CHAPTER: 3

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction
3.1 Origin of the Study
3.2 Population
3.3 Sample
3.4 Research Design
3.5 Experimental Design
3.6 Ingredients of Experimental Research
  3.6.1 Manipulation
  3.6.2 Control
3.7 Threats to External Validity
  3.7.1 Internal Validity
    3.7.1.1 History
    3.7.1.2 Maturation
    3.7.1.3 Testing
    3.7.1.4 Instrumentation
    3.7.1.5 Statistical Regression
    3.7.1.6 Differential Selection
    3.7.1.7 Experimental Mortality
    3.7.1.8 Selection Maturation Interaction
    3.7.1.9 The John Henry Effect
    3.7.1.10 Experimental Treatment Diffusion
  3.7.2 External Validity
    3.7.2.1 Pretest- Sensitization
    3.7.2.2 Multiple -Treatment Interference
    3.7.2.3 Selection Treatment Interaction
    3.7.2.4 Reactive Arrangements
    3.7.2.5 Hawthorne Effect
3.8 Programme Development
  3.8.1 Preparation of Communicative Approach Design
  3.8.2 Preparation of Structural Approach Design
  3.8.3 Preparation of Conventional Method Design
3.9 Experts Views on the Design of the Programme

3.10 Tools

3.10.1 English Achievement Test – Post Test

3.10.1.1 Discussing with subject Experts

3.10.1.2 Deciding the objectives of the test

3.10.1.3 Reviewing the materials

3.10.2.4 Writing of the test

3.10.2.5 Experts opinions on the test

3.10.2.6 Final form of the test

3.10.2 IQ Test

3.10.3 7th std. final exam marks of English

3.11 Implementation of the Programme

3.12 Procedure of Data Collection

3.13 Data collected

3.14 Analysis of Data

Endnotes
CHAPTER: 3
RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

The research design is the lamp post by which the researcher comes to know on which way he/she has to travel. The past ideas and experiences becomes the matter of investigation for the researcher. The researcher has reviewed the related literature to the problem in hand and designed the study based on experiences, reading, and discussion with the experts. For the purpose, researcher selected appropriate tools for measuring the variables under study and decided the plan for collecting and analyzing the data. The main aim of the researcher is to find out the best way to learn and speak English fluently. These references lead the researcher to undertake the present study. The methodology followed in the present study has been discussed in the present chapter. In this chapter the research design has been discussed with respect to detail which includes origin of the study, sampling, tools, experimental design, procedure of data collection and statistical techniques used for data analysis in separate captions.

3.1 Origin of the Study

One question, one question... it was so hard to narrow down the mountain of questions filling up the researcher's head regarding Gujarati speaking English language learners (ELLs). How does the researcher get Gujarati speaking students to speak in English language? Even after learning English in their previous years, students are not been able to use English in their day to day activities. Here the question is that students have learnt English as a second language in their previous years and they are good at grammar but why they could not use English language in their routine life. Why they don't express their ideas or communicate to others. The
and approach or method to be taught. The detail of the sample of the present study is
given in the table 3.1.

### Table 3.1
Sample profile of the study

<table>
<thead>
<tr>
<th>Groups</th>
<th>Sex</th>
<th>IQ</th>
<th>Achievement in English</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td>Total</td>
</tr>
<tr>
<td>Communicative Approach</td>
<td>37</td>
<td>18</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
<td>Total</td>
</tr>
<tr>
<td>Structural Approach</td>
<td>26</td>
<td>22</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
<td>Total</td>
</tr>
<tr>
<td>Conventional Method</td>
<td>42</td>
<td>12</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>28</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From above table it is seen that the investigator had selected 55 students from
Sardar Patel Vidyalaya and was described as Experimental Group–1 (communicative
Approach). There were 37 boys and 18 girls, 32 high IQ and 23 low IQ students and
29 above average and 26 below average students in this group.

From above table it is seen that the investigator had selected 48 students from
Gurukul High school and was described as Experimental Group–2 (structural
approach). There were 26 boys and 22 girls, 22 high IQ and 26 low IQ and 31 above
average and 17 below average students in this group.

