Method and Procedure

Methodology makes the most important contribution towards the environment of any study. To undertake any research it is necessary to design and plan the procedure and methods to be used. In research, there are numerous methods to be used and procedures to be applied. Procedure means a regular and systematic way of doing anything and to accomplish it to reach the destination. For e.g. for teaching English there are different methods like direct method, bilingual, translation method etc. we may follow any of the methods but a regular and systematic way is followed to teach through that particular method.

A procedure to the research is as tools are to the carpenter. It helps to achieve economy in time and co-ordination of efforts. Taking a specific pinpointed problem and trying to find a solution in a specific manner to its research decisions based on system alike research in education save a lot of failure and frustration.

2.1 Design of the Study

Factorial design was employed in the present study with a view to study the main as well as interactional effect if any, of instructional strategies, intelligence and cognitive style upon writing skills in English, by involving 3x2x2 analysis of variance. Thus twelve independent groups were formed and all possible treatment combinations were studied of the four variables in the present study, three were independent and one was dependent variable. The independent variables were instructional strategies, intelligence and cognitive style where as the dependent variable was writing skill in English.

The independent variable of instructional strategies was varied in three ways – grammar based method, communication based method and traditional method. The other two independent variables namely intelligence varied in two ways i.e. above average and below average and cognitive style
varied in two ways i.e. field independent and field dependent. The dependent variable, writing skills in English was measured by a locally constructed and standardized test of writing skills. The treatment constituted of twenty lessons, each of 40 minutes duration, on writing skills in English taught by the researcher herself to ninth class groups/sections that were assigned to the two treatments – grammar based treatment condition, and communication based treatment condition. Analysis of variance (ANOVA – 3x2x2) was used to test the suggested hypotheses of the study. The pretest – posttest control group design was used. All the groups were assessed before and after the treatment on the basis of test made on writing skills in English. Individuals falling in the range of Mean ± 44 SD were not considered for the study.

The layout of the design is given below:

Sample (300)

- Experimental Group (200)
  - Grammar Based Method (100)
    - Above average (45)
      - Field Dependent (23)
    - Below average (24)
      - Field Dependent (10)

- Communication Based Method (100)
  - Above average (41)
    - Field Dependent (13)
  - Below average (24)
    - Field Dependent (6)

- Control Group (100)
  - Above average (48)
    - Field Dependent (12)
  - Below average (24)
    - Field Dependent (8)
2.2 Selection of Sample

A sample is the representative portion of the population selected for observation and analysis. It is impossible to study the whole population for which the problem is investigated. Purposive sampling technique was employed by the investigator for the selection of the sample. In purposive sampling, a sample is built up which enables the investigator to satisfy his specific needs in the project. The principle of selection in purposive sampling is the investigator’s judgement of the typicality of his interest. A sample may then be expressly chosen because in the light of the available evidence, it mirrors some larger groups with reference to a given characteristic (Garrett, 1966; 1981; Stodola and Storodahl, 1967).

The sample in the present investigation was drawn at two levels;

i) the school sample
ii) the student sample

The school sample:

The school sample was drawn from the representative Govt. Model Senior Secondary Schools of Union territory of Chandigarh. For this the list was procured from the Director public Instructions (schools) through the District Education officer. In order to get relevant information from Schools; the investigator sought permission to visit schools from the Director public instructions (schools), Union Territory, Chandigarh following the normal procedures. Out of various schools only those schools were selected which had more than 100 students in IX grade.

Two schools, Govt. Model Senior Secondary School sector 22 and Govt. Model senior Secondary Schools sector 37 were selected for this purpose.

The Student Sample:

From among the three schools, three distinct samples were raised, two with the purpose of test-standardization and one for conduct of the study.
Sample for first try-out of the test

With a view to standardize the test of writing skills developed for the present study, a sample of fifty students was raised from a local senior-secondary school. Students of this School were selected because the school caters to the needs of various socio-economic strata and various levels of intelligence and could thus be considered as being representative of the school going population of the city. Two out of a total of five sections of IX class were randomly chosen and from each of these two chosen sections, twenty five students were randomly drawn. Thus a sample of fifty students was derived in this way for administering the first draft of the test with the purpose of estimating difficulty values of test items of this section.

