Chapter - V

Research Design and Procedure
# CHAPTER - V

## RESEARCH DESIGN AND PROCEDURE

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CHAPTER - V
RESEARCH DESIGN AND PROCEDURE

5.1. INTRODUCTION

Reading by itself is a good habit. Bacon recommended it for making a man perfect. The need to read English increases all over the world at a growing rate and in consequence English teachers are required to bring reading with greater efficiency and speed to larger groups of people (ELT Vol. XXIV; Jan. 1970).

One of the major problems in the education of students in developing countries is their poor attainment in English. This may be attributed to the negligence of systematic teaching of reading to the primary and secondary students. Quite a large number of studies have brought out the deficiency of secondary school students in Reading. Hence the investigator, having finalised Reading comprehension as the area of investigation would like to state the problem of research as follows:

5.2. STATEMENT OF THE PROBLEM

Preparation of a valid research tool for assessing the skill of Reading comprehension developed by standard IX students in the schools in Tuticorin District, and identifying the skill of reading in relation to the psychological variables such as Reading readiness, Reading attitude and Cognitive style.

5.3. TOPIC OF THE STUDY

The investigator states the topic of her research thus:

“A STUDY OF SKILLS OF READING COMPREHENSION IN English DEVELOPED BY STUDENTS OF STANDARD IX IN THE SCHOOLS IN TUTICORIN DISTRICT”

5.4. OPERATIONAL DEFINITIONS

I. Skills of Reading comprehension

By this the investigator means

i) Reading the lines (R.L)
ii) Reading between the lines (R.Bet.L)

iii) Reading beyond the lines (R.Bey.L)

and their sub-skills.

i) Reading the lines

1) Guessing the meaning of words and phrases (R.L1)
2) Locating needed information (R.L2)
3) Sequencing contents (R.L3)
4) Understanding the context (R.L4).

ii) Reading between the lines

1) Skill of interpreting contents (R.Bet.L1)
2) Arriving at unsaid facts (R.Bet.L2)
3) Deriving implied meaning (R.Bet.L3).

iii) Reading beyond the lines

1) Establishing the cause of events (R.Bey.L1)
2) Estimating the worth of the details given (R.Bey.L2)
3) Decoding structural peculiarities (R.Bey.L3)
4) Judging characters and ideas (R.Bey.L4).

II. Standard IX

It is a class in the secondary stage of school education ranging from standard I and to standard X. At the end of standard X the students will take school final examination. Operationally it means the students of standard IX in the academic year 1997 - '98.

III. Tuticorin District

Tuticorin district is in the southern region of Tamil Nadu. It consists of a few towns and a large number of villages. The district map is appended.

5.5. METHOD OF INVESTIGATION

As the area of investigation and the population of the study are vast, the investigator has chosen the survey method for this study.
5.6. OBJECTIVES

The researcher has undertaken the study with the following objectives.

PRIMARY OBJECTIVES

PART - A

1. To find the level of attainment of standard IX students in Reading comprehension in English.

2. To find the level of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines and its sub-skills—
   1. Guessing the meaning of words and phrases
   2. Locating needed information
   3. Sequencing contents
   4. Understanding the context.

3. To find the level of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines and its sub-skills—
   1. Skill of interpreting contents
   2. Arriving at unsaid facts
   3. Deriving implied meaning.

4. To find the level of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills—
   1. Establishing the cause of events
   2. Estimating the worth of the details given
   3. Decoding structural peculiarities
   4. Judging characters and ideas.

PART - B

1. To find the level of attainment of standard IX Boys and Girls in Reading comprehension in English and its dimensions:
   1) Reading the lines
   2) Reading between the lines
   3) Reading beyond the lines.
2. To find the level of attainment of standard IX students who belong to SC/ST, Backward and Forward communities in Reading comprehension in English and its dimensions:
   1) Reading the lines
   2) Reading between the lines
   3) Reading beyond the lines.

3. To find the level of attainment of standard IX students who belong to Hindu, Christian and Islam religions in Reading comprehension in English and its dimensions:
   1) Reading the lines
   2) Reading between the lines
   3) Reading beyond the lines.

4. To find the level of attainment of standard IX students in Boys’, Girls’ and Co-educational Schools in Reading comprehension in English and its dimensions:
   1) Reading the lines
   2) Reading between the lines
   3) Reading beyond the lines.

5. To find the level of attainment of standard IX students in Rural, Urban and Semi-urban Schools in Reading comprehension in English and its dimensions:
   1) Reading the lines
   2) Reading between the lines
   3) Reading beyond the lines.

6. To find the level of attainment of standard IX students with low, moderate and high Parental education in Reading comprehension in English and its dimensions:
   1) Reading the lines
   2) Reading between the lines
   3) Reading beyond the lines.

7. To find the level of attainment of standard IX students with low, moderate and high Parental annual income in Reading comprehension in English and its dimensions:
   1) Reading the lines
   2) Reading between the lines
   3) Reading beyond the lines.
8. To find the level of attainment of standard IX students with Kindergarten education and without Kindergarten education in Reading comprehension in English and its dimensions:
   1) Reading the lines
   2) Reading between the lines
   3) Reading beyond the lines.

SECONDARY OBJECTIVES

1. To find the impact of Gender over the level of attainment of standard IX students in Reading comprehension in English.

