CHAPTER - 8

EPILOGUE

8.1 A BRIEF SUMMARY OF THE WORK DONE

8.2 MAJOR FINDINGS

8.3 FUTURE RESEARCHES
8.1 A BRIEF SUMMARY OF THE WORK DONE

The prime objective for undertaking this research was to study the cognitive growth and development of Gujarati tribal children of grades I to IV and explore relationships between two measures of a dependent variable (cognitive ability) and twelve different independent variables.

Two measures of the dependent variable were:

(a) the composite scores of four subtests of Cog AT
(b) the composite scores of seven PiCTs.

Twelve independent variables included in this study were:

(a) intelligence (b) visual recall - immediate and delayed (c) number of siblings (d) birth - order (e) pupils' inclination toward education (f) pupils' personality traits (g) socio-economic status of parents (h) educational qualifications of teachers (i) teaching experience of teachers (j) teachers' interest in academic growth (k) teachers' effectiveness in creating academic interest in pupils and (l) academic achievement of pupils.

Non-verbal (pictorial) subtests, namely, classification, analogy, comprehension and following instructions, each consisting of 15 items, were developed anew to measure cognitive ability of tribal pupils of grades I and II. Four verbal subtests were also developed to measure cognitive ability of pupils of grades III and IV. Seven Piagetian conservation tasks, namely, (a) length (b) seriation (c) number (d) area (e) mass (f) weight and (g) volume were incorporated in this study to have a second measure of cognitive ability.

Intelligence was measured by "Incomplete Man" (grades I-II) and "Draw-a-Man Test" (grades III-IV). Visual recall (immediate and delayed) was measured by adapted (and remodeled for tribal children) test of Sudha Patel for Gujarati children. Twelve different achievement tests were newly constructed to measure academic achievement in Gujarati, Mathematics and Environment for tribal pupils.
of grades I to IV. Information data sheet to collect data about the pupils and the parents was prepared. It provided information for independent variables- (c), (d), (e), (f) and (g) To furnish data for variables - (h), (i), (j) and (k) - about teachers, one more information data sheet was used.

The final sample selected from six primary schools of three districts in Gujarat consisted of 829 subjects (B:519, G:310). The gradewise break up was 199, 211, 212 and 207 for grades I to IV.

The sample was selected by stratified cluster sampling method. These 829 subjects were administered cognitive ability tests, intelligence tests, the visual-recall test and achievement tests. To study the relationship between the dependent and independent variables, 25% pupils in each class was selected by drawing out slips of papers from a card-board box. Thus the final randomised proportionate sample actually used in canonical analysis was consisted of 182 subjects drawn from the total sample of 829 subjects. These pupils were administered seven Piagetian conservation tasks individually. Information about pupils and parents was collected using information data sheets that were filled in by teachers or the investigator herself. Twenty-four class teachers furnished necessary data by filling in information data sheets for teachers.

The data available in ordinal scales were given arbitrary weightages and were converted into weighted scores. Descriptive statistics were computed for all the variables. To test significance of the differences between two means of two different groups (sex-wise or grade-wise), t-test was applied. SPSS* MANOVA package was used for stepwise multiple regression analysis and canonical analysis. The results were interpreted and the hypotheses built in were tested.

8.2 MAJOR FINDINGS

(1) In non-verbal cognitive ability tests (CogAT) for grades I-II, means of boys and girls of grade II were always higher than those of grade-I, subtest wise. Similarly in verbal CogAT, for grades III-IV, subtestwise means
of boys and girls of grade IV were also higher than those of grade III. It was, therefore, concluded that cognitive ability of tribal pupils of grades I to IV was suitably measured by newly developed two tools of CogAT.

(2) Sex differences were observed in grades III and IV only, on CogAT, in favour of girls.

(3) Mean scores on all the seven PiCTs went on increasing from grades I to IV, in a gradual harmony.

(4) No significant sex-difference had been found in grades I to IV on the composite scores of seven PiCTs.

(5) More than 75 percent pupils had 3 or more siblings.

(6) More than 75 percent pupils were first to third borns.

(7) Tribal children had a positive inclination towards education.

(8) The frequency distribution of scores on intelligence tests was very close to the normal probability curve.

(9) Tribal children had a normal memory span.

(10) The scores on personality traits were normally distributed.

(11) Tribal children fared satisfactorily on achievement tests.

(12) Parents of tribal children were socio-economically disadvantaged.

(13) Most of the teachers (grades I to IV) in tribal primary schools were trained up to Jr.P.T.C., had teaching experience of less than 5 years and were interested in their own academic growth as well as in that of pupils.

(14) Three independent variables, namely, number of siblings \( (X_1) \), educational qualifications of teachers \( (X_2) \) and academic achievement of pupils \( (X_3) \) had combined effect of 32.25% for predicting cognitive ability scores on CogAT, they together accounted for 12.421% variance of cognitive ability.
scores; the regression equation to predict cognitive ability score on CogAT \( (Y_1') \) was:

\[
Y_1' = 25.62 + 0.74 \times X_3 + 1.83 \times X_9 + 0.14 \times X_{12}
\]

(15) Only one independent variable, namely, pupils' inclination towards education \( (X_s) \) was effective to the extent of 25.4% for predicting cognitive ability on PiCT; it accounted for 6.453% variance of conservation scores, the regression equation to predict the score on PiCT \( (Y_2') \) was:

\[
Y_2' = 5.14 + 0.21 \times X_s
\]

(16) For cognitive ability as measured by canonical variable CogAT, only two covariates, namely, number of siblings and educational qualifications of teachers were found prominent, their respective values of canonical correlations being .63 and .61; their respective t-values were 2.68 and 2.17, significant at .008 and .031 levels.

(17) For cognitive ability as measured by canonical variable PiCTs, only one covariate, namely, pupils' inclination towards education was found significant, its value of canonical correlation being .64; its t-value was 2.65 which was significant at .009 level.

(18) The outcomes of results from stepwise multiple regression analysis as well as canonical analysis were very similar and strongly supported each other.

8.3 FUTURE RESEARCHES

The end of one research is the beginning of another and probably many more. For the present investigator, there can be a sense of some achievement but never of perfection.

Proximate researches that can now be undertaken are the standardisation of the cognitive ability tests, visual-recall test (immediate and delayed), intelligence tests -“Incomplete Man” (grades I-II), Draw-a-Man Test (grades III-IV) and twelve
achievement tests in Gujarati, Mathematics and Environment for grades I to IV. Gradewise norms on tribal children can be easily established as scores on 829 subjects are readily available.

Newly developed tests of cognitive ability and academic achievement may now be standardised on non-tribal children, as well.

Non-verbal and verbal tests of cognitive ability may be factorially analysed to study the extent of similarity they possess.

The present study was carried out on a specific sample of tribal children. It would be in the fitness of things that similar study be carried out on non-tribal children of Gujarat and have a comparative picture. It may happen that some variables like socio-economic status of parents or personality traits of pupils may turn up as prominent ones.

Looking into the controversial results obtained by multiple regression analysis and canonical correlation in this study, it is quite essential to have a probe into the relationship between cognitive ability and academic achievement using some experimental design. Also, other prominent variables-number of siblings and educational qualifications of teachers can be reexplored on non-tribal subjects.

Pupils' inclination towards education is the only prime variable that has been found prominent in relation to the scores on Piagetian conservation tasks. This attribute has been measured superficially in this study. In fact, it now needs a thorough probe into it so that its positive effect may be used in strengthening and accelerating tribal education in days to come.

In fine, this is the most humble attempt of the present investigator to complete her educational research study in good faith.