Sample for item – analysis and for estimating test-retest reliability

Another sample of 105 IX grade students of the same school was similarly raised for the second try out of the test (Part A only; Number of test items – 30) and for establishing test-retest reliability. But this time the two sections, from which the sample for first try out was drawn, were excluded. Of the three remaining sections of IX class, thirty five students from each section were randomly drawn to constitute the sample. After an intervening period of fourteen days, the same sample was retested but five students who had taken the test the first time were unavailable for retesting. For statistical tabulation, those students who did not take the test the second time were eliminated and so the sample for establishing test-retest reliability constituted of 100 ninth class students.

Sample for the conduct of the study

The subjects used in the study were ninth class students from Govt. Model Senior Secondary School situated in the Union Territory of Chandigarh. Since the nature of the experiment required that students of ninth class be made available to the researcher for teaching over a period of four weeks in addition to the days required for administering the various tests, principal’s cooperation was most needed. The principals of Govt.
Model Senior Secondary School, Sector 22, and Govt. Model Senior Secondary school, Sector 37, Chandigarh granted permission and assured cooperation for the conduct of the experiment.

**Table 2.1**

Schools for Sample

<table>
<thead>
<tr>
<th>Sector</th>
<th>Name of the School</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Govt. Model Senior Secondary School 37</td>
<td>200</td>
</tr>
<tr>
<td>22</td>
<td>Govt. Model Senior Secondary School 22</td>
<td>138</td>
</tr>
</tbody>
</table>

Standard progressive matrices (Raven, Court and Raven, 1977) was administered to 300 ninth – class students of the two schools. Performance on this non-verbal test of intelligence was used to classify students in to two distinct categories-above average and below average intelligence group. The number of students in above average intelligence group was 134 and in below intelligence group was 72 (Table 2.2).

Group Embedded Figures test (Witkin, outman, Raskin and Karp, 1971) was administered to 300 ninth-class students of the two schools. Students who scored 13 or above were classified as field-independent and those who scored 9 or below were classified as field –dependent. All those falling in between the two extreme dimensions were not considered for classification.

**Table 2.2**

Breakup of the ninth-class population of the selected schools on the basis of SPM and GEFT scores.

<table>
<thead>
<tr>
<th>Above Average Intelligence (45-55)</th>
<th>Below Average Intelligence (0-31)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>134</td>
<td>72</td>
<td>206</td>
</tr>
<tr>
<td>F.I</td>
<td>F.D</td>
<td>F.I</td>
</tr>
<tr>
<td>45</td>
<td>53</td>
<td>20</td>
</tr>
<tr>
<td>F.D</td>
<td></td>
<td>31</td>
</tr>
<tr>
<td>149</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Details of the test, its reliability and validity are given in chapter III and the test is attached in the appendix IV.

2.3 Tool Selection

As a carpenter needs a tool to construct an object, the same way researcher also requires a tool to conduct a study. The researcher used following tools:

a) Standard Progressive Matrices (1977) by Raven, court and Raven to test Intelligence and to categorize the students into above average and below average groups.

b) Group embedded figure test (1976) by Witkin, oltman and Ruskin to test cognitive style. The students were divided into field-dependent and field –independent groups on the basis of GEFT.

c) Test of writing skill in English which was developed by the researcher herself and is standardized.

2.4 Description of tools

A brief description of the various tools used in the present study is give below:

1. **Standard progressive matrices or SPM (Raven, court and Roven; 1997).**

   S.P.M was chosen for the present study because it provides a valid means of assessing a person’s present capacity for clear thinking and accurate intellectual work and is a stable index of ones general intelligence.

