

RESEARCH METHODOLOGY

The purpose of this study was to examine the effectiveness of direct method and Traditional method of teaching English at secondary level. In order to test the relative effectiveness of independent variable, i.e. an instructional paradigm (direct teaching), the choice of most suitable design for this experiment was the basic step.

Campbell and Stanley (1963) postulate a number of factors, which affect the internal and external validity of experimental designs. Relevant to internal validity, there are eight different factors (these include history, maturation, testing, instrumentation, statistical regression, differential selection, experimental mortality, and selection maturation interaction). If these factors are not controlled in the design, they may produce adverse effects, which confound the effects of the independent variables as shown by the final test scores.

Whereas factors affecting internal validity operate on the scores derived from the dependent variables and, therefore, make the experiment poor as an experiment, factors affecting external validity operate upon the experimental treatments. Campbell and Stanley (1963) postulated four factors, which jeopardize external validity.

“The Solomon Four-Design pre-test post-test equivalent group design” was considered to be the most useful design for this study. Following is the symbolic representation of the design:

R	E	O	T	O ₂
R	C	O ₃	-	O ₄
R	E	-	T	O ₅
R	C	-	-	O ₆

Where R = Randomly Selected

E	=	Experimental Groups	
C	=	Control Groups	
O	=	Observation or Measurement	T= Treatment

The experimental treatment to which a group is exposed i.e. independent variable. This is the strong and true experimental design, but there may be the possibility of the influence of the effect of testing and the interaction with the experimental variable (Farooq, 2001). However, in order to eliminate the influence of the effect of testing and the interaction with the experimental variable, a posttest parallel to the pretest was used to measure the achievement. Pretest was used only to equate the control and experimental groups.

3.1 POPULATION

The aim of this study was to investigate the relative effectiveness of direct teaching method and traditional method in teaching English at secondary level. Therefore, students studying in F. G. Boys Secondary school Naugazi Islamabad (Urdu medium) and F. G. Boys Model School No-6, Islamabad (English medium) constituted the population of the study.

3.2 DELIMITATION OF THE STUDY

The study was delimited to:

English medium and Urdu medium students of 9th class.

2. During the experiment the following five units of 9th class English were covered:

- 1 The Glory of the Muslims
- 2 Hazrat Khalid Bin Waleed (Razi-Allah-unhuh)

- 3 Kindness to Living Things
- 4 Little Things
- 5 Rural And Urban Life in Pakistan

3.3 SAMPLE

Two sections of 9th class of F. G. boys secondary school Naugazi, Islamabad (Urdu medium) and two sections of 9th class of F.G. boys Model school No-6 Islamabad (English medium) were taken as sample of the study. Sample students of F.G. boys Model School No-6 Islamabad were further divided into two groups, i.e. the experimental and the control groups on the basis of pretest, by using pair random sampling technique. While the students of F.G. boys Secondary School Naugazi Islamabad (Urdu medium) were not taken as pretest. These students were further divided into two groups on the basis of previous achievements test according to the said technique. Each group had 30 students.

Two English teachers (one each for English and Urdu mediums) having equal qualification, equal teaching experiences, and considerably equal teaching potential, were selected to teach the control and experimental groups.

3.4 RESEARCH INSTRUMENTS

In order to equate the control and the experimental groups, a teacher made pretest (Appendix-I) was administered before the allocation of students to the experimental and the control groups. Immediately after the treatment was over, a teacher made posttest (Appendix-II) was administered to subjects of both the experimental and the control groups. The purpose of this test was to measure the achievement of the students constituting the sample. The researcher constructed these both tests, the pretest and the

posttest, after a through review of the techniques of test construction and related units of English. Consent of the class teachers and experts was weighed in the construction of tests.

Both the pretest and posttest were almost parallel with same difficulty level. The two chapters were taught before the start of experiment; also give a weight age of 25% in the both tests. Each test was composed of multiple choice test items, matching items pertaining to a combination of learning domains. These test items were based on the selected units of 9th class English five units. These five units were taught during the experiment to both the experimental and the control groups, and were intended to measure the learning out comes. Same posttest was administered after 6 weeks as a surprise test to measure the retention level of both the control and the experimental groups.

3.4.1 Content validity

This test was approved by the Doctoral committee of the researcher. All the test items were based on the text of the unit taught to the sample students.

3.4.2 Reliability of Test

The Solomon Four Design pretest posttest equivalent group design was used for the treatment to test the reliability of the posttest scores obtained by the students who formed the sample of the study. The coefficient of reliability was determined using Spearman-Brown Prophecy formula, estimating reliability form the comparable halves of the posttest and found the coefficient of correlation, which found to be 0.75.

