CHAPTER IV

ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

Analysis of data has been carried out keeping in mind the objective of the study. The present study intends to find out the relationship between the dependent variable viz., academic achievement and the independent variables viz., achievement motivation, adjustment, educational aspiration, pupils' attitude toward teachers, pupils' attitude toward school, perceived parental encouragement and socio-economic status and also the joint and relative contribution of these independent variables for the prediction of the dependent variable. It also attempts to find out the differences between high and low-achievers in the disadvantaged and non-disadvantaged groups with respect to the selected predictor variables.

Correlation analysis was used to find out the inter-relationship between the dependent and independent variables, regression analysis was used for the prediction of academic achievement and 't' test was used to test the

significance of the differences between high and low achievers with respect to the selected predictor variables. Analysis of data was done with the help of the computer (360 IBM) in M.S. University of Baroda. For the sake of convenience the analysis and interpretation of data has been presented in the following sequence.

4.2 DESCRIPTIVE STATISTICS OF THE VARIABLES

4.3 CORRELATION BETWEEN DEPENDENT AND INDEPENDENT VARIABLES

4.4 PREDICTION OF ACADEMIC ACHIEVEMENT

4.5 DIFFERENCES BETWEEN THE HIGH AND LOW ACHIEVERS ON THE DEPENDENT VARIABLES

4.2 DESCRIPTIVE STATISTICS OF THE VARIABLES

This section deals with the descriptive statistics of the measures of dependent and independent variables included in the study.

4.2.1 Criterion Variable

Academic achievement is the criterion variable. The achievement tests constructed and standardized by the investigator give the measures of the criterion variable. The maximum possible score on this variable is 400 and the minimum is 0. The achievement scores of disadvantaged children range

from 57 to 336 and that of the non-adisadvantaged children range from 93 to 346. The range of achievement scores reveals that there is more variation among the disadvantaged group than the non-disadvantaged group. The following table gives the distribution of achievement scores obtained by the disadvantaged as well as non-disadvantaged children.

Table 4.1 : Distribution of Achievement Scores of Disadvantaged and Non-Disadvantaged Groups

Class intervals of Achievement Scores	Number of Children	
	Disadvantaged Group	Non-Disadvantaged Group
0 - 50	-	-
51 - 100	128 (25.9)	16 (3.2)
101 - 150	186 (37.6)	180 (36.0)
151 - 200	129 (26.1)	165 (33.0)
201 - 250	42 (8.5)	104 (20.8)
251 - 300	6 (1.2)	27 (5.4)
301 - 350	3 (0.6)	8 (1.6)
351 - 400	-	-
	N = 494 (100)	N = 500 (100)

Figures within the parentheses indicate the percentage of students.

The above table shows a heavy concentration of disadvantaged children towards the lower end of the distribution. 25.9 per cent of disadvantaged children fall in the class interval 51-100 which represents a very low percentage (13.25 percentage) of achievement scores. Whereas only 3.2 per cent of non-disadvantaged children fall in the same class interval.

The distribution of achievement scores of disadvantaged as well as the non-disadvantaged children is shown in the Graph 1. The difference between the two groups in their distribution of scores can be seen from the Graph 1.

Table 4.2 gives the mean, and S.D. of the achievement scores of disadvantaged and non-disadvantaged children.

Table 4.2 : Mean and S.D. of the Achievement Scores of Disadvantaged and Non-disadvantaged Groups.

Group	N	Mean	SD
Disadvantaged	494	135.48	48.46
Non-disadvantaged	500	169.24	50.26

DISTRIBUTION OF ACHIEVEMENT SCORES OF DA AND NDA GROUPS

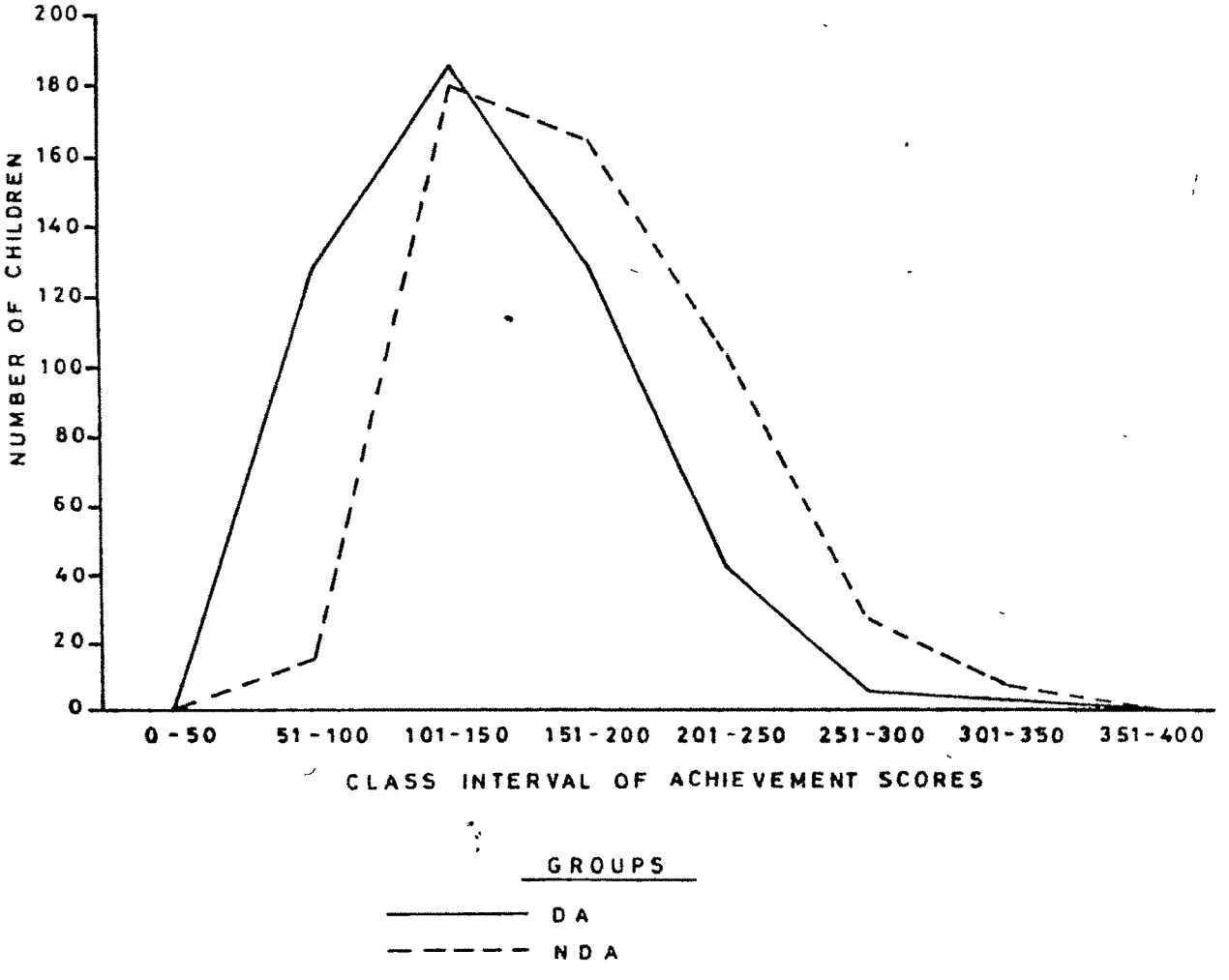


Table 4.2 shows that the mean and SD of non-disadvantaged group is higher than that of the disadvantaged group.

High and low-achievers : In order to study the factors influencing the high and low-achievers, it is necessary to divide the disadvantaged and non-disadvantaged groups into high and low-achievers based on the scores of academic achievement. There are different methods of categorization. In the present study those who are above the mean are considered as high-achievers and those who are below the mean as low-achievers.

Table 4.3 : Categorization of Students into High and Low achievers.

Group	Category	No. of Students
Disadvantages	High achievers	226
	Low achievers	268
Non-Disadvantaged	High achievers	241
	Low achievers	259

It can be seen from table 4.3 that 226 students in the disadvantaged group and 241 students in the non-dis advantaged group fall above the mean and the rest of the students i.e., 268 and 259 respectively of the disadvantaged and non-disadvantaged groups fall below the mean.

4.2.2 Predictor Variables

The predictor variables selected for this study are achievement motivation, adjustment, educational aspiration, pupils' attitude toward teachers, pupils' attitude toward school, perceived parental encouragement and socio-economic status. These variables are indicated by symbols x_1, x_2 ..... x_7 as under :

x_1 - Achievement Motivation

x_2 - Adjustment

x_3 - Educational Aspiration

x_4 - Pupils' attitude toward teachers

x_5 - Pupils' attitude toward school

x_6 - Perceived parental encouragement

x_7 - Socio-economic status

The measures for all these variables were obtained by using standardized tools. The mean and SD of the score of all these variables were computed for the disadvantaged and non-disadvantaged groups. Table 4.4 gives the means and SDs of the predictor variables of disadvantaged and non-disadvantaged groups.