1.1. To find the impact of Gender over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines and its sub-skills.
   1. Guessing the meaning of words and phrases
   2. Locating needed information
   3. Sequencing contents
   4. Understanding the context.

1.2. To find the impact of Gender over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines and its sub-skills.
   1. Skill of interpreting contents
   2. Arriving at unsaid facts
   3. Deriving implied meaning.

1.3. To find the impact of Gender over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills.
   1) Establishing the cause of events
   2) Estimating the worth of the details given
   3) Decoding structural peculiarities
   4) Judging characters and ideas.

2. To find the impact of Social status over the level of attainment of standard IX students in Reading comprehension in English.
2.1. To find the impact of Social status over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines and its sub-skills.
   1) Guessing the meaning of words and phrases
   2) Locating needed information
   3) Sequencing contents
   4) Understanding the context.

2.2. To find the impact of Social status over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines and its sub-skills.
   1) Skill of interpreting contents
   2) Arriving at unsaid facts
   3) Deriving implied meaning.

2.3. To find the impact of Social status over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills.
   1) Establishing the cause of events
   2) Estimating the worth of the details given
   3) Decoding structural peculiarities
   4) Judging characters and ideas.

3. To find the impact of Religion over the level of attainment of standard IX students in Reading comprehension in English.

3.1. To find the impact of Religion over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines and its sub-skills.
   1) Guessing the meaning of words and phrases
   2) Locating needed information
   3) Sequencing contents
   4) Understanding the context.

3.2. To find the impact of Religion over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines and its sub-skills.
   1) Skill of interpreting contents
2) Arriving at unsaid facts
3) Deriving implied meaning.

3.3. To find the impact of Religion over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills.
1) Establishing the cause of events
2) Estimating the worth of the details given
3) Decoding structural peculiarities
4) Judging characters and ideas.

4. To find the impact of Type of school over the level of attainment of standard IX students in Reading comprehension in English.

4.1. To find the impact of Type of school over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines and its sub-skills.
1) Guessing the meaning of words and phrases
2) Locating needed information
3) Sequencing contents
4) Understanding the context

4.2. To find the impact of Type of school over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines and its sub-skills.
1) Skill of interpreting contents
2) Arriving at unsaid facts
3) Deriving implied meaning

4.3. To find the impact of Type of school over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills.
1) Establishing the cause of events
2) Estimating the worth of the details given
3) Decoding structural peculiarities
4) Judging characters and ideas.
5. To find the impact of Locality of school over the level of attainment of standard IX students in Reading comprehension in English.

5.1. To find the impact of Locality of school over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines and its sub-skills.
   1) Guessing the meaning of words and phrases
   2) Locating needed information
   3) Sequencing contents
   4) Understanding the context

5.2. To find the impact of Locality of school over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines and its sub-skills.
   1) Skill of interpreting contents
   2) Arriving at unsaid facts
   3) Deriving implied meaning

5.3. To find the impact of Locality of school over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills.
   1) Establishing the cause of events
   2) Estimating the worth of the details given
   3) Decoding structural peculiarities
   4) Judging characters and ideas.

6. To find the impact of Parental education over the level of attainment of standard IX students in Reading comprehension in English.

6.1. To find the impact of Parental education over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines and its sub-skills.
   1) Guessing the meaning of words and phrases
   2) Locating needed information
   3) Sequencing contents
   4) Understanding the context
6.2. To find the impact of Parental education over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines and its sub-skills.

1) Skill of interpreting contents
2) Arriving at unsaid facts
3) Deriving implied meaning

6.3. To find the impact of Parental education over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills.

1) Establishing the cause of events
2) Estimating the worth of the details given
3) Decoding structural peculiarities
4) Judging characters and ideas.

7. To find the impact of Parental annual income over the level of attainment of standard IX students in Reading comprehension in English.

7.1. To find the impact of Parental annual income over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines and its sub-skills.

1) Guessing the meaning of words and phrases
2) Locating needed information
3) Sequencing contents
4) Understanding the context

7.2. To find the impact of Parental annual income over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines and its sub-skills.

1) Skill of interpreting contents
2) Arriving at unsaid facts
3) Deriving implied meaning

7.3. To find the impact of Parental annual income over the level of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills.

1) Establishing the cause of events
2) Estimating the worth of the details given
3) Decoding structural peculiarities
4) Judging characters and ideas.

8. To find the impact of the level of attainment of standard IX students with and without Kindergarten education in Reading comprehension in English.

8.1. To find the impact of the level of attainment of standard IX students with and without Kindergarten education in Reading comprehension in English with regard to Reading the lines and its sub-skills.
   1) Guessing the meaning of words and phrases
   2) Locating needed information
   3) Sequencing contents
   4) Understanding the context

8.2. To find the impact of the level of attainment of standard IX students with and without Kindergarten education in Reading comprehension in English with regard to Reading between the lines and its sub-skills.
   1) Skill of interpreting contents
   2) Arriving at unsaid facts
   3) Deriving implied meaning

8.3. To find the impact of the level of attainment of standard IX students with and without Kindergarten education in Reading comprehension in English with regard to Reading beyond the lines and its sub-skills.
   1) Establishing the cause of events
   2) Estimating the worth of the details given
   3) Decoding structural peculiarities
   4) Judging characters and ideas.

