CHAPTER - III

The present chapter contains the statement of the problem, the research design, hypotheses extrapolated and a description of the method followed in the conduct of the study.

THE PROBLEM

The exhaustive review of literature in this area of research has directed the present study to focus on an investigation in explanation of facts regarding the differential academic performance existing in different types of schools. The statement of the problem runs as follows:

"Cognitive ability, school environment, socio-economic status, teacher effectiveness and performance in English among IX standard students".

RESEARCH DESIGN

The design of the present research has been fabricated envisaging a multiple correlation between cognitive ability, social, psychological and education variables and step wise regression analysis were used. The variable in question was the performance of the students in English, the variables in explanation were cognitive ability and the social psychological variables in terms of school climate, teacher effectiveness and socio-economic status.
There are five types of schools namely Aided, Corporation, Government, Matriculation and CBSC Schools. The three types of gender classification have been boys, girls and co-education students.

<table>
<thead>
<tr>
<th>TYPES OF SCHOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aided School</td>
</tr>
</tbody>
</table>

The research thus fitted into a factorial design and the research questions for which the design was appropriate were as follows:

1. To what extent the performance in English of 9th std students is influenced by cognitive ability, teacher effectiveness, school environment and socio economic status?

2. To what extent the performance in English of 9th std. students vary among the five educational systems and three gender groups?

These questions were analysed formulating suitable hypotheses, collecting appropriate data and using multivariate statistical analysis.

**HYPOTHESES**

The hypotheses for the present study were formulated in the light of an exhaustive review of related literature, evolution and extrapolations made thereon, in precise terms. The relationship between the performance in English and other relevant variables were formulated by means of a multivariate hypotheses (Kerlinger, 1973).
HYPOTHESES WITH REFERENCE TO RELATIONSHIPS

The present investigation involves a number of independent variables and one dependent variable. Hence a multivariate directional hypotheses were formulated in order to establish the relationship between the performance in English of 9th std. students and other factors. Several empirical studies have established definite directional influence of cognitive ability, teacher effectiveness, school environment and socio economic status on the performance in English of the 9th std. students.

They serve as theoretical background for the formulation of directional multivariate hypotheses, presented as follows:

1. Performance in English of 9th std. students which is dependent on grammatical factors will be classified into several other related types among the 9th std. students.

2. Performance in English of the 9th std. students will be significantly related to cognitive ability, teacher effectiveness, school environment socio economic status, gender differences and different educational system.

The above multivariate hypotheses have been split into several sub hypotheses and presented as follows on the basis of the direction of relation assumed:
1. Performance in English will be positively related to cognitive ability among 9th std boys, girls and co-education students from Government, Aided, Matriculation, CBSE, and Corporation schools.

2. Performance in English will be positively related to teacher effectiveness among 9th std boys, girls and co-education students from Government, Aided, Matriculation, CBSE and Corporation schools.

3. Performance in English will be positively related to school environment among 9th std boys, girls and co-education students from Government, Aided, Matriculation, CBSE and Corporation schools.

4. Performance in English will be positively related to the socio economic status of the ninth standard boys, girls and co-education pupils from Government, Aided, Matriculation, CBSE and Corporation schools.

HYPOTHESES WITH REFERENCE TO VARIANCE

The present study aimed to investigate the possible variance in certain social and educational factors contributing to performance in English of the 9th std students for this purpose, a theoretical frame work has been prepared and presented in the review chapter, which clearly indicated dearth of information, due to the limited number of studies. Even these sporadic studies have not shown any direction with regard to the effects. Hence it is a pioneering
exploration in the present study to investigate the effects of these factors on performance in English through an analysis of possible variance. Therefore the present study has formulated null hypotheses and presented as follows:

5. There will be no difference among the boys, girls and co-education students with respect to performance in English.

6. There will be no difference among the low, middle and high socio economic status of the students with regard to performance in English.

7. There will be no difference among the Government, Aided, Matriculation, CBSE and Corporation School students with respect to performance in English.

The hypotheses thus formulated were verified with an appropriate methodology consisting of sample selection, appropriate tool selection and adoption of proper procedure for the conduct of the study.

TOOL I: COGNITIVE ABILITY TEST

Cognitive ability test was adapted from Venugopal's test of intelligence (1986) based on Guilford model of the structure of intellect.
The main objective of the present study in including cognitive ability was to investigate the role of cognitive processes in performance in English. The cognition of concepts, their interrelationships and their application requires one to have divergent thinking to stretch one’s imagination, convergent thinking to understand relationships and evaluative, capacity to apply the understanding in proper situations. Hence Guilford’s model was used in the present study. The adopted version of the test by Venugopal (1986) was used and referred as the cognitive ability test in the present context.