Table 4.4 : Means and SDs of Disadvantaged and Non-Disadvantaged groups on the Predictor variables.

Sl. No.	Name of the Variable	Disadvantaged Group		Non-Disadvantaged Group	
		Mean	SD	Mean	SD
1	Achievement Motivation	48.49	6.16	50.30	5.57
2	Adjustment	13.16	6.86	16.74	6.69
3	Educational Aspiration	4.96	2.57	5.38	2.47
4	Pupils' attitude toward teachers	23.18	6.24	26.15	5.89
5	Pupils' attitude toward school	37.39	8.42	39.79	7.84
6	Parental encouragement	88.26	43.23	93.61	18.94
7	Socio-Economic status	33.01	5.85	45.51	6.15

The difference between the means of disadvantaged and non-disadvantaged groups on the predictor variables is shown in Graph 2. It can be seen from the graph that the mean scores of non-disadvantaged group is higher than that of the disadvantaged group on all the predictor variables.

4.3 CORRELATION BETWEEN DEPENDENT AND INDEPENDENT VARIABLES

In order to know the inter-relationship between the dependent and independent variables in detail, correlation analysis was carried out for disadvantaged as well as non-disadvantaged groups.

4.3.1 Correlations Analysis of Disadvantaged Group

Correlation between the dependent and independent variables were computed based on the numerical scores of all the 494 observations in the disadvantaged group. The degree of relationship of each independent variable with the dependent variable was expalined by using the correlation coefficient values.

DIFFERENCE BETWEEN THE MEANS ON THE PREDICTOR VARIABLES

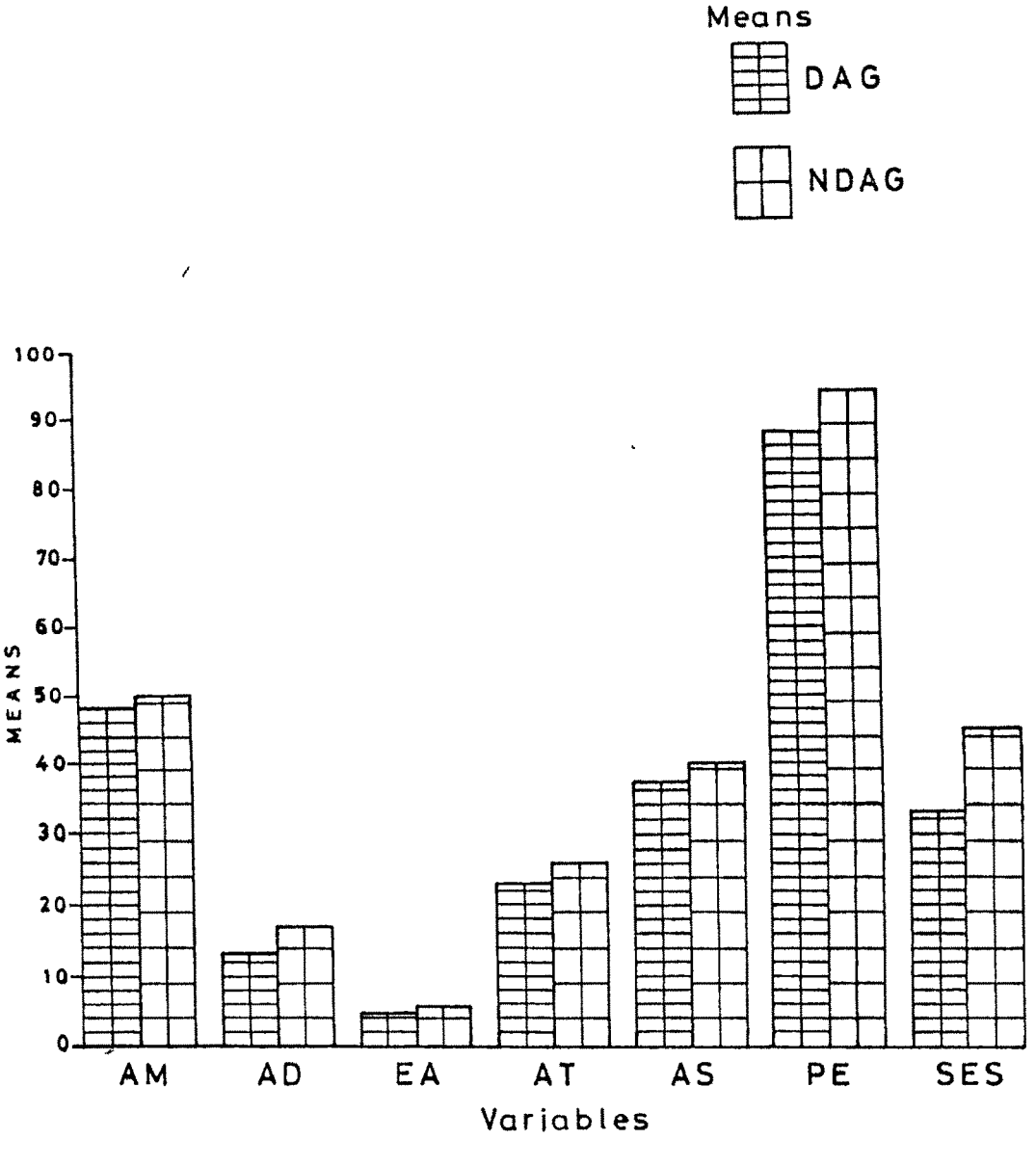


Table 4.5 : Correlations of Each of the Independent Variables with the Dependent Variable in the Disadvantaged Group.

Sl.No.	Name of the Variable	r-value	Rank
1	Achievement Motivation	0.34**	IV
2	Adjustment	0.46**	II
3	Educational Aspiration	0.11*	V
4	Pupils' Attitude toward Teachers	0.55**	I
5	Pupils' Attitude toward School	0.38**	III
6	Parental Encouragement	0.09*	VII
7	Socio-economic status	0.16**	VI

** - Significant at 0.01 level

* - Significant at 0.05 level

The above table indicates that there is significant relationship between the academic achievement of disadvantaged children and the following five predictor variables viz.,

achievement motivation, adjustment, pupils' attitude toward teachers, pupils' attitude toward school, and socio-economic status. They are significant at 0.01 level. The remaining two variables viz., educational aspiration and parental encouragement are also significantly related to the academic achievement of disadvantaged children but the degree of relationship is less when compared to the above mentioned variables. These two variables are significant only at 0.05 level. Hence the null-hypotheses (1.1 to 1.7 in the previous chapter - 3.6.1) stated earlier are rejected. The variables have been ranked according to the magnitude of the coefficients which can be noticed in Table 4.5.

4.3.2 Correlation Analysis of Non-advantaged Group

Correlation between the dependent and independent variables were computed based on the numerical scores of all the 500 observations in the non-disadvantaged group.

Table 4.6 : Correlations of Each of the Independent Variables with Dependent Variable in the Non-Disadvantaged Group.

Sl.No.	Name of the Variable	r-Value	Rank
1	Achievement Motivation	0.24**	IV
2	Adjustment	0.22**	V
3	Educational Aspiration	0.13**	VII
4	Attitude towards Teachers	0.34**	I
5	Attitude towards School	0.31**	II
6	Parental Encouragement	0.29**	III
7	Socio-economic Status	0.21**	VI

**Significant at 0.01 level

Table 4.6 indicates that there is significant relationship between the academic achievement of non-disadvantaged children and all the selected predictor variables viz., achievement motivation, adjustment, educational aspiration, pupils' attitude toward teachers, pupils' attitude toward school, perceived parental

encouragement and socio-economic status. They are significant at 0.01 level. (Hence the null hypotheses i.e., 2.1 to 2.7 given in previous chapter are rejected). The variables have been ranked according to the magnitude of the coefficients which is given in table 4.6.

4.4. PREDICTION OF ACADEMIC ACHIEVEMENT

The main aim of this study is to find out the extent to which academic achievement can be predicted by the seven selected predictor variables put together and the relative contribution of each variable. The relative contribution of a variable is its contribution to the total variance when it is acting in the presence of other variables. This can be found out through step-wise multiple regression analysis. This method adds or substracts one predictor at a time to the regression equation, seeking the best set of predictors. The variables are added or deleted depending upon the statistical significance of their contribution for the prediction. In the present study step-wise multiple regression analysis was done with the help of the computer.

4.4.1 Regression Analysis of the Disadvantaged Group

Step-wise multiple regression analysis was carried out based on the numerical scores of all the 494

observations in the disadvantaged group. The empirical results of the regression analysis are presented in the following pages.