   SPM(sets A,B,C,D and E) is a test of a person’s capacity at the time of the test to apprehend meaningless figures presented for his observation, see the relationship between them, conceive the nature of the figure completing each system of relations presented and by so doing, develop a systematic method of reasoning. 60 problems have been divided into five sets, having 12 problems in each wherein the first problem is as nearly as possible self evident and the following ones get increasingly more and more difficult.
A person’s score on the test is the total number of problems he solves correctly when he is allowed to work quietly through the series from the beginning to the end.

2. **Group Embedded Figures Test (GEFT) (Witkin, Oltman, Raskin and Karp, 1971).**

Group Embedded Figures Test (GEFT) and adaptation of the original individually administered Embedded Figures Test (EFT) was preferred as a suitable instrument to measure the cognitive style dimension of field independence/dependence of the sample primarily because it makes group testing possible and scores for a large number of individuals can be conveniently obtained in a single testing session of twenty minutes.

GEFT required the subject to locate a simple visual figure embedded within a more complex one. Besides the seven simple forms (A,B,C,D,E,F,G) that have to be located, the test has three sections: first section comprising of a seven-items practice set which served the purpose of providing practice to the subject and is not to be scored; second and third sections are comprised by nine difficult figures which are arranged in ascending order of difficulty within each section. Thus the test has a scored set of eighteen items administered in two equal parts and for which, subjects are allowed a time limit of five minutes each where as for the practice set, only two minutes are to be allowed (Manual for GEFT; 1971). The total number of simple forms correctly traced in second and third sections combined in the individual’s score since the items in practice set are not scored but merely scanned to ensure that the instructions have been understood properly by the subject. Omitted items are scored as incorrect. In order to receive credit for an item, incorrect. In order to receive credit for an item, all lines of the simple form must be traced, all incorrect lines must be crossed and no extra lines be added. A high score on the test is indicative of field independence while a lower score denotes field dependence.
3. Test of writing skills in English (locally developed and standardized)

The present study demanded the use of a reliable instrument that could serve as an adequate measure to test the writing skill in English. The test was divided into two parts. Part A consisting of 30 objective type test-items with maximum marks 30, was standardized and Part B, consisting of five supply type items with maximum marks 35, was standardized. Part A of the test had 30 multiple choice type items whereas part B of the test comprised of five test items first on writing of paragraph, second on report writing, third on notice writing, fourth message writing and fifth on letter writing. The combined test thus was sufficiently comprehensive to examine the effectiveness as well as accuracy of writing skills or expression.

2.5 Procedure

Prior to conduct of the experiment, instructional material in accordance with the needs and demands of Grammar based method and communication based method of teaching writing skills was planned and developed (Chapter III). The experiment itself, which yielded the data that was later submitted to statistical analysis for the purpose of examining the effect of independent variables on the dependent variables, had four distinct phases (ref. Table 2.3).

<table>
<thead>
<tr>
<th>Phase I</th>
<th>Treatment Group 1 (N = 100)</th>
<th>Treatment Group 2 (N = 100)</th>
<th>Treatment Group 3 (N = 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Standard Progressive Matrices (SPM) was administered</td>
<td>i) Standard Progressive Matrices (SPM) was administered</td>
<td>i) Standard Progressive Matrices (SPM) was administered</td>
<td></td>
</tr>
<tr>
<td>ii) Group Embedded Figures Test (GEFT) was administered</td>
<td>ii) Group Embedded Figures Test (GEFT) was administered</td>
<td>ii) Group Embedded Figures Test (GEFT) was administered</td>
<td></td>
</tr>
<tr>
<td>Phase II</td>
<td>Test on writing skills in English.</td>
<td>Test on writing skills in English.</td>
<td>Test on writing skills in English.</td>
</tr>
<tr>
<td>----------</td>
<td>---------------------------------</td>
<td>----------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Phase III</td>
<td>Students were taught writing skills in English through Grammar based method.</td>
<td>Students were taught writing skills in English through Communication based method.</td>
<td>Traditional teaching.</td>
</tr>
<tr>
<td>Phase IV</td>
<td>Post test on writing skills.</td>
<td>Post test on writing skills.</td>
<td>Post test on writing skills.</td>
</tr>
</tbody>
</table>