DESCRIPTION

This model has identified five types of operations cognition, memory, convergent production, divergent production and evaluation, five kinds of contents - audio figural, visual figural, symbolic, semantic and behavioural, six types of products-units, classes, relations, systems, transformations and implication.

ADMINISTRATION

The test was administered to individual students in one session. A time limit of one and half hours was prescribed to the subjects for completing the test. The following general instructions were given, "The following questions refer to certain aspects of your general ability, specific directions are provided wherever necessary. Read them carefully and write your answers in the space against each question. Do not spend too much time on any single item. You are given an hour to complete and scored according to the scoring instructions provided by Venugopal (1986)."
SCORING

The test has sub divisions such as cognition, memory, convergent production, divergent production and evaluation. For the section of cognition, a maximum score of 28 and a minimum of 0 was assigned. For the second section on memory, a maximum of score of 34 and a minimum of 0 was assigned. In the same manner, for convergent production, a maximum of 46 and a minimum of 0 was assigned. Divergent production was assigned a maximum of 34 and a minimum of 0. A total score for all the sections was assigned as 220 (maximum possible score) and treated as the composite score of cognitive ability. The maximum score possible was 220 and the minimum 0.

TOOL II: LANGUAGE TEST

This tool was carefully prepared by the investigator after scrutinising all the question papers from different types of schools and the opinions of experts were also taken into consideration.

DESCRIPTION

In the language test sub-division I grammatical concept of voice which comprises of active and passive. The verb forms is given in bracket for each of the four sentences and the students have to appropriately fill up the blanks with the correct form of the verbs (either active or passive). The question given was :-
I. **REWRITE THE FOLLOWING SENTENCES WITH THE CORRECT VOICE FORMS OF THE VERBS GIVEN IN BRACKETS**

1. The cow ................ (regard) as a sacred animal by the Hindus.
2. Gandhiji ................. (born) on 2nd October 1869.
3. A thief ................. (arrest) yesterday
4. Goats ........... (destroy) the garden last evening.

Sub division II tests the tense form of the given verb. Under this five items are given and the blanks are to be filled with the verbs in the correct tense form of the verbs given in brackets.

The question is :-

II. **REWRITE THE FOLLOWING SENTENCE WITH THE CORRECT TENSE FORM OF THE VERBS GIVEN IN BRACKETS.**

1. The dog ........... (bark) at strangers.
2. When I .................. (travel) to Delhi, I happened to meet my friend.
3. Just now Kamala ........ (arrive)
4. The bridge ............ (complete) by this time next year.
5. Rooms ................. (clean) once a week.

Change of speech from direct to indirect is tested in subdivision III under this three items are given in the direct speech. The sentences are given in the direct speech. The students are expected to know the rules pertaining to the conversion from direct to indirect such as removal of punctuation marks, question mark and inclusion of ‘that’ and stating the question in the statement form. The items are as follows :
III. CHANGE INTO INDIRECT SPEECH

1. Kala said to Rani, 'Why do you want to learn French'?
2. The teacher said to the boys, 'What are you doing now'?
3. He said, 'I was going to the hospital'.

In the order of difficulty sub division IV is more complex than the previous subdivisions. Under this three items are given to test the knowledge of students regarding conversion from indirect to direct speech such as the exact words of the speaker to be filled into the sentence with appropriate punctuation marks. Subdivision IV is as follows:

IV. CHANGE INTO DIRECT SPEECH

1. The teacher ordered the boys not to make noise.
2. You asked me yesterday whether I would lend you my atlas.
3. He told him that he was going to the market them.

The fifth sub division tests the various degrees of comparison such as positive, comparative and superlative. For changing into the other degrees as directed involves clues for conversion such as use of 'than' in comparative, use of 'the' for superlative and use of 'as' etc. for positive degree is necessary. The following five items are given in subdivision V.

v. GIVE THE OTHER DEGREES AS STATED IN THE BRACKETS

1. No other epic is so popular as Ramayana (into comparative)
2. Elephant is one of the largest land animals (into positive)

3. Latha is more industrious than any other girl in the class (superlative)

4. The sun is bigger than any other planet (into superlative)

5. The fox is the cleverest of all animals (into positive)

Sub division VI tests the familiarity of phrases by students. The previous knowledge on phrases is tested in a small paragraph. Five blanks are given and the students have to read the small paragraph carefully and insert one of the given phrases in the appropriate blank provided. Sub division VI is as follows:

VI. FILL IN THE BLANKS CHOOSING THE SUITABLE PHRASE IN THE LIST
(Took off, Get at, Set in, Called off, Put on)

When rain ....................... the match had to be ................. The players .............. their uniforms and ................. rain coats. Before they could .............. any shelter they were completely drenched.