TERTIARY OBJECTIVES

READING READINESS

1. To find the relationship between the following components of Reading readiness
   1) Perceiving information
   2) Perceiving the concept
   3) Perceiving the root
4) Perceiving similar expressions
5) Readiness to guess the meaning
6) Reading graphs and tables.

and the skill of Reading comprehension in English of standard IX students.

2. To find the relationship between the following components of Reading readiness
1) Perceiving information
2) Perceiving the concept
3) Perceiving the root
4) Perceiving similar expressions
5) Readiness to guess the meaning
6) Reading graphs and tables.

and the skill of Reading comprehension in English of standard IX students with regard to Reading the lines and its following sub-skills:
1) Guessing the meaning of words and phrases
2) Locating needed information
3) Sequencing contents
4) Understanding the context.

3. To find the relationship between the following components of Reading readiness
1) Perceiving information
2) Perceiving the concept
3) Perceiving the root
4) Perceiving similar expressions
5) Readiness to guess the meaning
6) Reading graphs and tables.

and the skill of Reading comprehension in English of standard IX students with regard to Reading between the lines and its following sub-skills:
1) Skill of interpreting contents
2) Arriving at unsaid facts
3) Deriving implied meaning

4. To find the relationship between the following components of Reading readiness
1) Perceiving information
2) Perceiving the concept
3) Perceiving the root
4) Perceiving similar expressions
5) Readiness to guess the meaning
6) Reading graphs and tables.

and the skill of Reading comprehension in English of standard IX students with regard to Reading beyond the lines and its following sub-skills:
1) Estimating the worth of the details given
2) Establishing the cause of events
3) Decoding structural peculiarities
4) Judging characters and ideas.

5. To find the Reading readiness and its components of standard IX students of the following categories -
1) Boys and Girls
2) SC/ST, BC and FC communities
3) Hindu, Christian and Islam religions
4) Boys', Girls' and Co-educational Schools
5) Rural, Urban and Semi-urban Schools
6) Low, moderate and high Parental education
7) Low, moderate and high Parental annual income
8) With and without Kindergarten education.

READING ATTITUDE

6. To find the relationship between Reading attitude and the skill of Reading comprehension in English of standard IX students.

7. To find out the relationship between Reading attitude and the skill of Reading comprehension in English of standard IX students with regard to Reading the lines and its sub-skills:
1) Guessing the meaning of words and phrases
2) Locating needed information
3) Sequencing contents
4) Grasping the required information.
8. To find the relationship between reading attitude and the skill of reading comprehension in English of standard IX students with regard to reading between the lines and its sub-skills:
   1) Skill of interpreting contents
   2) Arriving at unsaid facts
   3) Deriving implied meaning

9. To find the relationship between reading attitude and the skill of reading comprehension in English of standard IX students with regard to reading beyond the lines and its sub-skills:
   1) Establishing the cause of events
   2) Estimating the worth of the details given
   3) Decoding structural peculiarities
   4) Judging characters and ideas.

10. To find the reading attitude of the standard IX students belonging to the following categories:
    1) Boys and Girls
    2) SC/ST, BC and FC communities
    3) Hindu, Christian and Islam religions
    4) Boys’, Girls’ and Co-educational Schools
    5) Rural, Urban and Semi-urban Schools
    6) Low, moderate and high Parental education
    7) Low, moderate and high Parental annual income
    8) With and without Kindergarten education.

COGNITIVE STYLE

11. To find the relationship between cognitive style (field dependent / independent) and the skill of reading comprehension in English of standard IX students.

12. To find the relationship between cognitive style (field dependent / independent) and the skill of reading comprehension in English of standard IX students with regard to reading the lines and its sub-skills:
    1) Guessing the meaning of words and phrases
    2) Locating needed information
3) Sequencing contents
4) Grasping the required information.

13. To find the relationship between *cognitive style* (field dependent / independent) and the skill of *reading comprehension* in English of standard IX students with regard to *reading between the lines* and its sub-skills:
   1) Skill of interpreting contents
   2) Arriving at unsaid facts
   3) Deriving implied meaning

14. To find the relationship between *cognitive style* (field dependent / independent) and the skill of *reading comprehension* in English of standard IX students with regard to *reading beyond the lines* and its sub-skills:
   1) Establishing the cause of events
   2) Estimating the worth of the details given
   3) Decoding structural peculiarities
   4) Judging characters and ideas.

15. To find the *cognitive style* (field dependent / independent) of the standard IX students belonging to the following categories:
   1) *Boys and Girls*
   2) *SC/ST, BC and FC communities*
   3) *Hindu, Christian and Islam religions*
   4) *Boys', Girls' and Co-educational Schools*
   5) *Rural, Urban and Semi-urban Schools*
   6) *Low, moderate and high Parental education*
   7) *Low, moderate and high Parental annual income*
   8) *With and without Kindergarten education.*

5.7. HYPOTHESES

After formulating the objectives on the basis of the background and psychological characteristics the investigator framed the following hypotheses.
PRIMARY HYPOTHESES

PART - A
1. The level of attainment of standard IX students in Reading comprehension in English is moderate.
2. The levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L) and its components are moderate.
3. The levels of attainment of standard IX students in Reading comprehension in English with regard to Reading between the lines (R.Bet.L) and its components are moderate.
4. The levels of attainment of standard IX students in Reading comprehension in English with regard to Reading beyond the lines (R.Bey.L) and its components are moderate.

