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THE EXPERIMENTAL RESEARCH

Research Methodology

Any research without practical is merely postulation. With the intention to check the role of English language laboratories in teaching English as a second language I have taken up this research. In the introduction we have given hypothesis. Hypothesis can be checked through an experiment in controlled conditions. Many a time experimental research design is stated as maneuvering the independent variable and noticing the development or change in the dependent variables.

To think of a research can be a simple task but to conduct it is very tough. Dale Griffiee gives a very memorable acronym 'TREE' for Teacher-Researcher-Educator-Evaluators. These people often want clear classification to conduct their research. With clear guidance or idea it is more difficult to perform well in the attempt of research. A researcher knows about why to do a research but it is also necessary to know 'what to do' and 'how to do.' The main elements of research are its design, data and data collection instruments. Many a times any research design is known as blueprint of a research. The two key factors are internal reasoning and external reasoning. Generally the introduction of a research discusses any question. The direction of a research determines the answer of the question. With the help of research design researcher can prepare the steps of the research project. The result is about data collection and analysis.

The central part of this design is comparison. Two groups are being compared as control group and experimental group. On which aspects they are same and on which aspects they differ is to be investigated. Variables can be

- The dependent variable: It is related to the independent variable and on which the other variables will act.
- The independent variable: The dependent variable depends on the independent

variable. For is a researcher suppose the relation or influence on the first one.

- A moderator variable: This variable is statistically an independent variable. Sometimes researchers consider it less important for investigation.
- A control variable: It is not a main variable in any research work. It can affect the result. These variables are constant and neutralized.
- Intervening variables: Intervening variables link the relationship of independent and dependent variables. Like moderator variable it is also not included in the study.

Experimental research is all about the statistical analysis. Here we compare two groups which are similar to each other at knowledge base. For this method 'random assignment' or 'stratified sampling' is preferred. Equal chance of the control or treatment group is made sure by random assignment. Stratified sampling is used to balance the levels of groups. Next component is known as control. It works as editor and controls unnecessary elements of research.

The quotation from Dale Griffie's book supports the selection of the method that is "A treatment is something the researcher does. Often, language teachers want to evaluate the results of an innovation they have done in their class. In that case, the innovation is the treatment." (Griffie 71) Researcher conducts pretest to make sure the equal level of learners and post test to notice the change by numerical data. Two groups are known as controlled group that is the conventional group and second is called a treatment group or an experimental group. Here random assignment is not possible so the second option of quasi-experimental design is selected.

Since last many years the usefulness of language lab and its benefits over traditional class are in discussion. Especially if we have the facility of language lab we become more

curious to use it efficiently. All above discussed points are very useful for those learners who are learning English as a second language. To verify these points it is necessary to apply them in teaching. It is the only way to know the significance of various facets of language lab. To check the effect of language lab teaching and to compare it with traditional class one experimental research was conducted on university

students of Gujarat state in India. For this experiment incidental method is adopted to collect sample.

Research Design

The objective of the research is to check the functioning of language lab. To achieve it, lesson plan for both the groups were designed. After teaching in each class the effectiveness was checked. To check the level of students pretest was conducted and to check the effect of both modals posttest was conducted.

Variables

In Experimental research variable is very important. It is degree of freedom the researcher has. It is a condition or indication which a learner can change, control or observe. In present research two types of variables have been selected.

(1) Independent Variable

This variable can be controlled or observed by the researcher. With this the relation of the variable to the experiment can be decided. The independent variable in this research is teaching through language laboratory in experimental group.

(2) Dependent Variable

Dependent variable means the situation which affects the study. Change in dependent variable can change the results of research. The dependent variables in this study are the pre-test and post-test results which can state the difference between the results of

traditional class teaching and language lab teaching.

Participants

To conduct any research we need participants to teach, to test and to compare. It is a very important part of any research. If the experiment is general or on a large scale it becomes difficult to control the conditions. So we must select a limited number of participants for experiment. This sample represents the big unit of learners. Systematically we can say that “A population is any group of individuals that have one or more characteristics in common that are of interested in research.” (Best, J. 13) For this research I have selected students of 1st sem. students of Saurashtra University.

Table – 1 Detail of participants

Group	Name of college	Name of Course	Number of students
Controlled group	Shree M & N Virani Science College, Rajkot	BCA 1 st sem.	25
Treatment group	Shree M & N Virani Science College, Rajkot	BCA 1 st sem.	25

Tools used for research

The base of any experiment relies on three basic components of the experiment.