From above table it is seen that the investigator had selected 54 students from
G. D. High school and was described as control group-1 (conventional method).
There were 42 boys and 12 girls, 26 high IQ and 28 low IQ and 32 above average and
22 below average students in this group.

### 3.4 Research Design

Research design is an important part of research. The choice of research
design depends upon the purpose of the study, the resources available and the kind of
data that the problem entails. Experimental research design is preferred when the
researcher wants to observe the effects of independent variables on the dependent variables within certain controlled situations. The present investigation was experimental in nature.

Experimental method provides much control and, therefore, establishes a systematic and logical association between manipulated factors and observed effects. The researcher defines a problem and proposes a tentative answer or hypotheses. The researcher tests the hypotheses and accepts or rejects it in the light of the controlled variable relationship that he has observed.

3.5 Experimental Design

The researcher discussed with different subject experts and with the research experts about the design of the study. Then the researcher decided post test Quasi-experimental (3×2 factorial) design for the present study. Two experimental and one control group only post test design can be diagrammed as under:

<table>
<thead>
<tr>
<th>Groups</th>
<th>Pre-Test</th>
<th>Independent Variables (Treatment)</th>
<th>Post Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group- E1</td>
<td>-----</td>
<td>X1 Communicative Approach</td>
<td>T2 E1</td>
</tr>
<tr>
<td>Experimental Group- E2</td>
<td>-----</td>
<td>X2 Structural Approach</td>
<td>T2 E2</td>
</tr>
<tr>
<td>Control Group -C1</td>
<td>-----</td>
<td>X3 Conventional Method</td>
<td>T2 C1</td>
</tr>
</tbody>
</table>

Where:

E1     Experimental Group - 1
E2     Experimental Group - 2
C1     Control Group - 1
X1     Communicative Approach Teaching
X2     Structural Approach Teaching
X3     Conventional Method Teaching
T2 E1  Post test given to Communicative Approach Group
T2 E2  Post test given to Structural Approach Group
T2 C1  Post test given to Conventional Method Group
3.7.1.5 Statistical Regression

Statistical regression occurs when subjects are selected on the basis of their extreme scores may cause statistical regression effect. The tendency is for scores to regress or move toward the mean of expected score.

In the present study the researcher had tried to control this variable.

3.7.1.6 Differential Selection

Differential selection is represented by the nonequivalence of experimental and control groups, and its most effective determinant is the random assignment of subjects to treatments.

In the present study the researcher selected three groups purposively. IQ test and STD 7 final exam English subject marks were taken and all the groups were equalized using statistical technique.

3.7.1.7 Experimental Mortality

The differential loss of subjects from the comparison groups may affect the findings of the study.

In the present study there was no drop out. So this variable was controlled.

3.7.1.8 Selection Maturation Interaction

This extraneous variable is similar to differential selection except that maturation is the specific confounding variable.

In the present study all subjects are of similar age and of the same city. The researcher had done draw to decide which group will receive which treatment.

3.7.1.9 The John Henry Effect

When the subjects of the experimental group and the control group feel that they are in competition with each other. Each group try to perform better than the other group.
In the present study the subjects of the three groups were not informed about other groups and care was taken to control this effect.

3.7.1.10 Experimental Treatment Diffusion

Experimental treatment diffusion is likely to occur when the experimental and control subjects are in close proximity to each other.

The researcher has taken care to control this variable. The researcher has selected an appropriate experimental design that controls these factors. The researcher has kept good experimental control with a high degree of confidence to the experimental treatment.

3.7.2 External Validity

External validity refers to the condition that results are generalizable or applicable, to groups and environments outside of the experimental setting. The following are the threats to external validity of the experiment.

3.7.2.1 Pretest–Sensitization

The use of a pretest at the beginning of a study may sensitize individuals by making them more aware of concealed purposes of the researcher and may serve as a stimulus to change.

In the present study no pre-test was taken so this external validity was controlled.

3.7.2.2 Multiple-Treatment Interference

Multiple treatment interference can occur when the same subjects receive more than one treatment in succession.

The researcher had given one treatment to each group. Three different treatments were implemented for three different groups.
3.7.2.3 Selection Treatment Interaction

Researchers are rarely, if ever able to randomly select sample from the wide population of interest or randomly assign to groups; consequently, generalization from samples to populations is hazardous. The results ultimately prove misleading.