PART - B
1. Standard IX Boys are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).
2. Standard IX Girls are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).
3. Standard IX students belonging to SC/ST community are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).
4. Standard IX students belonging to Backward community are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).
5. Standard IX students belonging to Forward community are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).
6. Standard IX students belonging to Hindu religion are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

7. Standard IX students belonging to Christian religion are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

8. Standard IX students belonging to Islam religion are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

9. Standard IX students in Boys' Schools are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

10. Standard IX students in Girls' Schools are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

11. Standard IX students in Co-educational Schools are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

12. Standard IX students in Rural Schools are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

13. Standard IX students in Urban Schools are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

14. Standard IX students in Semi-urban Schools are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

15. Standard IX students with low Parental education are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).
16. Standard IX students with *moderate* Parental education are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

17. Standard IX students with *high* Parental education are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

18. Standard IX students with *low* Parental annual income are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

19. Standard IX students with *moderate* Parental annual income are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

20. Standard IX students with *high* Parental annual income are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

21. Standard IX students *With* Kindergarten education are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

22. Standard IX students *Without* Kindergarten education are moderate in the skill of Reading comprehension in English and its dimensions Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L).

SECONDARY HYPOTHESES

1. Gender does not have significant impact over the level of attainment of standard IX students in Reading comprehension in English.

2. Gender does not have significant impact over the levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.

3. Social status does not have significant impact over the level of attainment of standard IX students in Reading comprehension in English.
4. Social status does not have significant impact over the levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.

5. Religion does not have significant impact over the level of attainment of standard IX students in Reading comprehension in English.

6. Religion does not have significant impact over the levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.

7. Type of school does not have significant impact over the level of attainment of standard IX students in Reading comprehension in English.

8. Type of school does not have significant impact over the levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.

9. Locality of school does not have significant impact over the level of attainment of standard IX students in Reading comprehension in English.

10. Locality of school does not have significant impact over the levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.

11. Parental education does not have significant impact over the level of attainment of standard IX students in Reading comprehension in English.

12. Parental education does not have significant impact over the levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.

13. Parental annual income does not have significant impact over the level of attainment of standard IX students in Reading comprehension in English.

14. Parental annual income does not have significant impact over the levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.
15. Kindergarten education does not have significant impact over the level of attainment of standard IX students in Reading comprehension in English.

16. Kindergarten education does not have significant impact over the levels of attainment of standard IX students in Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.

TERTIARY HYPOTHESES

PART - A

READING READINESS

1. Reading readiness (R.R) and its components are only moderate in the case of standard IX students.

2. Reading comprehension in English of standard IX students is not significantly related to their Reading readiness.

3. Reading comprehension in English with regard to Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills are not significantly related to Reading readiness and its components.

4. Standard IX students of different Gender (Boys/Girls); different Community (SC/ST / BC / FC); different Religion (Hindu/Christian/Islam); different Type of school (Boys'/Girls/co-education); different Locality of schools (Rural/Urban/Semi-urban); different Parental education (low/moderate/high); different Parental annual income (low/moderate/high); different Pre-school education (with / without Kindergarten education) do not differ significantly in their Reading readiness and its components.

PART - B

READING ATTITUDE

1. Reading attitude is only negative in the case of standard IX students.

2. Reading attitude of standard IX students does not significantly influence the skill of Reading comprehension in English.

3. Reading attitude of standard IX students does not significantly influence their Reading comprehension in terms of Reading the lines (R.L), Reading between the lines (R.Bet.L) and Reading beyond the lines (R.Bey.L) and their sub-skills.
4. Standard IX students of different Gender (Boys/Girls); different Community (SC/ST / BC / FC); different Religion (Hindu/Christian/Islam); different Type of school (Boys'/Girls'/Co-education); different Locality of school (Rural/Urban/Semi-urban); different Parental education (low/moderate/high); different Parental annual income (low/moderate/high); different Pre-school education (with / without Kindergarten education) do not differ significantly in their Reading attitude.

PART - C
COGNITIVE STYLE

1. Standard IX students are predominantly field dependent.

2. Standard IX students of different Gender (Boys/Girls); different Community (SC/ST / BC / FC); different Religion (Hindu/Christian/Islam); different Type of school (Boys'/Girls'/co-education); different Locality of school (Rural/Urban/Semi-urban); different Parental education (low/moderate/high); different Parental annual income (low/moderate/high); Kindergarten education (with/without) are predominantly field dependent.

3. Cognitive style (field dependent / independent) of standard IX students does not significantly influence the skill of Reading comprehension in English.

4. Cognitive style (field dependent / independent) of standard IX students does not significantly influence their Reading comprehension in terms of Reading the lines (R.L), Reading between the lines (R.Bet.L), Reading beyond the lines (R.Bey.L) and their sub-skills.

5.8. POPULATION

The population of the present study consists of all the students of standard IX in 71 Government and Government aided private High Schools and 85 Higher Secondary Schools in Tuticorin district.