Sub division VII comprises of five items in which some words are underlined and they have to be rewritten using the correct infinitive form of the words underlined. This tests the knowledge of infinitives acquired by the students by this time. Sub division VII is as follows:

VII. REWRITE THE SENTENCES USING THE INFINITIVE FORM OF THE WORDS UNDERLINED

1. My mother taught me how I should prepare tea
2. I don't know where I am going
3. The desk is so heavy that he cannot lift it
4. They hope that they will win the match.
5. Vasu likes eating sweets.

Sub division VII tests the knowledge of students on gerunds. Gerunds are used as nouns as well as participles. This subdivision tests the knowledge of students in the usage of appropriate gerunds.

VIII. REWRITE THE SENTENCES CHANGING THE WORDS UNDERLINED INTO A GERUND

1. He hates going out in the hot sun.
2. To sleep is necessary for good health.
3. He prefers listening to songs.
4. To help the poor was his motto.
5. To swim in a large ocean is thrilling.

There are five items in subdivision IX. Knowledge of different types of sentences such as simple, compound and complex sentences is essential for the students at this stage. The following sub-division tests the previous knowledge and experience of the students with such items given below.

IX. COMBINE THE FOLLOWING PAIRS OF SENTENCES USING THE WORD/PHRASE GIVEN IN BRACKETS.

1. There was little rain. The crops have dried up (As).
2. She is not an honest girl. But she behaves like one (as if)
3. I did not know the secret. I did not tell you (if)
4. You keep quiet. Otherwise you will be punished (Unless)
5. He pulled the chain. The train stopped (After)

There are various sentence patterns such SV, SVO, SVIODO, SVC, SVA, etc. students at this stage are required to have knowledge of the patterns cited above. This is tested in subdivision X which comprises of five sentences.

X. IDENTIFY THE SENTENCE PATTERNS

1. Learning Sanskrit is difficult
2. The examiner gave him a deserving gift
3. Latha sings sweetly
4. Nalini is a doctor
5. The postman delivers letters

Exercise such as complete the dialogue is given as the last subdivision in the language test which involves a lot of thinking before attempting to do, on the part of students. If one person’s speech is given and from the clue given for the other person’s speech, the students can use the clues and fill up the speech of whichever person is involved in the dialogue. Subdivision XI is given below.
XI. COMPLETE THE DIALOGUE

Ravi : I'm going to Bombay tomorrow
Rajesh : How.... ?
Ravi : I'll stay there for a month
Rajesh : ........ train?
Ravi : No. I am going by car.
Rajesh : Who.............?
Ravi : No one is coming with me.
Rajesh : .......... hotel
Ravi : No. I'll stay with my friend
Rajesh : ............
Ravi : He is an officer in the navy.

As knowledge of English Grammar is declining in Indian schools especially in schools which have English as second language, students feel diffident to communicate both in the spoken and written form, this is mainly attributed to their lack of mastery of grammatical skills, hence the researcher gave a language test focussing on usage of grammar to IX standard students.

ADMINISTRATION

If was administered individually to students of different types of schools.
SCORING

Score ‘One’ was given to right response and ‘Zero’ for wrong response.

TOOL 3: MANJUVANI’S PERCEIVED SCHOOL ENVIRONMENT INVENTORY (1988)

The investigator required an assessment of school climate, inclusive of the classroom. Manjuvani’s inventory was selected to be most suitable because it consisted of relevant items pertaining to conducive environment for learning. As the present study had focussed on student and his or her performance, it was thought relevant to obtain the perception of the student, the beneficiary of the school, especially with reference to the learning environment. Hence the selection of Manjuvani’s school environment inventory.

DESCRIPTION

The scale consisted of 50 items factor analysed on oblique rotation. Thus seven factors have been identified and each factor has been described in terms of low score and high score description. It is a conglomeration of school rules, regulations, discipline, teacher, teaching methods, inter - personal interaction between teacher - student on the whole. The student is provided with a three point rating scale on each of the factor and asked only to tick the most appropriate responses as it fits their perception. There was no time limit for the test.
The subjects were asked to sit comfortably and the inventories were distributed to a group of students at least 15 at a time. The instructions were as follows: "Some simple statements pertaining to the events in your schools are given. You are requested to go through these statements carefully. After reading, mark your opinions in the answer sheet attached. Three lines are given against each number. Among them first line represents "many times" second line "sometimes" and third line "rarely". Mark your opinion by putting tick mark (✔) in one of the three lines.