The researcher has chosen an experimental design in which only one treatment was assigned to each subject.

3.7.2.4 Reactive Arrangements

Sometimes the subjects become alert for being experimented and the researcher imposes careful controls to control extraneous variables which may introduce an artificial atmosphere that is not at all like life like situation about which generalization are desired.

In the present study the researcher tried to make the atmosphere life like by not informing the subjects about the experiment.

3.7.2.5 Hawthorne Effect

When the subjects of the experiment become aware that they are participating in the experiment and the subjects' attention may cause a change in their behavior. So the findings may not generalize to a situation in which similar personnel are not present.

During the experiment the subjects were not informed about the experiment and proper care was taken that subjects behavior may not affected by the treatment.

3.8 Programme Development

The present study being experimental in nature, it is very worth noting to develop teaching programme. The researcher has developed programme of English language teaching of communicative approach, structural approach and conventional method. First the researcher had reviewed the past studies, reference books and text
books of English. The researcher discussed about the content to the subject experts and research experts about the selection of units. As per the discussion with experts the researcher decided to select std. VIII text book of English of Gujarati medium school of Gujarat state. Then the researcher selected six teaching units for development of programme. Once again the researcher had also discussed about the design of the programme with experts. Three different teaching programmes were developed by the researchers which are teaching through communicative approach, structural approach and conventional method. The design of the programme can be shown in Appendix B. The detail development of the programme is discussed as under:

3.8.1 Preparation of Communicative Approach Design

Communicative approach is a learner centered approach where communication is at the centre of teaching learning process. Finnocchiaro and Brumfit (1983) had identified procedural phases of Communicative Approach.

1. Presentation of a brief dialogue or mini-dialogues.
2. Oral practice of each utterance in the dialogue.
3. Questions and answers based on the topic and situation in the dialogue.
4. Questions and answers related to the students’ personal experience but centered on the theme of the dialogue.
5. Study the basic communicative expression used in the dialogue or one of the structures that exemplify the function.
6. Rules underlying the functional expression of structures.
7. Oral recognition, interpretative procedures and
8. Oral production activities proceeding from guided to free communication.
The range of exercises types and activities compatible with a communicative approach is unlimited, such exercises enable learners to attain the communicative objectives of the curriculum, engage learners in communication. In CLT classroom grammar rules are not presented, classroom arrangement is nonstandard; students are expected to interact primarily with each other rather than with teacher and correction of errors may be absent. Breen and Candlin describe teacher roles as the teacher has two main roles: the first role is to facilitate the communication process between all participants in the classroom and between these participants and various activities and texts. The second role is to act as an independent participant within the learning - teaching group.

Keeping in mind the above objectives, the researcher had prepared the design of communicative approach programme. First the researcher had selected std. VIII text book and then selected six lessons. In lesson No.1 A Quiz, the researcher had recorded the real quiz programme. On the first day students were asked to watch how quiz is played. Then after on second day, preparation for real quiz programme was done. On the third and fourth day, students played real quiz in which they participated themselves. The total management was also done by the students. The objectives of communicative approach were clearly kept in mind.

In the second lesson “A Fireman’s Day”, the researcher had collected the videos and photographs related to the lesson from the internet. Then after all the videos were cut as per the requirement of the lesson and then all the cut videos and photos were organized in whole by software so as it looks as if the real lesson. On the first day the researcher presented the lesson to the students with the video and without video. On the second day, once again they watched video and one by one student came and presented the lesson orally with the help of video. On the third day students
wrote about A Fireman’s Day. On the fourth day students one by one came on the stage and read their notes in front of the whole class. So, listening, speaking, writing and reading was done and this to be continued in rest of the lessons also.

In the lesson no.3- The Prince and His Friends, the researcher had done the same process as done in lesson no. 2. In the lesson no.4- Bamboo a wonderful Plant and in lesson no.6 - Hard of Hearing, the researcher recorded the real dialogues of the lesson. Here in this lesson groups of students were formed and were called for communication on the stage one by one. The procedure speaking, listening, reading and writing was done in all the teaching lessons.