**Phase I**

After permission to conduct the study was obtained from DP1-Director of Public Instruction (schools, Chandigarh) and Principals of selected schools, two tests – Standard Progressive Matrices (SPM) and Group Embedded Figures Test (GEFT) were administered to students of ninth class during phase I of the experiment. 300 students of ninth class of the two schools were administered SPM in the morning session and GEFT in the afternoon session in compliance with standardized procedures. Both the tests were given to subjects three days prior to the beginning of treatment period. The scores obtained by students on these tests served to classify them on the basis of intelligence and Cognitive style into distinct groups for analysis purpose only.

**Phase II**

During phase 2, the test on writing skills in English was administered to the above average and below average students of three treatment groups. Students were given 90 minutes time to complete the test on writing skills.

**Phase III**

During phase 3, experimental treatment began which lasted for four weeks where in selected units of higher-level writing skills in English were taught to ninth class students of the selected schools. Treatment group 1 was taught through Grammar based method, treatment group 2 was taught through Communication based method and treatment group 3 was taught...
through traditional method of teaching. Under the three treatment conditions, the lesson content and objectives were almost parallel but for the procedural steps employed to achieve the objectives. All the teaching sessions with the English language class-sections were conducted by the investigator herself in accordance with the detailed lesson plans earlier developed by her in consultation with and under the guidance of subject-experts and English language teachers. All lessons were taught in school timings in the students normal class room setting. Each group of students was taught twenty lessons-those in treatment condition 1 were taught by Grammar based method, in treatment condition 2 were taught by communication based method and in treatment three were taught by traditional method. But for few lessons which extended to two class periods, each lesson was taught in one class period of 40 minutes duration. Forty lesson-plans that were developed, twenty according to the steps of Grammar based method and twenty according to that of communication based method of developing writing Skills.

**Phase IV**

Immediately on completion of the treatment period, test on writing Skills in English (developed locally and subsequently standardized, details given in chapterIII) was administered to the students in three treatment groups. At the end of fourth phase of the experiment, all the data needed for the study had been collected and the formal experiment along with treatment and administration of tests, was over. As in the case of the earlier test, this test was also scored according to the specified guidelines (chapter III ). All different sets of scores were then statistically treated, analyzed and interpreted in order to see the effect of the three independent variables on the dependent variable.

**2.6 Details Of Treatment:** As already stated in sections and, all the students of ninth class constituted the treatment sample and were thought higher level writing Skills in English where in both types of writing – imaginative as well as practical, factual writing with its emphasis on accuracy.
and completeness of information-were covered (Lesson plan attached in appendix and details of development given in chapter III). As such, treatment group 1 was taught higher-level writing skills in English through Grammar based method, treatment group 2 through communication based method and treatment group 3 through traditional method.

Except for the procedural steps of the two instructional strategies and techniques employed to structure the learning environment, everything else in the two treatment conditions i.e. the writing task assigned, the model text presented, the aids used, the time spent on learning was the same.

**Grammar Based Method:** In this method teaching session began with general introductions to the lesson, stating its purpose. The teacher then presented the model text, explained or clarified concepts, principles, stated rules and defined the skills involved. These were often outlined on the blackboard and most students took down note. The students received the information, explanation and clarification by the teacher and they were not actively involved with the material. The model text was thus used in these session, it was presented and analyzed at the beginning of the lesson and at the stage of actual writing students were asked to imitate the models.

**Communication Based Method:** In this method, session usually began with a very brief introduction to the lesson, stating its purpose. The model text was then presented, which the students read and analysed in group to search for elements or characteristics that made the text a well-written passage either in terms of organization of thoughts, use of vocabulary/sentences etc. Different techniques like group discussion, pair work, brain storming technique etc were used to make students active participants. Teacher here is a facilitator, offering hints but not directly providing answers. The students were asked to work in groups or pairs and analyze, evaluate and criticize on another's writing.