Table 5.1.
Schools in Tuticorin District

<table>
<thead>
<tr>
<th>Type of school</th>
<th>High school</th>
<th>Higher secondary school</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>29</td>
<td>22</td>
<td>51</td>
</tr>
<tr>
<td>Private</td>
<td>42</td>
<td>63</td>
<td>105</td>
</tr>
<tr>
<td>Total</td>
<td>71</td>
<td>85</td>
<td>156</td>
</tr>
</tbody>
</table>
The Matriculation schools and Anglo-Indian schools are not included in the study.

Table 5.2.
List of schools selected for investigation

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the school</th>
<th>Place</th>
<th>No. of sample taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Govt. Hr. Sec. School</td>
<td>Siruthondanallur</td>
<td>15</td>
</tr>
<tr>
<td>2.</td>
<td>Govt. Hr. Sec. School</td>
<td>Kayamozhi</td>
<td>15</td>
</tr>
<tr>
<td>3.</td>
<td>Govt. Hr. Sec. School</td>
<td>Athoor</td>
<td>15</td>
</tr>
<tr>
<td>4.</td>
<td>Govt. Boys’ Hr. Sec. School</td>
<td>Tiruchendhur</td>
<td>15</td>
</tr>
<tr>
<td>5.</td>
<td>Govt. Girls’ Hr. Sec. School</td>
<td>Tiruchendhur</td>
<td>15</td>
</tr>
<tr>
<td>6.</td>
<td>Govt. Girls’ Hr. Sec. School</td>
<td>Arumuganeri</td>
<td>15</td>
</tr>
<tr>
<td>7.</td>
<td>Govt. Girls’ Hr. Sec. School</td>
<td>Kayalpatnam</td>
<td>15</td>
</tr>
<tr>
<td>8.</td>
<td>Govt. Girls’ Hr. Sec. School</td>
<td>Sreevaikundam</td>
<td>15</td>
</tr>
<tr>
<td>9.</td>
<td>Govt. Boys’ Hr. Sec. School</td>
<td>Kovilpatti</td>
<td>15</td>
</tr>
<tr>
<td>10.</td>
<td>Govt. Girls’ Hr. Sec. School</td>
<td>Kovilpatti</td>
<td>15</td>
</tr>
<tr>
<td>11.</td>
<td>Govt. Girls’ Hr. Sec. School</td>
<td>Ottapidaram</td>
<td>15</td>
</tr>
<tr>
<td>12.</td>
<td>Tucker Hr. Sec. School</td>
<td>Pannaivilai</td>
<td>15</td>
</tr>
<tr>
<td>13.</td>
<td>Margashizus Hr. Sec. School</td>
<td>Nazareth</td>
<td>15</td>
</tr>
<tr>
<td>14.</td>
<td>St.Mark’s Hr. Sec. School</td>
<td>Mugaluru</td>
<td>15</td>
</tr>
<tr>
<td>15.</td>
<td>Sree Ganesan Hr. Sec. School</td>
<td>Pannika Nadar Kudiyiruppu</td>
<td>15</td>
</tr>
<tr>
<td>16.</td>
<td>St.Michael Hr. Sec. School</td>
<td>Mugaluru</td>
<td>15</td>
</tr>
<tr>
<td>17.</td>
<td>Kamaraj Hr. Sec. School</td>
<td>Nalumavadi</td>
<td>15</td>
</tr>
<tr>
<td>18.</td>
<td>Govt. Hr. Sec. School</td>
<td>Umarikadu</td>
<td>15</td>
</tr>
<tr>
<td>19.</td>
<td>Caldwell Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>20.</td>
<td>Karapettai Nadar Boys’ Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>22.</td>
<td>Subbiah Vidyalayam Boys’ Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>23.</td>
<td>Subbiah Vidyalayam Girls’ Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>24.</td>
<td>S.A.V. Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>25.</td>
<td>St.Mary’s Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>No.</td>
<td>Name of the school</td>
<td>Place</td>
<td>No. of sample taken</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------</td>
<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>26.</td>
<td>Pope Memorial Hr. Sec. School</td>
<td>Sawyerpuram</td>
<td>15</td>
</tr>
<tr>
<td>27.</td>
<td>P.M.Lasal Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>28.</td>
<td>St.Antony Hr. Sec. School</td>
<td>Pazhayakayal</td>
<td>15</td>
</tr>
<tr>
<td>29.</td>
<td>St.Mary’s Hr. Sec. School</td>
<td>Pothakalanvilai</td>
<td>15</td>
</tr>
<tr>
<td>30.</td>
<td>K.A. Hr. Sec. School</td>
<td>Arumuganeri</td>
<td>15</td>
</tr>
<tr>
<td>31.</td>
<td>L.K. Hr. Sec. School</td>
<td>Kayalpatnam</td>
<td>15</td>
</tr>
<tr>
<td>32.</td>
<td>Central Hr. Sec. School</td>
<td>Kayalpatnam</td>
<td>15</td>
</tr>
<tr>
<td>33.</td>
<td>St.Thomas Hr. Sec. School</td>
<td>Verrapandianpattinam</td>
<td>15</td>
</tr>
<tr>
<td>34.</td>
<td>TDTA Hr. Sec. School</td>
<td>Vallalanvilai</td>
<td>15</td>
</tr>
<tr>
<td>35.</td>
<td>Holy Cross Hr. Sec. School</td>
<td>Sathankulam</td>
<td>15</td>
</tr>
<tr>
<td>36.</td>
<td>TDTA Ambros Hr. Sec. School</td>