3.5 SELECTION AND TRAINING OF TEACHERS FOR EXPERIMENT

One teacher from each Federal Government boys secondary high School Naugazi, Islamabad (Urdu medium) and one teacher from F G Model school No-6 Islamabad (English medium) having equal qualification, equal teaching experience and considerably equal teaching potential were selected for teaching English to the control and the experimental groups. The teacher volunteered for teaching the experimental groups was provided two weeks training in Direct teaching i.e. one week for reading and one week for speech. Contents of this training package included:

(1) What is direct teaching? (2) Experience with Direct teaching Activities (3) Class Climate Building Techniques (4) Self-learning Techniques (5) Pre-teaching Planning involves (6) Strategies for Students Independent and Self-learning (7) Planning during teaching involves (8) Lesson Planning (9) Post-teaching Planning involves (10) Lesson Evaluation (11) Social Skills (12) Implementation self-learning packages.

3.6 DATA COLLECTION

During the experiment two different treatment patterns were applied. The control groups were provided with traditional routine situation in the classroom while experimental groups provided with direct teaching method as treatment. The experiment continued for six weeks. Soon after the treatment was over, posttest was administered to measure the achievement of the sample subjects. After a gap of four weeks, the same posttest was administered as a surprise test for the measurement of retention level of the sample subjects. Pretest scores of the sample served as data to equalize the control and the experimental groups, while posttest and retention test were administered to measure achievement and retention level of the students as result of treatment.

3.7 ANALYSIS OF DATA

Raw scores obtained from pretest, school record and posttest were presented in tabular form for the purpose of interpretation. For the manipulation of data, the means, standard deviations, and differences of means were computed for each group. Significance of difference between the mean scores of both the experimental and control groups on the variable of pretest scores, school record and post test scores was tested at 0.05 level by applying t-test. To examine the treatment affects for high and low levels of achievement of the four groups, The Solomon four group design (2x2 analysis of variance) was applied. For this purpose, the students of four groups were divided into two halves, i.e. high achievers (above the mean score) and low achievers (below the mean score). This division was made on the basis of pretest scores and school record. The Solomon four group designs is symbolized as below:

English medium groups

	Experimental	Control
High achievers	CELL 1	CELL 2
Low achievers	CELL 3	CELL 4

Urdu medium groups

	Experimental	Control
High achievers	CELL 1	CELL 2
Low achievers	CELL 3	CELL 4

For statistical analysis the formulae followed by Garrett (1997) and Gay (2000) were applied.

The following formulae were used in doing statistical analysis:

- I. Standard error of the difference between two means

$$SE_D = \sqrt{\frac{SD^2_1 + SD^2_2}{N + N_2}}$$

II. Computation of t-value

$$T = \frac{M_1 - M_2}{SE_D}$$

III. Analysis of variance

$$\text{Step 1} = \text{Correction term (C)} = \frac{(X_1 + X_2)^2}{N_1 + N_2}$$

$$\text{Step 2} = \text{SS}_{\text{Term}} = X_1^2 + X_2^2 - C$$

$$\text{Step 3} = \text{SS}_{\text{Between means}} = (X_1)^2 + (X_2)^2 - C$$

$$\text{Step 4} = \text{SS}_{\text{Within groups}} = \text{SS}_{\text{Total}} - \text{SS}_{\text{Means}}$$

$$\text{Step 5} = \text{ANOVA table}$$

Source of variation	Degree of freedom	Sum of squares	Mean square	F	t-value
Between group means					
Within groups					

$$\text{M.S Within groups} = \frac{\text{SS}_{\text{within groups}}}{\text{Degree of freedom}_{\text{within groups}}}$$

$$\text{F-value} = \frac{\text{M.S Between}_{\text{group means}}}{\text{M.S}_{\text{Within groups}}}$$

$$\text{t-value} = \sqrt{F}$$

IV. Factorial design (2x2 analysis of variance)

$$\text{Step 1} = \text{Correction term (C)} = (X \dots)^2$$

- Step 2 = $SS_{\text{Total}} = X^2 \dots - C$
- Step 3 = $SS_{\text{Cell}} = N (D_{11}^2 + d_{12}^2 + d_{21}^2 + S_{22}^2)$
- Step 4 = $SS_{\text{Within Cell}} = SS_{\text{Total}} - SS_{\text{Cells}}$
- Step 5 = $SS_{\text{Treatment}} = N_1 (d_{1.}^2 + d_{2.}^2)$
- Step 6 = $SS_{\text{Achievement level}} = N_1. (d_{1.}^2 + d_{2.}^2)$
- Step 7 = $SS_{\text{Interactions}} + SS_{\text{Cells}} - SS_{\text{Treatment}} - SS_{\text{Achievement level}}$
- Step 8 = ANOVA (2x2) table

Source of variation	Degree of freedom	Sum of squares	Mean square	F	P
Treatment					
Achievement level					
Interaction					
Within cells					