The abreviations used for the independent variables are given below :

1.	Achievement Motivation	(AM)	x_1
2.	Adjustment	(AD)	x_2
3.	Educational Aspiration	(EA)	x_3
4.	Pupils' Attitude Toward Teachers	(AT)	x_4
5.	Pupils' Attitude Toward School	(AS)	x_5
6.	Perceived parental Encouragement	(PPE)	x_6
7.	Socio-Economic status	(SES)	x_7
8.	Academic Achievement	(AA)	y

As a first step to multiple regression analysis, the inter-correlation matrix was computed for the eight variables (x_1, x_2, x_3, x_4, x_5, x_6, x_7, y) the results of which are furnished in table 4.7.

Table 4.7 : Correlation Matrix of the Disadvantaged Group

Sl.No.	Variable Code	AM	AD	EA	AT	AS	PPE	SES	AA
1	AM x_1		0.282^{**}	0.026^{NS}	0.321^{**}	0.320^{**}	0.060^{NS}	0.149^{**}	0.342^{**}
2	AD x_2			0.074^{NS}	0.398^{**}	0.387^{**}	0.033^{NS}	0.080^{NS}	0.457^{**}
3	EA x_3				0.077^{NS}	0.019^{NS}	0.055^{NS}	0.090^{*}	0.106^{*}
4	AT x_4					0.502^{**}	0.098^{*}	0.115^{**}	0.554^{**}
5	As x_5						0.105^{*}	0.047^{NS}	0.385^{**}
6	PPE x_6							0.018^{NS}	0.095^{*}
7	SES x_7								0.161^{**}
8	AA y								

*- Significant at 0.05 level

**- Significant at 0.01 level

NS- Not Significant

Table 4.7 reveals that out of 28 correlations, 5 are significant at 0.01 level, 13 are significant at 0.05 level and the remaining 10 correlations are not significant. It is also seen from the table that the correlations range from 0.02 to 0.55 which avoids the problem of multi-collinearity. The regression analysis was carried out then.

Table 4.8 gives the value of constant, regression coefficients, standard error and 't' values for all the selected predictor variables. It can be seen from the table that all the selected predictor variables are bearing positive impact on the academic achievement of disadvantaged children.

Table 4.8 : Regression Coefficient and T-Values for the Disadvantaged Group.

Sl.No.	Variable Code	Regression Coefficient	Standard Error	T-Values
1	AT x_4	2.90845	0.33198	8.761**
2	AD x_2	1.70552	0.28129	6.063**
3	AM x_1	0.94737	0.30214	3.136**
4	SES x_7	0.60791	0.29616	2.053*
5	AS x_5	0.32670	0.24425	1.338NS
6	EA x_3	0.96145	0.66882	1.438NS
7	PPE x_6	0.04338	0.03970	1.093NS

K = -41.211

** - Significant at 0.01 level

* - Significant at 0.05 level

NS - Not Significant

The t-values of the regression coefficients of the three variables viz., pupils' attitude toward teachers, adjustment and achievement motivation are significant at 0.01 level and the t-value of the regression coefficient of socio-economic

status is significant at 0.05 level. The table also shows that the t-values of the regression coefficients of the remaining three variables viz., pupils' attitude toward school, educational aspiration and parental encouragement are not significant.

Table 4.9 gives the order of entry of the selected variables in the step-wise multiple regression analysis and the values of multiple correlation coefficients.

Table 4.9 : Results of Step-wise Multiple Regression Analysis for the Disadvantaged Group.

Order of entry	Name of the Variable	Computed R	R^2
1	Pupils' Attitude Toward Teachers (AT x_4)	0.554	0.3069
2	Adjustment (AD x_9)	0.611	0.3733
3	Achievement Motivation (AM x_1)	0.624	0.3894
4	Socio-economic status (SES x_7)	0.629	0.3956
5	Pupils' Attitude Toward School (AS x_5)	0.631	0.3982
6	Educational Aspiration (EA x_3)	0.633	0.4007
7	Perceived Parental Encouragement (PPE x_6)	0.634	0.4020

The percentage of variance of the criterion explanined by the selected predictor variables and the relative contribution of each predictor variable to the academic achievement of disadvantaged children is given below.

1.	Pupils' attitude toward teachers (AT x_4)	30.69
2.	Adjustment (AD x_2)	6.64
3.	Achievement Motivation (AM x_1)	1.61
4.	Socio-Economic Status (SES x_7)	0.62
5.	Pupils' attitude toward school (AS x_5)	0.26
6.	Educational aspiration (EA x_3)	0.25
7.	Perceived Parental encouragement (PPE x_6)	0.13
	Total	40.20

The percentage of variance explained by the seven predictor variables jointly is 40.20. The remaining 59.80 per cent of the variance must be attributed to the factors not covered by the present study.

The four predictor variables viz., Pupils' attitude toward teachers, adjustment, achievement motivation and socio-economic status together explained 39.56 percent of the variance of the criterion. 98.41 percent of the explained variance is due to these four variables. The remaining three variables viz., Pupils' attitude toward school, educational aspiration and perceived parental encouragement together explained only 0.64 per cent of variance of the criterion. 1.59 per cent of the explained variance is due to these variables.

The significance of multiple R was tested by calculating the F-values. The F-values have been calculated by using the following formula :

$$F = \frac{(R_1^2 - R_2^2)\ (N - m_1^{-1})}{(1-R_1^2)\ \ (m_1 - m_2)}$$

Where

R_1 = multiple R with larger number of independent variables

R_2 = multiple R with one or more variables omitted

m_1 = larger number of independent variables

m_2 = smaller number of independent variables

Table 4.10 gives the multiple correlation (R) and the successive F-values along with the degrees of freedom step-by-step. In the use of F-tables the df_1 degrees of freedom are given by $(m_1 - m_2)$ and df_2 degrees of freedom by $(N-m_1-m_2)$.

Table 4.10 : Multiple Correlation and the F-values for the Disadvantaged Group.

Sl.No.	Variable Code	Multiple R	Degree of Freedom	F-values
1	AT x_4	0.554	1,486	77.21^{**}
2	AD x_2	0.611	1,491	51.68^{**}
3	AM x_1	0.624	1,490	12.83^{**}
4	SES x_7	0.629	1,489	5.67^{*}
5	AS x_5	0.631	1,488	1.62^{NS}
6	EA x_3	0.633	1,487	2.44^{NS}
7	PPE x_6	0.634	1,486	0.81^{NS}

** Significant at 0.01 level

* Significant at 0.05 level

NS Not Significant

Table 4.10 shows that the correlation between pupils' attitude toward teachers and academic achievement is 0.554. The multiple R between the variables viz., pupils attitude toward teachers and adjustment taken together and academic achievement is 0.611. The increase in multiple R is from 0.554 to 0.611. This increase in R is significant as seen from the value of F which is 51.68 with degrees of freedom 1 and 491. With the addition of each variable the multiple R increases. After all the seven variables are added the multiple R reaches the valule of 0.634. The cumulative percentage of variance accounted for by seven variables comes out to be 40.2 (R^2). A perusal of the F-values indicates that the F-value is significant at 0.01 level for the first three variables. By adding the fourth variable the multiple R increases to 0.629 with the F-value of 5.67 which is significant at 0.05 level. The addition of three more variables increases the multiple R only slightly as indicated by the subsequent values of F which are not significant. Hence it can be concluded that the four variables viz., pupils' attitude toward teachers, adjustment, achievement motivation and socio-economic status are the significant predictors of academic achievement of disadvantaged children.

The regression equation set up for the prediction of academic achievement can be written as

$$y = a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7$$

Where

y = is the criterion to be predicted

a is the constant and

b_1, b_2 ..... b_7 are the regression Coefficients corresponding to the predictor variables x_1, x_2 ..... x_7 .

The regression analysis helped in arriving at the following specific equation for the prediction of academic achievement of the disadvantaged group.

$$y = 2.908\ x_4 + 1.705\ x_2 + 0.947\ x_1 + 0.608\ x_7 + 0.327\ x_5 + 0.961\ x_3 + 0.043\ x_6 - 41.211$$

The last three variables do not contribute significantly to increase the predictive power. Hence they are eliminated in the final regression equation.

The final regression equation is an under :

$$y = 2.908\ x_4 + 1.705\ x_2 + 0.947\ x_1 + 0.608\ x_7 - 30.64$$

where

x_4 = Pupils attitude toward teachers

x_5 = Adjustment

x_1 = Achievement Motivation

x_7 = Socio-economic Status

4.4.2 Regression Analysis of Non-Disadvantaged Group

Step-wise multiple regression analysis was carried out with the numerical scores of all the 500 observations in the non-disadvantaged group and the results are presented below.

The inter-correlation matrix (8 x 8) was computed and the results are presented in Table 4.11.

Table 4.11 shows that out of 28 correlations, 23 are significant at 0.01 level and 1 is significant at 0.05 level. The remaining four correlations are not significant. It also reveals that the coefficient of correlations range from 0.05 to 0.42 which avoids the problems of multi-collinearity.