3.8.2 Preparation of Structural Approach Design

In this approach the basis of teaching is structures and patterns of English. The selected and graded structures are presented in a course and taught through classroom situations and actions, gestures, pictures etc. The teacher is expected to give choral, group and individual oral drills based on certain structural patterns in order to reinforce and consolidate the language items taught.

The steps suggested by Burton are given as under:

1. Revision of the previous structures
2. Presentation of the new structures
3. Creating the situations to teach the structures
4. Individual or chorus drill
5. Reading from substitution table
6. Teaching vocabulary
7. Model reading of the lesson by the teacher
8. Silent reading by the students.
9. Comprehension Questions
The researcher has selected six teaching units for teaching and each unit was taught for four days. On the very first day, the researcher presented previously acquired structures from lesson no. 1 'A Quiz' by the substitution table on the roll up board. Students were asked to frame the sentences and sentences were written on the chalk board. Then after students did individual drilling framing sentences from the outside world as well as from the classroom real situations. On the second day new structures from the lesson no. 1 'A Quiz' were presented and taught as the same way on day one. On the third day model reading of the lesson was done by the researcher following the silent reading. On the fourth day comprehension questions, grammar activities, composition questions were discussed. The same procedure continued in all the lessons. The list and syntactical analysis of structures is presented in Appendix-C.

3.8.3 Preparation of Conventional Method Design

Here the term Conventional is considered as Grammar Translation Method. In conventional method the teacher is the dominating personality in the classroom. There is little chance for teacher-student interaction and student-student interaction. In this method extensive use of the mother tongue is advocated. The meaning of the target language is made clear by translating it into the students' mother tongue. The investigator had adopted the following steps for the classroom procedure.

2. Teaching of vocabulary giving the meaning in mother tongue.
3. Reading of the lesson with word to word translation into mother tongue.
4. Reading with translation by the students.
5. Comprehension questions in mother tongue and in English.

6. Assignment based on grammatical exercises and translation.

The researcher selected six teaching units for teaching and each unit was taught for four days. On the very first day, the researcher gave vocabulary of difficult words translating meaning into Gujarati and pre task activities was also done with the help of mother tongue. On the second day, the researcher translated one by one line of the lesson into mother tongue Gujarati and discussed the lesson and silent reading by the student. On the third day, questions and their answers were discussed. On the fourth day grammatical exercises was discussed by giving rules of grammar in the mother tongue. The same procedure was continued for the rest of the five lessons.

The following criteria were kept in mind while designing the programme.

1. Topics of teaching units were selected from English (second language) text book of std. VIII from Gujarat state school text book board, Gandhinagar.

2. The duration of teaching programme of each unit was kept four days.

3. The teaching units were kept the same in all the three groups.

4. The post test was prepared by the investigator and was kept same to all the groups.

3.9 Experts Views on the Design of the Programme

The researcher discussed the design of the programme with subject experts as well as research experts in detail. They appreciated the design of the programme and made a few suggestions as well. There was a great amount of diversity in their views and suggestions. Keeping in mind suggestions received from subject experts and research experts, corrections were made in the design of the programme as well as in the post test also. The majority of suggestions were received in post test. The list of experts is given in Appendix-D.
3.10 Tools

In the present research, researcher used total two research tools to collect data from sample which are as under:

1. English Achievement test – post test
2. IQ Test
3. 7th std. final exam marks of English

English Achievement test was prepared by the researcher himself. IQ Test was ready made test. 7th std. final exam marks of English were also taken. The details of the tools are given as under:

3.10.1 English Achievement Test – Post test

The post test was prepared by the researcher himself keeping in mind the four basic language skills, listening, speaking, reading and writing. The weight age of the post test was kept 100 marks. In the present study the researcher has prepared post test to examine the effectiveness of communicative approach, structural approach and conventional method.

The details of the development of achievement test in English are presented as under. The researcher had followed the following process:

1. Discussing with the subject experts.
2. Deciding the objectives of a test.
3. Reviewing the materials and getting help and suggestions from subject experts and preparing blue print.
4. Writing of the test.
5. Expert opinions on the test
6. Final form of the test
3.10.1.1 Discussing with Subject Experts

Before to construct the English achievement test researcher discussed with the subject experts and got basic information about the construction of the test.

