visual aid is more effective.

4.5 Recommendations

1. It is found that there is an urgent need to use technical audio- visual aids in learning technical EFL.

2. Encourage the teachers to use technical audio-visual aids in order to make the learning of this language more accurate.

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