Table 4.11 : Correlation Matrix of Non-Disadvantaged Group

Sl.No.	Variable Code	AM	AD	EA	AT	AS	PPE	SES	AA
1	AM x_1		0.358**	0.136**	0.224**	0.258**	0.204**	0.142**	0.243**
2	AD x_2			0.155**	0.284**	0.235**	0.198**	0.134**	0.223**
3	EA x_3				0.035NS	0.071NS	0.071NS	0.055NS	0.129**
4	AT x_4					0.417**	0.323**	0.135**	0.343**
5	AS x_5						0.385**	0.102*	0.307**
6	PPE x_6							0.171**	0.290**
7	SES x_7								0.214**
8	AA y								

** Significant at 0.01 level

* Significant at 0.05 level

NS Not Significant

Table 4.12 : Regression Coefficients and T-values for the Non-disadvantaged Group.

Sl. No.	Variable Code	Regression Coefficient	Standard Error	T-values
1	AT x_4	1.68414	0.39181	4.298**
2	PPE x_6	0.32261	0.11878	2.716**
3	AM x_1	0.86144	0.39833	2.163*
4	SES x_7	1.05589	0.33547	3.148**
5	AS x_5	0.78664	0.29913	2.630**
6	EA x_3	1.57315	0.82680	1.903NS
7	AD x_2	0.37816	0.33455	1.130NS
		K = 42.101		

** Significant at 0.01 level

* Significant at 0.05 level

NS Not Significant

Table 4.12 gives the value of constant, regression coefficients, standard error and 't' values for all the selected predictor variables. It can be seen from the table that all the selected predictor variables are bearing positive impact

on the academic achievement of non-disadvantaged children. The t-values of the regression coefficients of the four variables viz., pupils' attitude toward teachers, parental encouragement, socio-economic status and pupils' attitude toward school are significant at 0.01 level and the 't' value of the regression coefficient of achievement motivation is significant of 0.05 level. The table also shows that the 't' values of the regression coefficients of the two variables viz., educational aspiration and adjustment are not significant.

Table 4.13 shows the order of entry of the selected variables in the step-wise regression analysis and the values of multiple correlation coefficients.

Table 4.13 : Results of Step-wise Multiple Regression Analysis for the Non-Disadvantaged Group.

Order of Entry	Variable	Computed R	R^2
1	Pupils' attitude toward teachers (AT x_4)	0.343	0.1176
2	Perceived parental encouragement (PPE x_6)	0.392	0.1537
3	Achievement Motivation (AM x_1)	0.418	0.1747
4	Pupils' attitude toward School (AS x_5)	0.438	0.2043
5	Socio-economics status (SES x_7)	0.452	0.1918
6	Educational aspiration (EA x_3)	0.459	0.2107
7	Adjustment (AD x_2)	0.461	0.2125

The percentage of variance of the criterion explained by the selected predictor variables and the relative contribution of each predictor variable to the academic achievement of non-disadvantaged children is given below :

1.	Pupils' attitude toward teachers (AT x_4)	11.76
2.	Perceived parental encouragement (PPE x_6)	3.61
3.	Achievement Motivation (AM x_1)	2.10
4.	Socio-economic status (SES x_7)	1.71
5.	Pupils' attitude toward school (AS x_5)	1.25
6.	Educational aspiration (EA x_3)	0.64
7.	Adjustment (AD x_2)	0.18
	Total	21.25

The percentage of variance explained by the seven predictor variables jointly is 21.25. The remaining 78.75 percent of the variance must be attributed to the factors not covered by the present study.

The significance of the multiple correlations (R) were tested by calculating the F-values. Table 4.14 gives the multiple correlations (R) and the successive F-values along with the degrees of Freedom step by step.

Table 4.14 : Multiple Correlations and the F-values for the Non-Disadvantaged Group.

Sl. No.	Variable Code	Multiple R	Degree of Freedom	F-values
1	AT x_4	0.343	1,494	59.63^{**}
2	PPE x_6	0.392	1,497	21.15^{**}
3	AM x_1	0.418	1,496	12.63^{**}
4	SES x_7	0.438	1,495	10.41^{**}
5	AS x_5	0.452	1,494	7.45^{**}
6	EA x_3	0.459	1,493	4.37^{*}
7	AD x_2	0.461	1,494	1.25^{NS}

** Significant at 0.01 level

* Significant at 0.05 level

NS Not Significant

Table 4.14 shows that the correlation between pupils' attitude toward teachers and academic achievement is 0.343. The multiple R between the variables viz., Pupils' attitude toward teachers and perceived parental encourgement taken together and academic achievement is 0.392. The increase

in multiple R is from 0.343 to 0.392. This increase in R is significant as seen from the value of F which is 21.15 with degrees of freedom 1 and 497. With the addition of each variable the multiple R increases. After all the seven variables are added the multiple R reaches the value of 0.461. The cumulative percentage of variance accounted for by seven variables comes out to be 21.25 (R^2). A perusal of the F-values indicates that the F-value is significant at 0.01 level for the five variables. By adding the sixth variable the multiple R increases to 0.459 with the F-value of 4.37 which is significant at 0.05 level. The addition of one more variable increases the multiple R only slightly as indicated by the subsequent F-value which is not significant. Hence it can be concluded that the six variables viz., Pupils' attitude toward teachers, perceived parental encouragement, achievement motivation, Socio-economic status, Pupils' attitude toward school and educational aspiration are significantly related to the academic achievement of non-disadvantaged children.

The regression analysis helped in arriving at the following specific equation for the prediction of academic achievement of non-disadvantaged group.

$$y = 1.684\ x_4 + 0.323\ x_6 + 0.861\ x_1 + 1.056\ x_7 + 0.787\ x_5 + 1.573\ x_3 + 0.378\ x_2 - 42.101$$

The last variable namely Adjustment (AD x_2) does not contribute significantly to increase the predictive power. Hence it is eliminated in the final regression equation. The final regression equation is as under :

$$y = 1.684\ x_4 + 0.323\ x_6 + 0.861\ x_1 + 1.056\ x_7 + 0.787\ x_5 + 1.573\ x_3 - 44.319$$

Where

x_4 = Pupils' Attitude Toward Teachers

x_6 = Perceived Parental Encouragement

x_1 = Achievement Motivation

x_7 = Socio-economic Status

x_5 = Pupils' Attitude Toward School

x_3 = Educational Aspiration.

The variables significantly influencing the academic achievement of disadvantaged children are pupils' attitude toward teachers, Adjustment, Achievement motivation and Socio-economic Status.

Whereas six variables are influencing the academic achievement of non-disadvantaged children viz., Pupils' attitude toward teachers, perceived parental encouragement, Achievement motivation, Socio-economic status, Pupils' attitude toward school and Educational aspiration.

Thus the hypothesis that "The disadvantaged and non-disadvantaged children do not differ in respect of any of the selected predictor variables influencing their academic achievement" is rejected.

4.5 DIFFERENCE BETWEEN THE HIGH AND LOW ACHIEVERS ON THE VARIABLES

The significance of differences in the mean socres of high-achievers in the disadvantaged and non-disadvantaged groups as well as low-achievers in the disadvantaged and non-disadvantaged groups with respect to the following variables viz., achievement motivation, adjustment, educational aspiration pupils' attitude toward teachers, pupils' attitude toward school perceived parental encouragement, socio-economic status and academic achievement were tested by applying the 't' test.

The results of 't' tests regarding each variable are presented separately.

4.5.1 Achievement Motivation

The null-hypotheses to be tested here are :

i. There is no significant difference in the mean achievement motivation scores of high achievers in the disadvantaged and non-disadvantaged groups.

ii. There is no significant difference in the mean achievement motivation scores of low-achievers in the disadvantaged and non-disadvantaged groups.

Table 4.15 presents the mean, standard Deviation and 't' values of achievement motivation scores of high and low-achievers in the disadvantaged and non-disadvantaged groups.