3.10.1.2 Deciding the Objectives of the Test

In the present study, the objective of development of achievement test was to know achievement in English after teaching of communicative approach, structural approach and conventional method.

3.10.1.3 Reviewing the Materials

The researcher had gone through the different materials of English language teaching. Researcher had discussed with subject experts about the test and finally the test was prepared for four skills of English language teaching, LSRW. In the test researcher had decided to include objective questions and application type of questions like information transfer, comprehension, picture description, strip story, describing processes, authentic materials, cloze listening and reading, dialogues, notice display etc. The blue print is presented in Appendix –E.

3.10.1.4 Writing the Test

The following points were kept in mind for writing the test.

1. Objectives of the questions
2. Content of LSRW
3. Weigh age for each skill
4. Formation of item under each skill
5. Difficulty value

3.10.1.5 Experts Opinions on the Test

The post test was sent to the experts for getting their suggestions with the design of the programme.
3.10.1.6 Final Form of the Test

After getting suggestions on English achievement test from experts, final form of test was written. Final form was consisting of introductory page and test item pages. A copy of final Post Test is presented in Appendix- F.

3.10.2 IQ Test

IQ test is an independent variable in this study. To measure the IQ of experimental and control group, researcher used Verbal Non-verbal Intelligent Test prepared by Dr. R. S. Patel, Prof. and Head, Dept of Education, Gujarat University, Ahmedabad. The researcher got the IQ Test from Aakash Manomapan Kendra, Ahmedabad. The copy of the IQ test is presented in Appendix G. Test is for age group of 12 to 18 years of students studying in std. 8 to 12. There are total 80 items in this test. In this test, four sub tests are verbal and four tests are non-verbal. There is separate answer sheet. All the items are of multiple type. Time limit of test is 40 minutes. The standardization of test is that it was implemented on 2500 students and the schools were selected randomly. The scoring was done according to the scoring key prepared by the author.

3.10.3 7th std. final exam marks of English

Researcher first approached principals to get previous examination marks of learners of Sardar Patel Vidyalaya, G.D.High School and Gurukul Primary School and collected English subject marks of Std. 7 of previous annual examination held in April 2012.

3.11 Implementation of the Programme

For implementation of the programme, the researcher made contacts with principals of Sardar Patel Vidyalaya, Gurukul Primary School and G. D. High school, Visnagar. A good rapport was established with the subject teachers and students to
create proper environment for the experiment in the school. The researcher made
draw for deciding school and treatment to be implemented. Then it was finalized that

- Experimental Group 1: Sardar Patel Vidyalaya: taught by Communicative approach
- Experimental Group 2: Gurukul Primary School: taught by Structural approach.
- Control Group 1: G. D. High school: taught by Conventional method

The time schedule of the experiment is given in Appendix H.

The researcher first administered IQ test on 27-06-12. Researcher had administered teaching programme on three groups of std. 8th in three schools simultaneously from 29-06-12 to 03-08-12 except Sunday and holiday. The post test of listening, reading and writing was taken on 04-08-12 and speaking test was taken on 06-08-12 to 08-08-12. Students' achievement in English (score sheet of post test) is given in Appendix – I.

3.12 Procedure of Data Collection

After selecting three groups, verbal non verbal intelligent test was administered and pre –achievement result sheet of English subject of annual exam of std. 7 were collected from the school principals. The post test was administered to all the three groups after implementing the programme.

After administration of each tools, the responses of the subjects of each tool were scored according to the respective scoring key.

3.13 Data Collected

After the experiment and scoring of each subject, total 157 final data were taken. Final 157 subjects were used for further analysis in order to test the hypotheses.

3.14 Analysis of Data.

The main objective of the present study is to study the effectiveness of communicative approach, structural approach and conventional method of ELT at
secondary level. The variables standard, content, medium were controlled in all the groups. Subjects were made equal regarding IQ and 7th std marks of English subject. ANOVA and t-test was used to study the significance of the difference among three groups. The SPSS programme was used for data analysis. The main as well as interactional influences of treatment, sex, IQ and achievement in English on achievement in English, analysis of variance (ANOVA) of unequal size were computed. In order to study the effectiveness of treatment, t-test was computed.
Endnotes