<td>Meignapuram</td>
<td>15</td>
</tr>
<tr>
<td>37.</td>
<td>TDTA Hr. Sec. School</td>
<td>Christianagaram</td>
<td>15</td>
</tr>
<tr>
<td>38.</td>
<td>K.G.S. Hr. Sec. School</td>
<td>Sreevaikundam</td>
<td>15</td>
</tr>
<tr>
<td>39.</td>
<td>C.M. Hr. Sec. School</td>
<td>Renganathapuram</td>
<td>15</td>
</tr>
<tr>
<td>40.</td>
<td>TDTA R.M.P. Hr. Sec. School</td>
<td>Sathankulam</td>
<td>15</td>
</tr>
<tr>
<td>41.</td>
<td>St.Aloysizus Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>42.</td>
<td>St.Mary’s Hr. Sec. School</td>
<td>Sathankulam</td>
<td>15</td>
</tr>
<tr>
<td>43.</td>
<td>Holy Cross Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>44.</td>
<td>E.D. Girls Hr. Sec. School</td>
<td>Meignapuram</td>
<td>15</td>
</tr>
<tr>
<td>45.</td>
<td>Anni Best Hr. Sec. School</td>
<td>Pandaranchettivilai</td>
<td>15</td>
</tr>
<tr>
<td>46.</td>
<td>St.Mary’s Hr. Sec. School</td>
<td>Sawyerpuram</td>
<td>15</td>
</tr>
<tr>
<td>47.</td>
<td>Sree Ramakrishna Chidambareswarar Hr. Sec. School</td>
<td>Udangudi</td>
<td>15</td>
</tr>
<tr>
<td>48.</td>
<td>A.V. Hr. Sec. School</td>
<td>Kovilpatti</td>
<td>15</td>
</tr>
<tr>
<td>49.</td>
<td>Lakshmi Mills Hr. Sec. School</td>
<td>Kovilpatti</td>
<td>15</td>
</tr>
<tr>
<td>50.</td>
<td>Raja Hr. Sec. School</td>
<td>Ettayapuram</td>
<td>15</td>
</tr>
<tr>
<td>51.</td>
<td>Nadar Hr. Sec. School</td>
<td>Kovilpatti</td>
<td>15</td>
</tr>
<tr>
<td>52.</td>
<td>Everest Mariappa Nadar Hr. Sec. School</td>
<td>Kovilpatti</td>
<td>15</td>
</tr>
<tr>
<td>53.</td>
<td>Siyamala Hr. Sec. School</td>
<td>Illupaiyurani</td>
<td>15</td>
</tr>
<tr>
<td>54.</td>
<td>Kammavar Hr. Sec. School</td>
<td>Kovilpatti</td>
<td>15</td>
</tr>
<tr>
<td>55.</td>
<td>Govt. High School</td>
<td>Mavadipannai</td>
<td>10</td>
</tr>
<tr>
<td>No.</td>
<td>Name of the school</td>
<td>Place</td>
<td>No. of sample taken</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------</td>
<td>---------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>56.</td>
<td>Seena Vana Govt. High School</td>
<td>Tuticorin</td>
<td>14</td>
</tr>
<tr>
<td>57.</td>
<td>Govt. High School</td>
<td>Sundankottai</td>
<td>15</td>
</tr>
<tr>
<td>58.</td>
<td>Govt. Girls’ High School</td>
<td>Eral</td>
<td>15</td>
</tr>
<tr>
<td>59.</td>
<td>Govt. High School</td>
<td>Kurukuchalai</td>
<td>15</td>
</tr>
<tr>
<td>60.</td>
<td>Govt. High School</td>
<td>Ettayapuram</td>
<td>10</td>
</tr>
<tr>
<td>61.</td>
<td>Ranjith Aron High School</td>
<td>Ananthapuram</td>
<td>15</td>
</tr>
<tr>
<td>62.</td>
<td>Govindammal High School</td>
<td>Kayamozhi</td>
<td>15</td>
</tr>
<tr>
<td>63.</td>
<td>St.Joesph High School</td>
<td>Chokankudiyiruppu</td>
<td>15</td>
</tr>
<tr>
<td>64.</td>
<td>Hindu Mariamman High School</td>
<td>Sathankulam</td>
<td>12</td>
</tr>
<tr>
<td>65.</td>
<td>Chinnamoni Nadar High School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>66.</td>
<td>St.Mary’s High School</td>
<td>Kacchinavilai</td>
<td>14</td>
</tr>
<tr>
<td>67.</td>
<td>C.M. High School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>68.</td>
<td>Arulneri Hindu High School</td>
<td>Sonaganvilai</td>
<td>15</td>
</tr>
<tr>
<td>69.</td>
<td>T.M. Mechavai High School</td>
<td>Ottapidaram</td>
<td>15</td>
</tr>
<tr>
<td>70.</td>
<td>Parvathi High School</td>
<td>Illupaiyurani</td>
<td>15</td>
</tr>
<tr>
<td>71.</td>
<td>Hindu Nadar Kamaraj High School</td>
<td>Solapuram</td>
<td>10</td>
</tr>
<tr>
<td>72.</td>
<td>Govt. Hr. Sec. School</td>
<td>Kommatikottai</td>
<td>15</td>
</tr>
<tr>
<td>73.</td>
<td>St.Lucia High School</td>
<td>Kurumbur</td>
<td>15</td>
</tr>
<tr>
<td>74.</td>
<td>Govt. High School</td>
<td>Sivakalai</td>
<td>15</td>
</tr>
<tr>
<td>75.</td>
<td>St.John’s Hr. Sec. School</td>
<td>Nazareth</td>
<td>10</td>
</tr>
<tr>
<td>76.</td>
<td>Rosammal Hr. Sec. School</td>
<td>Tuticorin</td>
<td>15</td>
</tr>
<tr>
<td>77.</td>
<td>Das Navis Matha Hr. Sec. School</td>
<td>Tuticorin</td>
<td>14</td>
</tr>
</tbody>
</table>