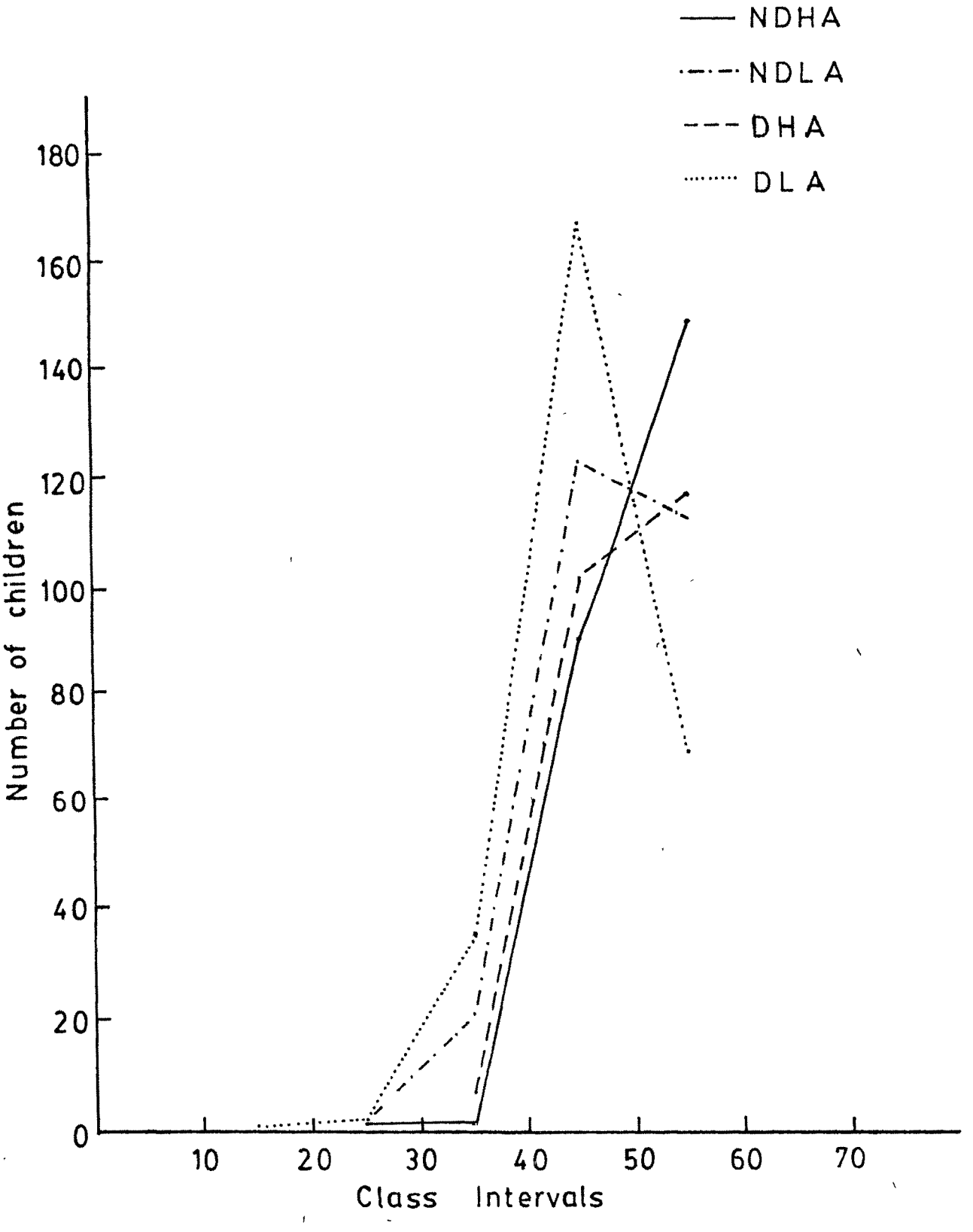
Table 4.15 : 't' Values for Achievement Motivation

Group	Category	N	Mean	SD	t-values
Disadvantaged	High Achievers	226	50.52	5.10	2.43**
Non-Disadvantaged	High Achievers	241	51.60	4.35	
Disadvantaged	Low Achievers	269	46.94	6.41	
Non-Disadvantaged	Low Achievers	259	49.11	6.29	4.85*

* Significant at 0.01 level ; ** Significant at 0.05 level

The above table reveals that the t-value ascertaining the reliability of differences between high-achievers in the disadvantaged and non-disadvantaged groups regarding their achievement motivation is significant at 0.05 level. It also shows that the t-value for achievement motivation of low-achievers in the disadvantaged and non-disadvantaged groups is significant at 0.01 level. This finding reveals that the mean achievement motivation scores of high-achievers in the non-disadvantaged group is higher than that of the high-achievers in the disadvantaged group. It also reveals that the mean achievement motivation scores of low-achievers in the non-disadvantaged group is higher than that of the low-achievers in the disadvantaged group. Since the disadvantaged children differ significantly from the non-disadvantaged children with regard to their achievement motivation, the null-hypotheses stated above are rejected. The distribution of achievement motivation scores of high and low-achievers in the disadvantaged groups is shown in the graph 3.

DISTRIBUTION OF ACHIEVEMENT MOTIVATION SCORES



4.5.2 Adjustment

The null-hypotheses formulated here are

i. There is no significant difference in the mean adjustment scores of high-achievers in the disadvantaged and non-disadvantaged groups.

ii. The low-achievers in the disadvantaged group do not differ from those in the non-disadvantaged group in their mean adjustment scores.

Table 4.16 gives the mean, SD and t-values of adjustment scores of high and low-achievers in the disadvantaged and non-disadvantaged groups.

Table 4.16 : t-values for Adjustment

Group	Category	N	Mean	SD	t-value
Disadvantaged	High -achievers	226	16.40	5.57	
Non-Disadvantaged	High-achievers	241	18.16	6.26	3.19*
Disadvantaged	Low-adhievers	268	10.36	5.40	
Non-Disadvantaged	Low-achievers	259	15.47	6.39	9.92*

* Significant at 0.01 level

Table 4.16 reveals that the t-values obtained for both the contrasts are highly significant, the level of significance being 0.01. This finding reveals that the mean adjustment scores of non-disadvantaged group is higher than that of the disadvantaged group. Therefore there is ample evidence to show that the disadvantaged and non-disadvantaged children differ significantly with regard to their adjustment. Hence the null hypotheses stated at the beginning of this section are rejected. The distribution of adjustment scores of high and low-achievers in the disadvantaged and non-disadvantaged groups is shown in the graph 4.

4.5.3 Educational Aspiration

The null-hypotheses to be tested here are

i. The high-achievers in the disadvantaged and non-disadvantaged groups do not differ in their educational aspiration

ii. The low-achievers in the disadvantaged and non-disadvantaged groups do not differ in their educational aspiration.

Table 4.17 presents the mean, SD and t-values of educational aspiration scores of high and low-achievers in the disadvantaged and non-disadvantaged groups.

DISTRIBUTION OF ADJUSTMENT SCORES

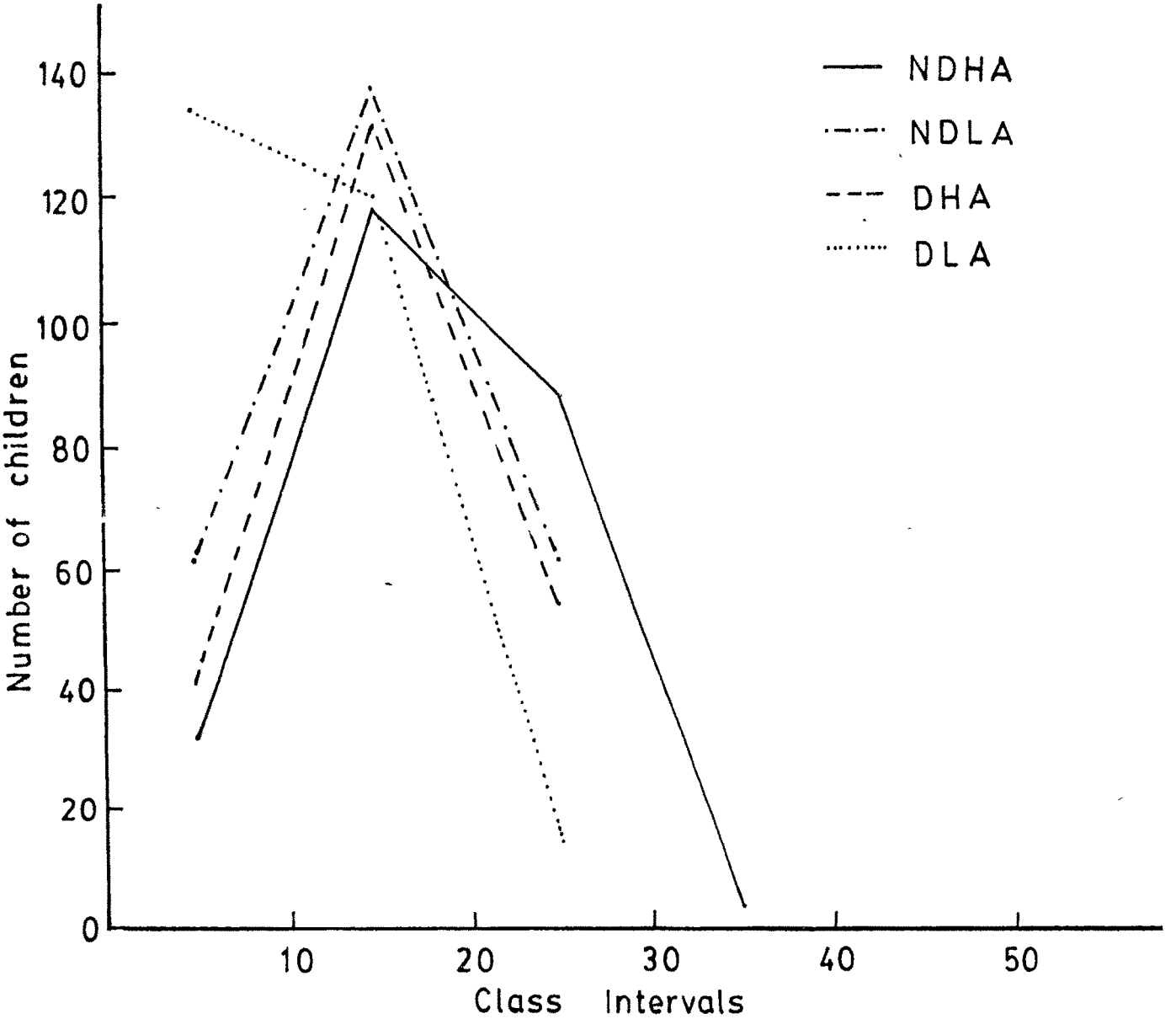


Table 4.17 : t-values for Educational Aspiration

Group	Category	N	Mean	SD	t-values
Disadvantaged	High-achievers	226	5.26	2.31	
Non-Disadvantaged	High-achievers	241	5.61	2.32	1.58^{NS}
Disadvantaged	Low-achievers	268	4.68	2.39	
Non-Disadvantaged	Low-achievers	259	5.17	2.34	2.38^{**}