- (1) The sample taken for experiment

Here = The sample means the participants of 1st semester BCA

- (2) The treatment given to groups

Here = The treatment that is the language lab teaching and lesson plan

- (3) The measurement of the given treatment

Here = The measurement of given treatment, that is the pre-test and the post-

test A detailed description of each instrument is given as

- (1) Lesson plans
- (2) Pretest and Posttest papers
- (3) Words Worth Language Lab with multimedia
- (4) SPSS software

Procedure

- (1) Selected content to teach LSRW skills and preposition to 1st sem. students of Saurashtra University.
- (2) Lesson plan prepared according to the same content for both the groups.
- (3) Lesson plan was checked by experts.
- (4) Principal's permission was taken for research.
- (5) Lectures were decided for teaching.
- (6) Teaching was performed as per lesson plan through traditional way in controlled group on 'Food for Thought' topic.
- (7) Teaching was performed as per lesson plan in language lab in treatment group on 'Food for thought' topic.
- (8) To mark the difference in skill acquired in both the groups posttests were conducted.
- (9) The difference of marks of both the groups was analyzed through numerical analysis.

Analysis

Table: 2 Comparison of Group

Group	Number of Students	Mean of Pretest	Mean of Posttest
Controlled group	25	11.04	14.52
Treatment group	25	10.68	18.44

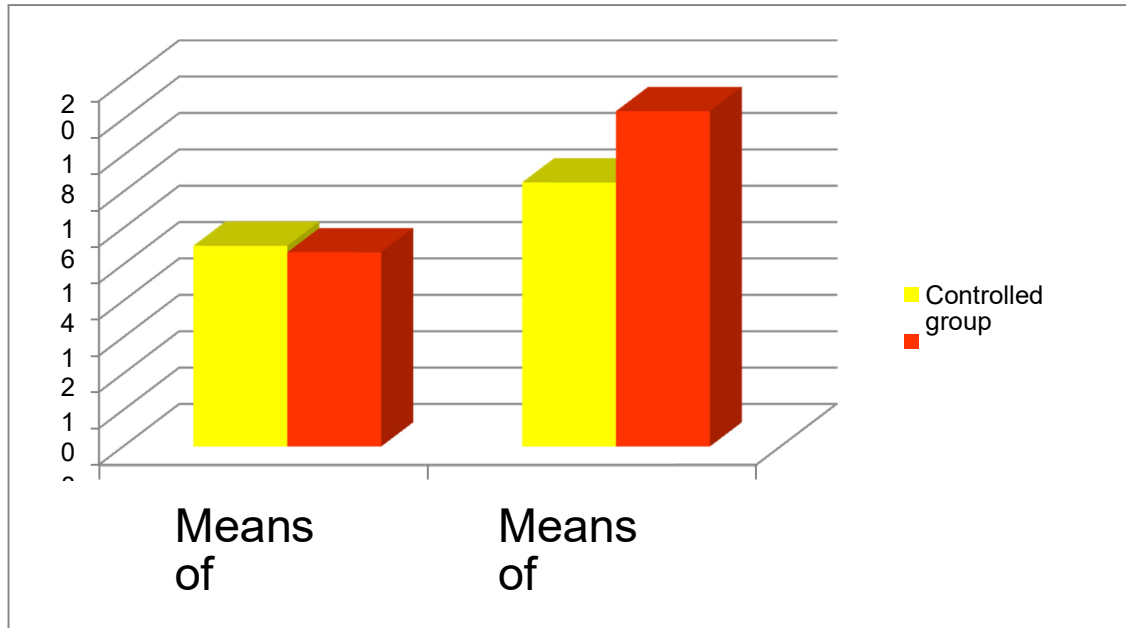


Image – 11 graph to compare both the groups

According to table 1 result of Controlled and Treatment group is clear. Result of Controlled group's pretest and posttest is very low that the result of Treatment group's pretest and posttest. We can also see it in the graph as well.

Univariate Analysis of Variance (Calculation Tables) SPSS software

Table – 3 Descriptive Statistics

Dependent Variable: Mark

Comparison Group	Mean	Std. Deviation	N
Control Group	14.5200	1.80555	25
Experimental Group	18.4400	1.91659	25
Total	16.4800	2.70480	50