### 5.9. SAMPLE

The 156 schools were stratified on the basis of Type of school (*Boys’, Girls’ and Co-educational*) and Locality of school (*Rural, Urban* and *Semi-urban*). Thereafter from each stratum 5% - 7% schools were taken by random. After fixing the schools, fifteen standard IX students from each sample school were randomly chosen to form the sample of the study. The nature of the final sample of the study is detailed below.
Table 5.3.
Locality-wise distribution of the sample

<table>
<thead>
<tr>
<th>Locality</th>
<th>Population</th>
<th>Sample drawn</th>
<th>Percentage of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>10,243</td>
<td>692</td>
<td>6.76%</td>
</tr>
<tr>
<td>Urban and Semi-urban</td>
<td>8,928</td>
<td>428</td>
<td>4.79%</td>
</tr>
</tbody>
</table>

Table 5.4.
Gender-wise distribution of the sample

<table>
<thead>
<tr>
<th>Gender</th>
<th>Population</th>
<th>Sample drawn</th>
<th>Percentage of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>10,458</td>
<td>530</td>
<td>5.07%</td>
</tr>
<tr>
<td>Girls</td>
<td>8,713</td>
<td>590</td>
<td>6.77%</td>
</tr>
</tbody>
</table>

Table 5.5.
Community-wise distribution of the sample

<table>
<thead>
<tr>
<th>Community</th>
<th>Population</th>
<th>Sample drawn</th>
<th>Percentage of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC / ST</td>
<td>4,760</td>
<td>212</td>
<td>4.45%</td>
</tr>
<tr>
<td>MBC / BC</td>
<td>13,299</td>
<td>856</td>
<td>6.44%</td>
</tr>
<tr>
<td>OC</td>
<td>1,112</td>
<td>52</td>
<td>4.68%</td>
</tr>
</tbody>
</table>

From the selected 1120 subjects 120 of them were randomly taken for an in-depth study of the psychological variables - **Reading readiness**, **Reading attitude** and **Cognitive style**. The following are the schools where the investigator selected sample for an in-depth study.

Table 5.6.
List of schools selected for in-depth study

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the school</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Caldwell Boys' Hr. Sec. School</td>
<td>Tuticorin</td>
</tr>
<tr>
<td>2.</td>
<td>Holycross Girls' Hr. Sec. School</td>
<td>Tuticorin</td>
</tr>
<tr>
<td>3.</td>
<td>Govt. High School</td>
<td>Tuticorin</td>
</tr>
<tr>
<td>4.</td>
<td>Sinnamoni Nadar High School</td>
<td>Tuticorin</td>
</tr>
<tr>
<td>5.</td>
<td>Govt. Boys' Hr. Sec. School</td>
<td>Kovilpatti</td>
</tr>
<tr>
<td>6.</td>
<td>Govt. Girls' Hr. Sec. School</td>
<td>Kovilpatti</td>
</tr>
<tr>
<td>7.</td>
<td>Siyamala Hr. Sec. School</td>
<td>Illupaiyurani</td>
</tr>
<tr>
<td>8.</td>
<td>St. Joseph High School</td>
<td>Chokankudiyiruppu</td>
</tr>
</tbody>
</table>
5.10. RESEARCH TOOLS

The investigator constructed four Research Tools with the help of her research guide and ELT specialists. The details of the research tools are given below.

Table 5.7.

Tool 1: Test on Reading comprehension

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Author</td>
<td>Ms. A. JOYCILIN SHERMILA (Investigator)</td>
</tr>
<tr>
<td>2. Level</td>
<td>Secondary Students</td>
</tr>
<tr>
<td>3. Pattern</td>
<td>Objective type</td>
</tr>
<tr>
<td>4. Duration</td>
<td>One hour and thirty minutes.</td>
</tr>
<tr>
<td>5. Reliability and Validity</td>
<td>This tool is specially constructed for this study. Reliability and validity have been checked.</td>
</tr>
</tbody>
</table>

Table 5.8.

Tool 2: Test on Reading readiness

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Author</td>
<td>Ms. A. JOYCILIN SHERMILA (Investigator)</td>
</tr>
<tr>
<td>2. Level</td>
<td>Secondary Students</td>
</tr>
<tr>
<td>3. Pattern</td>
<td>Objective type</td>
</tr>
<tr>
<td>4. Duration</td>
<td>20 minutes</td>
</tr>
<tr>
<td>5. Reliability and Validity</td>
<td>This tool is specially constructed for this study. Reliability and validity have been checked.</td>
</tr>
</tbody>
</table>

Table 5.9.