NS - Not significant

** - Significant at 0.05 level

The above table shows that the t-value of mean educational aspiration scores of high-achievers in the disadvantaged and non-disadvantaged groups is not significant. This finding reveals that the level of educational aspiration of high-achievers in both the groups viz., disadvantaged and non-disadvantaged, is the same. Hence the null-hypothesis stating that "the high-achievers in the disadvantaged and non-disadvantaged group do not differ in their educational aspiration" is retained.

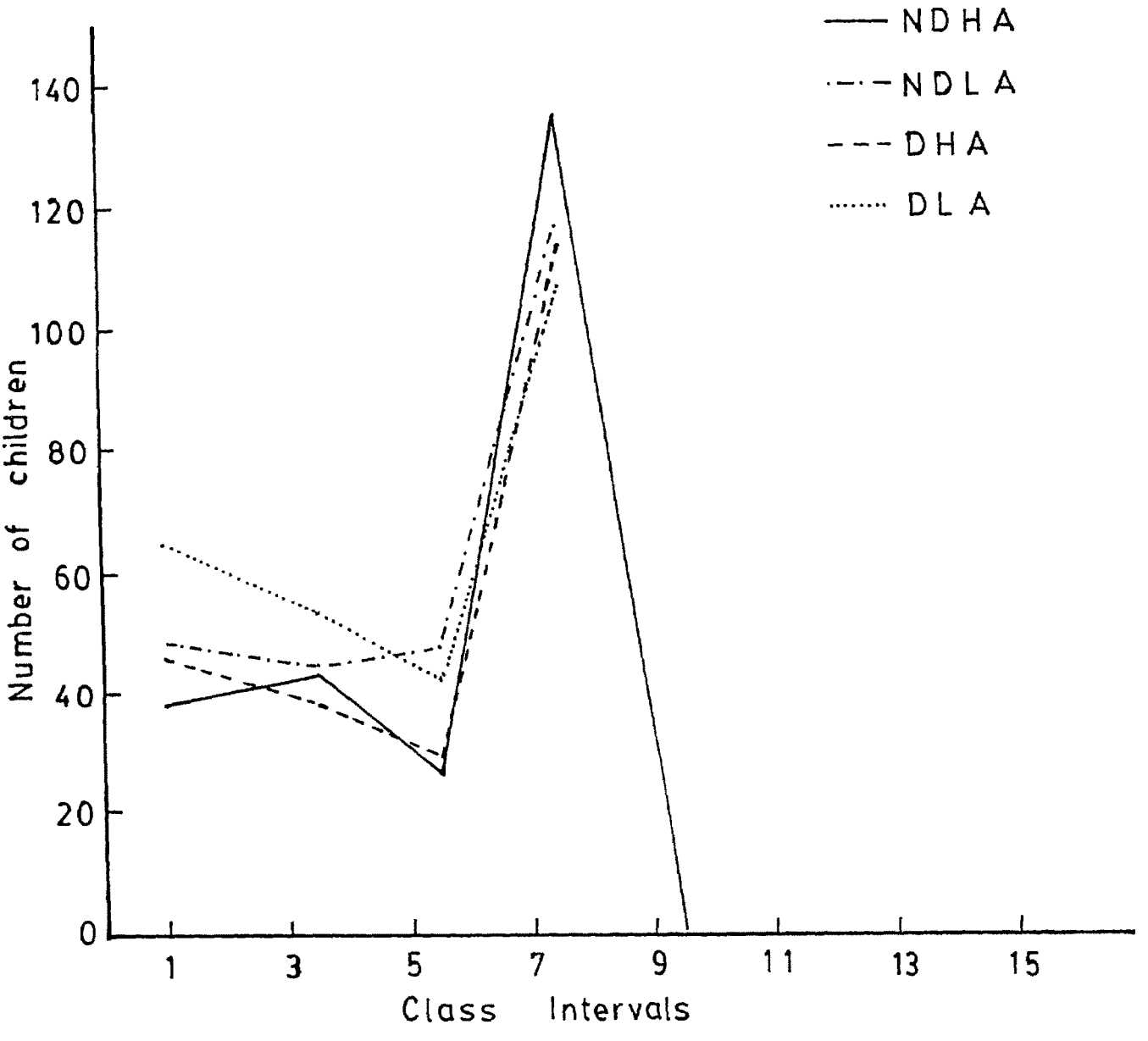
Table 4.17 also shows that the t-value ascertaining the reliability of differences between low-achievers in the disadvantaged and non-disadvantaged groups regarding their educational aspiration is significant at 0.05 level. This finding indicates that the mean educational aspiration score of low-achievers in the non-disadvantaged group is higher than that of the low-achievers in the disadvantaged group. It can be concluded that the low-achievers in the non-disadvantaged group differ significantly from the low-achievers in the disadvantaged group with respect to their educational aspiration. Hence the second null-hypothesis stated at the beginning of this section is rejected. The distribution of educational aspiration scores of high and low-achievers in the disadvantaged and non-disadvantaged groups is shown in graph 5.

4.5.4. Pupils Attitude Toward Teachers

The null-hypotheses formulated here are

(i) There is no significant difference in the mean scores of pupils' attitude toward teachers among high-achievers in the disadvantaged and non-disadvantaged groups,

DISTRIBUTION OF EDUCATIONAL ASPIRATION SCORES



(ii) There is no significant difference in the mean scores of pupils' attitude toward teachers among low-achievers in the disadvantaged and non-adisadvantaged groups.

Table 4.18 presents the mean, SD and t-values of high and low-achievers in the disadvantaged and non-disadvantaged groups regarding their attitude toward teachers.

Table 4.18 ; t-values for Pupils Attitude Toward Teachers

Group	Category	N	Mean	SD	t-value
Disadvantaged	High achievers	226	26.56	4.97	
Non-Disadvantaged	High achievers	241	28.12	5.22	3.29*
Disadvantaged	Low achievers	268	20.25	5.77	
Non-Disadvantaged	Low achievers	259	24.30	5.85	8.05*

* Significant at 0.01 level

Table 4.18 reveals that the t-values obtained for both the contrasts are highly significant, the lvel of significance

being 0.01. This finding shows that the mean scores of high and low achievers in the non-disadvantaged group are higher than that of those in the disadvantaged group. There is ample evidence to show that the disadvantaged children differ significantly from the non-disadvantaged children regarding their attitude toward teachers. Hence the null hypotheses stated at the beginning of this section are rejected. The distribution of the scores of pupils' attitude toward teachers for the high and low-achievers in the disadvantaged and non-disadvantaged groups is shown in the graph 6.