Example: My teacher insults students.

<table>
<thead>
<tr>
<th>Many times</th>
<th>Sometimes</th>
<th>Rarely</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the example the first line "many times" is ticked. This means that in that particular school teachers insult the students many times.

If you have any doubt please ask. Answer all the terms without leaving any one".

These instructions were printed in the inventory and the students are asked to go through the instructions carefully and were asked to clarify any doubt if necessary. They were instructed not to raise any doubts in the middle of the test. The data thus obtained were then scored according to manual.
The scoring was done in the positive direction which means that if student perceives a positive and conducive environment for learning the more will be the score on climate. Similarly, negative perception will be securing only low marks, thus the scores range from 50 to 150.

**TOOL 4: VEDANAYAGAM'S TEACHER EFFECTIVENESS SCALE (1994)**

Vedanayagam's (1994) perceived teacher effectiveness scale was chosen in the present study as it is a scale of student evaluation done in the indigenous setting. It was also easy to administer and the direction were simple.

**DESCRIPTION**

The rating scale for student evaluation of teaching effectiveness consists of 35 teacher characteristics or teaching behaviours which are perceived by students as important in contributing to effective teaching.

**ADMINISTRATION**

The test was a paper pencil test and hence administered as a group test with the following instruction.

"Please rate your teacher on each characteristic on a five-point scale which forms a continuum with 5 denoting ‘very good’ at the highest and 1 denoting ‘very poor’ at the lowest."
Please indicate your rating for your teacher on each characteristics by drawing a circle around the appropriate number among those given against it.

e.g. PUNCTUALITY 1 2 3 4 5

Circle around ‘4’ as shown above, if you think the punctuality of the teacher is "Good".

There was no time limit and the test was scored according to the scoring instructions.

SCORING

The scoring ranged from a minimum of 35 to a maximum of 175. The data collected was appropriately scored (vide Appendix)


Kuppuswami's socio-economic status scale (1951) as adapted by Vasanthi consisted of three variables education, occupation and income as the components of socio-economic status. The three components comprise various classifications such as the following.
EDUCATION

The variable of education has been classified as illiterates with no formal education and semi-literates those with elementary education, literates - college to high school education, graduation to post-graduation and highly professional educational qualification (MBBS, BE, CA).

OCCUPATION

The variable include employed, unskilled, semi-skilled and skilled jobs. These were described in the following manner.

UNSKILLED

Occupations of a lower cadre in nature such as daily wage earners, coolie, watchman, guide, house-broker, bus conductor, guard, shop-keeper and shop owner.

SEMI-SKILLED

The skills of lower level such as clerk, stenographer, typist, supervisor, manager, officer, painter and police.

SKILLED

The skilled occupations themselves have been classified into low, middle and high skilled jobs.
LOW

Train driver, automobile driver, telephone operator, carpenter and printing press composer.

MIDDLE

Artist, workshop owner, nurse, welder and fitter.

HIGH

Chartered accountant, doctorate degree holder, master's degree holder, M.Tech., and M.E. engineers and scientists.

INCOME

The income classification was made on the basis of the cost index prevailing at present in the Indian conditions. It extends from Re.1/- to Rs.2,000/- and above.

These classifications were modifications of Kuppuswamy's classification based on the present socio-economic status conditions. The assessment was done for the parents of the pupils studied. The final scale was designed as follows:

<table>
<thead>
<tr>
<th></th>
<th>Monthly Income</th>
<th>Educational Qualification</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any other Earning Member</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ADMINISTRATION

The personal data sheet of socio-economic status was distributed to the pupils in order to elicit information regarding the income, education and occupation of the parents.

SCORING REGARDING QUALIFICATION

A score of "0" was given for illiterates, "1" one upto SSLC, "2" for higher secondary, "3" for under graduate, "4" for post graduate and "5" for professional qualification.

SCORING FOR OCCUPATION

A score of "0" for no occupation, "1" for business, "2" for government employee, "3" for technicians, "4" for the professionalist and officer and "5" for others.

SCORING FOR INCOME GROUPING

A score of "1" one was given for income upto to Rs.1,500/- "2" two for income from 1501 upto 5000, "3" three for income above Rs.5000/-. 