Tool 3: Tool for Reading attitude

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Author</td>
<td>Ms. A. JOYCILIN SHERMILA (Investigator)</td>
</tr>
<tr>
<td>2. Level</td>
<td>Secondary Students</td>
</tr>
<tr>
<td>3. Pattern</td>
<td>Marking preference</td>
</tr>
<tr>
<td>4. Duration</td>
<td>7 to 10 minutes</td>
</tr>
<tr>
<td>5. Reliability and Validity</td>
<td>It is specially constructed for this study. Reliability and validity have been checked.</td>
</tr>
</tbody>
</table>
Table 5.10.

Tool 4: Tool for Cognitive style

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Author</td>
<td>Ms. A. JOYCILIN SHERMILA (Investigator)</td>
</tr>
<tr>
<td>2. Level</td>
<td>Secondary Students</td>
</tr>
<tr>
<td>3. Pattern</td>
<td>Identifying hidden figures.</td>
</tr>
<tr>
<td>4. Duration</td>
<td>Maximum of 20 seconds for each hidden figure.</td>
</tr>
<tr>
<td>5. Reliability and Validity</td>
<td>It is specially constructed for this study. Reliability and validity have been checked.</td>
</tr>
</tbody>
</table>

5.11. DATA COLLECTION

Schools as well as subjects were selected at random. The investigator prepared a personal data form to collect information from the sample regarding the background characteristics.

The Test of Reading comprehension was administered on all the 1120 subjects. However the tools to study the psychological variables Reading readiness, Reading attitude and Cognitive style were administered only on 120 randomly chosen subsample. The tools were administered with the previous permission from the heads of schools. The English teachers in the respective schools helped the investigator in contacting the subjects, giving instructions to them etc. The investigator administered the tools personally. It took nearly one hour and thirty minutes to answer all the items in the test of Reading comprehension and it took another 30 minutes to answer all the items in the Reading readiness and Reading attitude tools. The investigator administered the tool on Cognitive style personally to each student. Since the investigator contacted the subjects personally, all of them had responded properly. The responses were scored and the data were organized in tabular form for analysis.

5.12. LIMITATIONS

Tuticorin district is in the Southern most part of India. As the samples drawn are within a particular district they have the same language, culture and customs. Therefore, the results derived from the study may not be applicable to the subjects of other states and districts who are likely to differ in language (including dialectical form) or culture.

Though there are many psychological and sociological variables influencing the skill of Reading comprehension in English the investigator has selected only three
psychological variables - Reading readiness, Reading attitude and Cognitive style. Thus the study cannot present all the factors influencing the skill of Reading comprehension in English.

5.13. PROPOSED STATISTICAL TECHNIQUES

The investigator intends to apply the following statistical techniques to test the hypotheses.

i. Percentage:

\[ \text{Percentage} = \frac{X}{N} \times 100 \]

\( X = \text{Observed frequency} \)
\( N = \text{Total no. of items} \)

ii. Coefficient of Correlation:

\[ r = \frac{N \sum XY - (\sum X)(\sum Y))}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}} \]

\( X = \text{Items in one distribution} \)
\( Y = \text{Items in other distribution} \)
\( \sum XY = \text{Sum of XY} \)
\( \sum X = \text{Sum of the items in X} \)
\( \sum Y = \text{Sum of the items in Y} \)
\( \sum X^2 = \text{Sum of the squares of items in X} \)
\( \sum Y^2 = \text{Sum of the squares of items in Y} \)
\( N = \text{Total no. of items} \)

(John W. Best, 1992, p.1350)

iii. ‘t’ - Test:

\[ t = \frac{X_1 - X_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}} \]

\( \sigma_1, \sigma_2 = \text{Standard deviations of the two groups.} \)
\( N_1, N_2 = \text{Total no. of items in each group} \)
\( X_1, X_2 = \text{Means of two groups} \)

(Ibid. p.272)
iv. \( \chi^2 \) - Test (Chi - Square):

\[
\chi^2 = \frac{\Sigma (f_o - f_e)^2}{f_e}
\]

- \( f_o \) - observed frequency
- \( f_e \) - expected frequency
- \( \Sigma \) - Sum of

where
- \( df \) - (number of rows - 1) (number of columns - 1)
- \( df \) - degrees of freedom

(Ibid. p.352)

v. 'F' - Test (Analysis of Variance):

\[
F = \frac{\frac{MS_b}{MS_w}}
\]

\[
MS_b = \frac{SS_b}{df_b}
\]

\[
SS_b = \frac{(\Sigma X_1)^2}{n_1} + \frac{(\Sigma X_2)^2}{n_2} + \cdots + \frac{(\Sigma X)^2}{N}
\]

\[
MS_w = \frac{SS_w}{df_w}
\]

\[
SS_w = \Sigma X_1^2 - \frac{(\Sigma X_1)^2}{n_1} + \Sigma X_2^2 - \frac{(\Sigma X_2)^2}{n_2} + \cdots 
\]

- \( SS_w \) - Sum of Squares within sets
- \( SS_b \) - Sum of Squares between sets
- \( MS_b \) - Mean Squares between sets
- \( MS_w \) - Mean Squares within sets
- \( df_b \) - degrees of freedom between sets
- \( df_w \) - degrees of freedom within sets.

(Ibid. p.352)

5.14. CONCLUSION

The responses of the subjects are scored and the data have been tabulated and subjected to suitable statistical analysis for testing the proposed null hypotheses.
5.15. REFERENCE