4.545 **Pupils' Attitude Toward School**

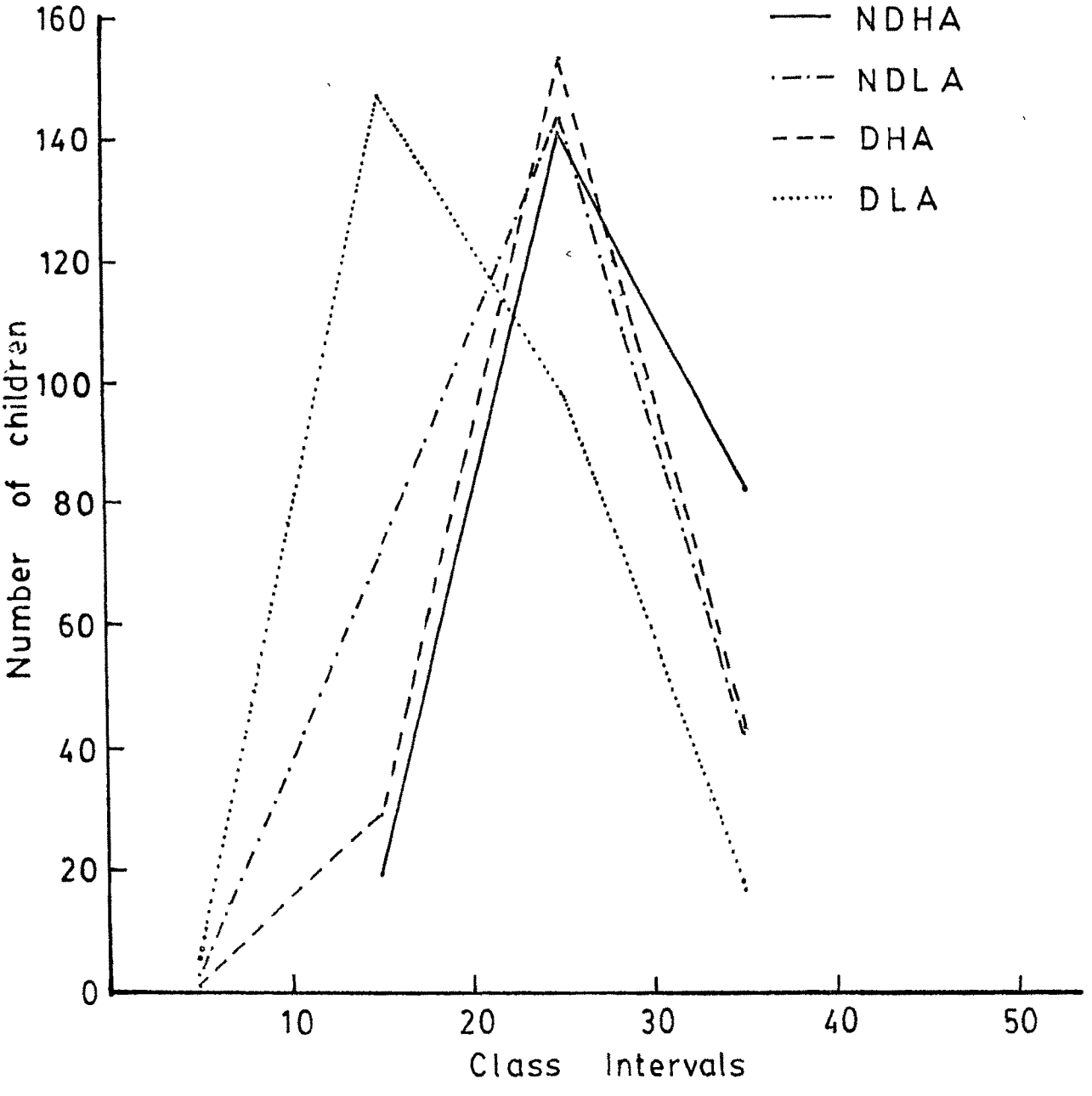
The null hypotheses pertaining to this variable are,

(i) There is no significant difference in the mean scores of pupils' attitude toward school among high-achievers in the disadvantaged and non-disadvantaged groups.

(ii) There is no significant difference in the mean scores of pupils' attitude toward school among low-achievers in the disadvantaged and non-disadvantaged groups.

Table 4.19 presents the mean, SD and t-values of high and low-achievers in the disadvantaged and non-disadvantaged

DISTRIBUTION OF THE SCORES OF PUPILS' ATTITUDE TOWARD TEACHERS



groups regarding their attitude toward school.

Table 4.19 : t-values for Pupils' attitude Toward School

Group	Category	N	Mean	SD	t-Values
Disadvantaged	High achievers	226	40.27	7.46	
Non-Disadvantaged	High achievers	241	41.91	7.10	2.40**
Disadvantaged	Low achievers	268	34.72	8.36	
Non-Disadvantaged	Low achievers	269	37.87	7.97	4.44*

** Significant at 0.05 level

* Significant at 0.01 level

The above table shows that the t-value for the first contrast is significant at 0.05 level at which the hypotheses are normally tested. It also shows that the 't' values for the second contrast is highly significant, the level of significance being 0.01. These findings reveal that the high-achievers and low-achievers in the disadvantaged group differ significantly from those in the non-disadvantaged group with regard to their attitude toward school. Hence the null hypotheses stated above

are rejected. The distribution of the scores of pupils' attitude toward school for the high and low-achievers in the disadvantaged and non-disadvantaged groups is shown in the graph 7.

4.5.6 Perceived Parental Encouragement

The null hypotheses formulated here are,

(i) The mean score of perceived parental encouragement of high-achievers in the disadvantaged group does not differ from that of high-achievers in the non-disadvantaged group.

(ii) The mean score of perceived parental encouragement of low-achievers in the disadvantaged group does not differ from that of the low-achievers in the non-disadvantaged group.

Table 4.20 presents the mean, SD and t-values of high and low-achievers in the disadvantaged and non-disadvantaged groups, with respect to their perceived parental encouragement.

DISTRIBUTION OF THE SCORES OF PUPILS' ATTITUDE TOWARD SCHOOL

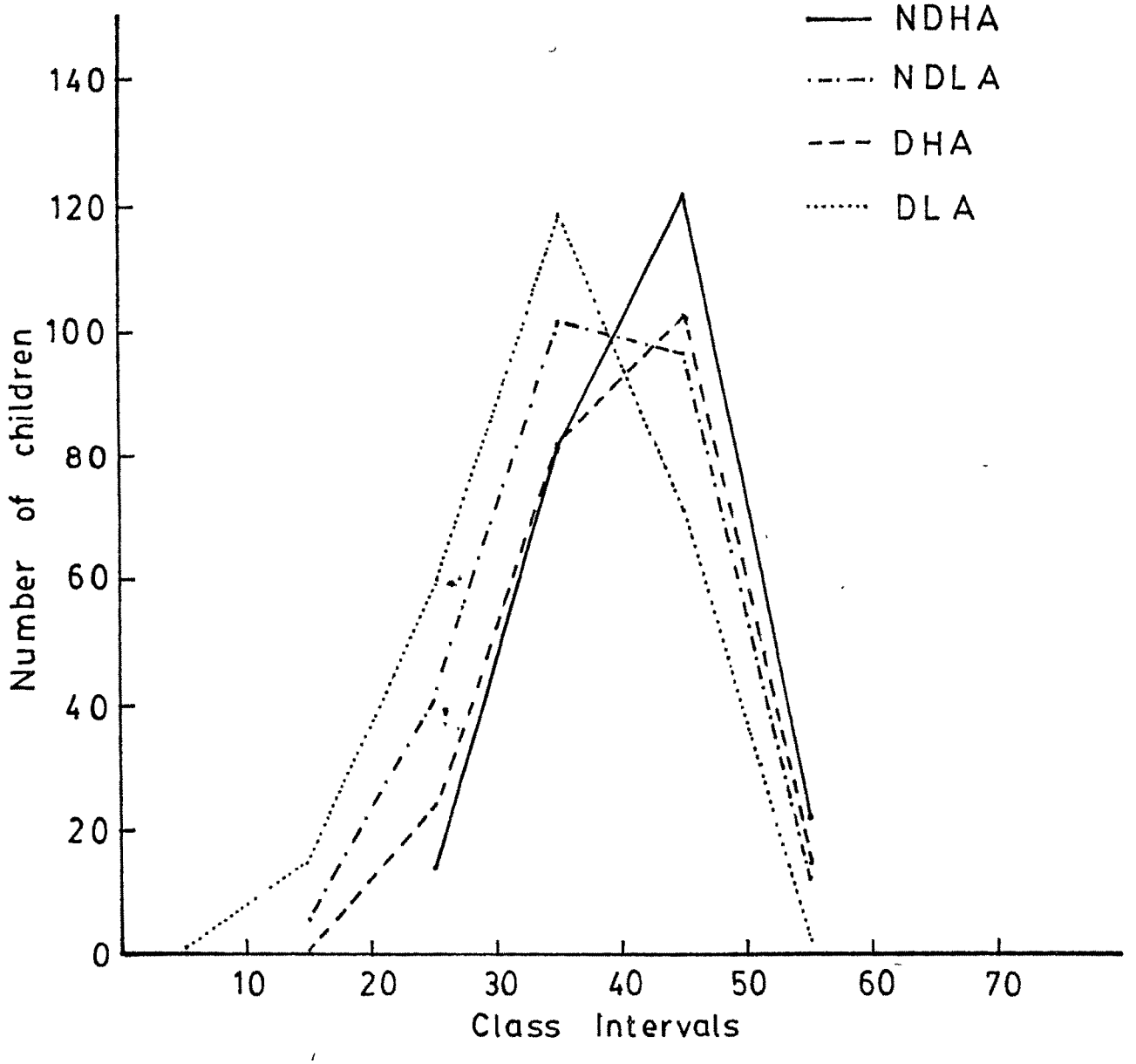


Table 4.20 : 't' values for perceived Parental Encouragement

Group	Category	N	Mean	SD	t-value
Disadvantaged	High achievers	226	92.13	17.92	
Non-Disadvantaged	High achievers	241	99.24	16.17	4.46^{**}
Disadvantaged	Low achievers	268	84.42	55.69	
Non-Disadvantaged	Low achievers	269	88.40	19.74	1.11^{NS}

* Significant at .01 level

NS - Not Significant

It is obvious from the above table that the t-value confirming the difference in the mean scores of high-achievers in the disadvantaged and non-disadvantaged groups with respect to their perceived parental encouragement is significant at 0.01 level. This finding indicates that high-achievers in the non-disadvantaged group secured more parental encouragement than the high-achievers in the disadvantaged group. Hence the first null hypothesis is rejected.