METHODOLOGY

The nature of this research is descriptive, variables such as intelligence, socio-economic status, teacher effectiveness, school environment, and language test were administered to a sample of 610 students studying in CBSE, Matriculation, Aided, Corporation and Government schools, cut of the five
SCHOOL WISE DISTRIBUTION

Percentage

Sacred Heart Matriculation School: 7.7
Saldapet Model School: 6.39
Nungambakkam Corporation School: 6.39
Chindiripet H.Sc.: 5.08
Villivakkam Govt. School: 6.07
N.K.T. National Aided School: 5.3
Kendre Vidyalaya: 5.8
Purasevakkam Corporation School: 5.08
DISTRIBUTION OF SAMPLE

- Boys: 30.49%
- Girls: 23.28%
- Co-education: 46.23%
tools used, our were standardized such as Manjuvanis’ (1989) School Environment Inventory (SEI), Vasanthis (1991) Adaptation of Kuppuswamy’s Socio Economic Status Scale, Rating Scale for Student Evaluation of Teaching, Andal (1989) Cognitive ability test. The language test was prepared by the investigator. The techniques such as multiple correlation, and stepwise regression analysis were used.

SAMPLE

A sample of 610 students were selected from population of IX standard students from Matriculation, CBSE, Aided, Government and Corporation schools.

<table>
<thead>
<tr>
<th>Type of School</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aided School</td>
<td>132</td>
</tr>
<tr>
<td>Corporation</td>
<td>79</td>
</tr>
<tr>
<td>Government School</td>
<td>141</td>
</tr>
<tr>
<td>Matriculation School</td>
<td>190</td>
</tr>
<tr>
<td>CBSC School</td>
<td>68</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>610</strong></td>
</tr>
</tbody>
</table>

DESCRIPTION OF THE VARIABLES

The study involved multiple variable and therefore a multivariate design was chosen. The variables were classified into independent and dependent. The independent variables in the present study are cognitive ability, school environment, socio-economic status and teacher effectiveness.
The dependent variable of the present study is student’s performance in English.

PILOT STUDY

The research study necessitated a pilot study since new and available instruments had to be tested for reliability and validity, to establish the workability and suitability for the population chosen. The sample for the pilot study consists of 30 students selected from a population of IX standard students for testing the reliability and validity of the five tools viz English language test, Andal’s (1989) cognitive ability test, Manjuvani’s (1989) school environment inventory, Vedanayagan’s teacher effectiveness scale (1994).

The table presented below has provided the reliability and validity of each instrument used for the present research.

**TABLE 2**

**TABLE REPRESENTING THE RELIABILITY AND VALIDITY FOR THE TOOLS USED**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation Coefficient</th>
<th>Reliability Coefficient</th>
<th>Validity Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive ability Test</td>
<td>0.7364</td>
<td>0.8482</td>
<td>0.7996</td>
</tr>
<tr>
<td>English Language Test</td>
<td>0.8812</td>
<td>0.9368</td>
<td>0.9104</td>
</tr>
<tr>
<td>School Climate</td>
<td>0.8957**</td>
<td>0.9450**</td>
<td>0.9214**</td>
</tr>
<tr>
<td>Teacher Effectiveness</td>
<td>0.798</td>
<td>0.8878</td>
<td>0.8471</td>
</tr>
</tbody>
</table>

** Significant at 0.01 level.
The values of reliability have been worked out using split half reliability and corrected with Spearman - Brown prophecy formula. The values indicate a very high statistical significance manifesting high reliability. Similarly the criterion validity was also found to be high. It may therefore be inferred that all the tools selected and constructed have been highly reliable and valid.

MAIN STUDY

The ninth standard students were tested for the performance in English and cognitive ability. The other social and educational variable tools which were found workable in the pilot study were used. They were as follows:

Tool I  English Language Test

Tool II  Cognitive Ability Test, Andal's (1989)

Tool III  Manjuvani's (1989) School Environment Inventory (SEI)

Tool IV  Vedanayagam's Teacher Effectiveness Scale (1994)


In conducting the investigation, the permission and co-operation of the Heads of schools were sought and the willingness and co-operation of the ninth standard students who served as the sample of the study were also established.
The investigator established rapport with the students. The booklets consisting of all the tools used for the present study were distributed to ninth standard students by the investigator.

The data were then collected, scored and subjected to statistical analysis.

The investigation has also assumed a study of variance among different groups and hence the technique of analysis of variance (ANOVA) was also applied and presented in the following chapter.