Levene's Test of Equality of Error Variances^a

Table – 4 Dependent Variable: Mark

F	df1	df2	Sig.
.188	1	48	.666

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.^a

a. Design: Intercept + ComparG

Table - 5 Tests of Between-Subjects Effects

Dependent Variable: Mark

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
Corrected Model	192.080 ^a	1	192.080	55.408	.000	.536	55.408	1.000
Intercept	13579.520	1	13579.520	3917.169	.000	.988	3917.169	1.000
ComparG	192.080	1	192.080	55.408	.000	.536	55.408	1.000
Error	166.400	48	3.467					
Total	13938.000	50						
Corrected Total	358.480	49						

a. R Squared = .536 (Adjusted R Squared = .526)

b. Computed using alpha = .05

Table – 6 Parameter Estimates

Parameter	B	Std. Error	t	95% Confidence Interval		Partial Eta Squared	Noncent. Parameter	Observed Power ^b
				Lower Bound	Upper Bound			
Intercept	18.440	.372	49.519	17.691	19.189	.981	49.519	1.000
[ComparG= Control Group]	-3.920	.527	-7.444	-4.979	-2.861	.536	7.444	1.000
[ComparG= Experimental Group]	0 ^a

a. This parameter is set to zero because it is redundant.

b. Computed using alpha = .05

Observation and Recommendation

Graph of Controlled Group Pretest and Posttest

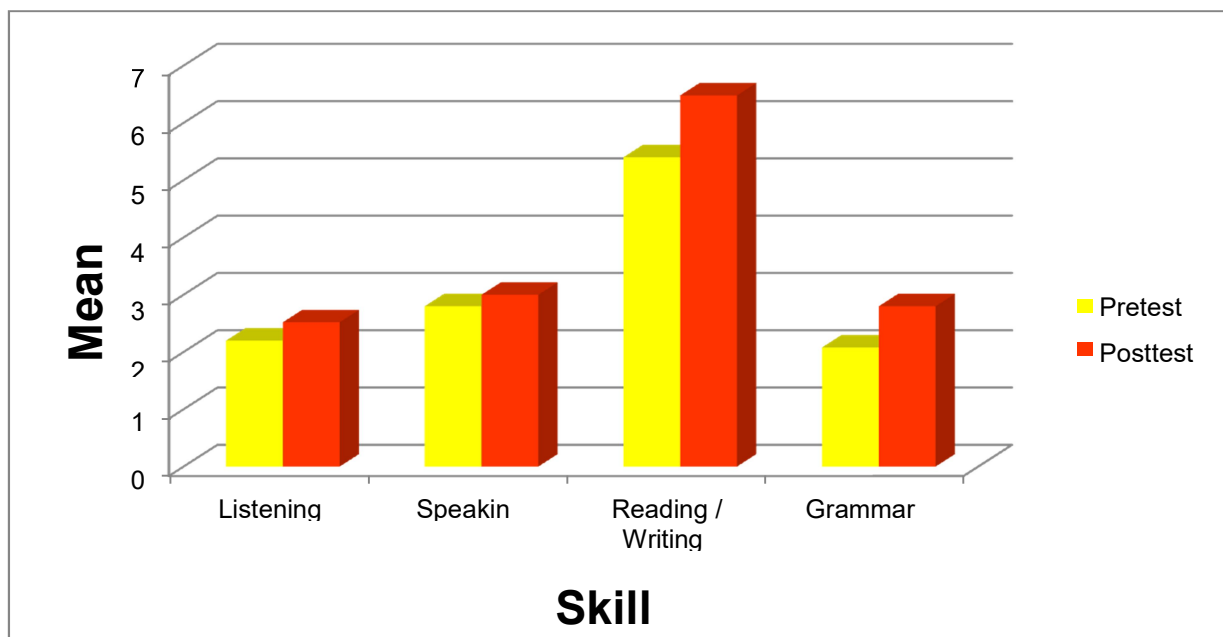


Image 12

Graph of Treatment Group pretest and posttest.

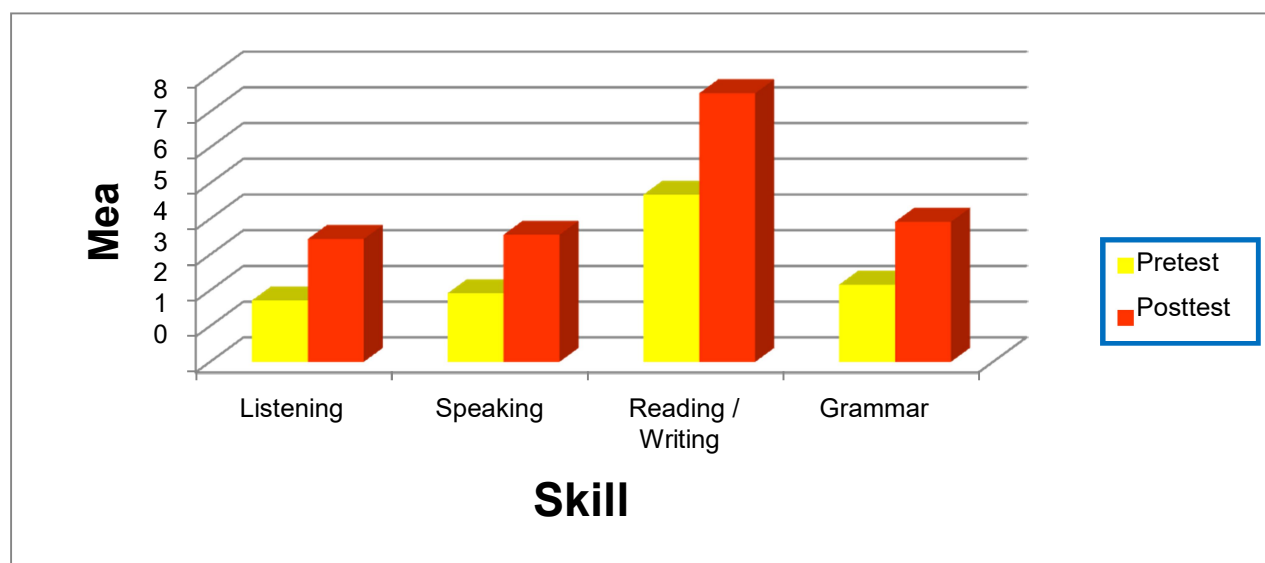


Image 13

As we can see from this chart in comparison to controlled group the students of treatment group developed their Listening, Speaking, Reading – Writing and Grammar well. The result is jaw dropping. As we know that treatment group was taught in language lab with two type of teaching like ILT – Instructor Led Teaching and Computer Led Teaching whereas in traditional class teaching was performed through chalk and talk method. The topic selected for teaching was that same. The result of pretest and posttest shoes that learner can develop all four skills and grammar with audio and visual help. Even in both the tests of Controlled and Treatment group listening skill was also tested. Grammar topic ‘Preposition’ was taught at both the classes but in language lab it was taught with visual help and games so it gave good result.

Through this lesson we can have some remarkable findings which can help both trainer and learners in a great manner. It is very important to notice that the topic taught in both the classes was same ‘Food for Thought’ but the approach of teaching was

different. In controlled group teaching type was conventional teaching and in treatment group the teaching was through language lab. In first group Herbartian steps of teaching was followed. For teaching in language lab teaching was divided in two main parts ILT (Instructor Led Training) in which trainer teaches with the help of computer in a common class and in second part CBT (Computer Based Training) trainer gives free space to learner to work on computer individually and provides guidance in needed. Few important findings and suggestion are

- In controlled group there is a possibility of distraction if learner gets any interruption where in treatment group learner can focus properly because of the help of separate computers in cubicles. Computers keep learners active as continuous interaction happens. For good progress of learner it is advisable to give students a space for individual progress and keep an eye on one's work.
- The best result can be found in pronunciation improvement. Language lab has a facility of MTI removal tool. It has word practice according to sound so it helped a lot. The common and remarkable improvement is in the pronunciation of words like Potato, Tomato, Bowl and Pan. For a trainer it is very important to focus on pronunciation so in daily class regular time could be fixed for pronunciation practice. Through this regular practice learner can properly pronounce many similar words.
- It is observed that in controlled group it is very difficult to teach grammar effectively. Teacher tries one's best but still gets very poor response from students as they can't get it clearly. But in language lab grammar can be made clear through visualization techniques. In the case of teaching preposition it was a great success. An updated and prompt trainer should prefer teaching grammar through games. Computer can be used to prepare new games and various exercises.
- During teaching in treatment group a internet gave a very good support. Through online help a vegetable related query was answered satisfactorily. 'Okra' and

'Eggplant' were new words for learners. Through they got that they know these words chronologically as 'Ladyfinger' and 'Brinjal'. It suggest for trainers that provide a list of some online English learning groups to motivate students to use online help.

- In controlled group test was conducted on hard copy. As we know that it was time consuming but in language lab test was conducted on computer which saved a lot of time in paper setting and assessment. It gives quick result and feedback. It is very beneficial for trainers to make educational process transparent and quick. It also provides chart and comparison option so we can evaluate result specifically.
- With the comparison of pretest and posttest results of both the groups we can see clearly that using language for teaching English gives very remarkable difference in skill development. It is noteworthy that both the samples were same in their knowledge level. Specifically listening and speaking skill can be focused. Learner can learn at one's pace. Trainer can identify the type of learner and provide similar kind of learning practice. Systematic use of language lab is worthwhile for overall development of a learner.