It is also seen from the above table that the t-value obtained for the second contrast namely low-achievers in the disadvantaged and non-disadvantaged groups is not significant. This finding reveals that the low-achievers in the disadvantaged group do not differ from the low-achievers in the non-disadvantaged group regarding their perceived' parental encouragement. Hence the null-hypothesis stating that "The mean score of perceived parental encouragement of low-achievers in the disadvantaged group does not differ from that of low achievers in the non-disadvantaged group is accepted. The distribution of perceived parental encouragement scores of high and low-achievers in the disadvantaged and non-disadvantaged groups is shown in graph 8.

4.5.7 Socio-Economic Status

The null hypotheses pertaining to this variable are,

(i) The high and low-achievers in the disadvantaged group do not differ in their socio-economic status

(ii) The high and low achievers in the non-disadvantaged group do not differ in their socio-economic status.

The mean, SD and t-values of high and low-achievers in the disadvantaged and non-disadvantaged groups are given in table 4.21.

DISTRIBUTION OF PARENTAL ENCOURAGEMENT SCORES

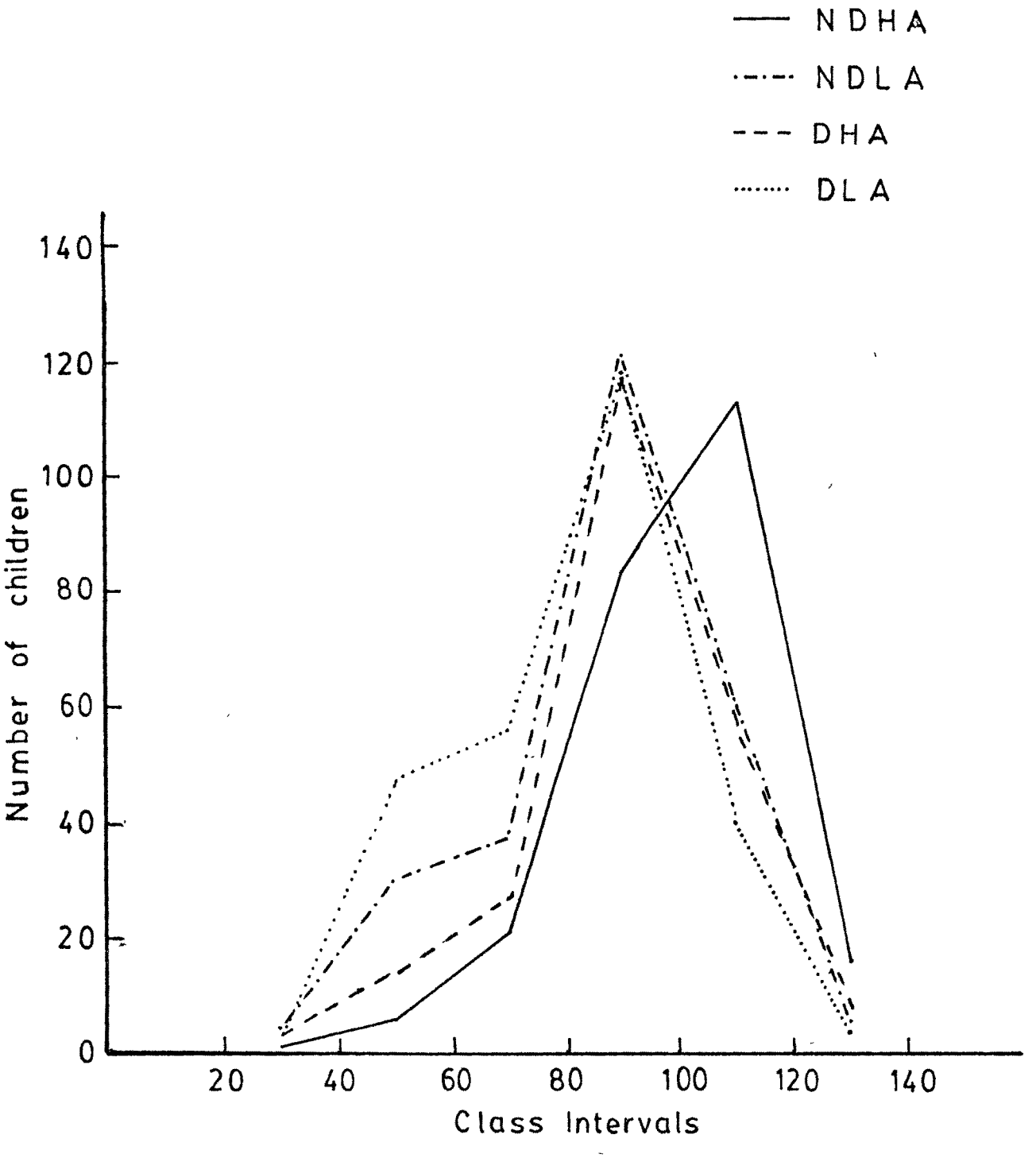


Table 4.21 : 't' values for Socio-Economic Status

Group	Category	N	Mean	SD	t-value
Disadvantaged	High achievers	226	33.92	6.21	3.18*
	Low achievers	268	32.24	5.39	
Non-Disadvantaged	High achievers	241	46.42	6.37	4.49*
	Low achievers	269	43.98	5.68	

* Significant at 0.01 level

The above table reveals that the t-values obtained for both the contrasts are highly significant. This finding indicates that the socio-economic status of the high achievers differs significantly from that of the low achievers in both disadvantaged and non-disadvantaged groups. Hence the null hypotheses stated above are rejected.

4.5.8 Academic Achievement

The null hypotheses to be tested here are,

(i) The high-achievers in the disadvantaged group do not differ from thosein the non-disadvantaged group with respect to their level of academic achievement.

(ii) The low-achievers in the disadvantaged group do not differ from those in the non-disadvantaged group with respect to their level of academic achievement.

The mean, SD and 't' values of academic achievement scores of high and low-achievers in the disadvantaged and non-disadvantaged groups are presented in table 4.22.

Table 4.22 : 't' values for Academic Achievement

Group	Category	N	Mean	SD	't' values
Disadvantaged	High achievers	226	177.74	33.65	
Non-Disadvantaged	High achievers	241	212.09	35.97	10.60*
Disadvantaged	Low achievers	268	99.09	21.36	
Non-Disadvantaged	Low achievers	259	130.16	22.95	16.11*

* Significant at 0.01 level

It is evident from the above table that the 't' values ascertaining the reliability of differences between high and low-achievers in the disadvantaged and non-disadvantaged groups regarding their academic achievement is highly significant.

This finding reveals that high and low achievers in the disadvantaged group differ significantly from those in the non-disadvantaged group with respect to their academic achievement. Hence the null hypotheses stated at the beginning of this section are rejected.

The summary of the conclusions :

1. All independent variables viz., achievement motivation, adjustment, educational aspiration, parental encouragement, pupils' attitude toward teachers, pupils' attitude toward school and socio-economic status are significantly related with the dependent variable viz., academic achievement in the case of children in disadvantaged and non-disadvantaged groups.

2. The values of correlations between each of the independent variable and the criterion variable viz., academic achievement are given below :

Table 4.23 : 'r' Values and Ranks of Independent Variables

Independent Variables	Disadvantaged Group		Non-Disadvantaged Group	
	Correlation with academic achievement	Rank	Correlation with academic achievement	Rank
AM x_1	0.34	IV	0.24	IV
AD xx_2	0.46	II	0.22	V
EA x_3	0.11	VI	0.13	VII
AT x_4	0.55	I	0.34	I
AS x_5	0.38	III	0.31	II
PPE x_6	0.09	VII	0.29	III
SES x_7	0.16	V	0.21	VI

3. The regression equations for predicting the academic achievement of disadvantaged and non-disadvantaged groups are

I $\quad y = 2.908\ x_4 + 1.705\ x_2 + 0.947\ x_1 + 0.608\ x_7 - 30.64$

II $\quad y = 1.684\ x_4 + 0.323\ x_6 + 0.861\ x_1 + 1.056\ x_7 + 0.787\ x_5 + 1.573\ x_3 - 44.319$

4. The mean scores of all independent variables for the high and low-achievers in the disadvantaged and non-disadvantaged groups differ significantly except in two cases viz.,

1. Educational aspiration of high-achievers
2. Perceived parental encouragement of low-achievers

4.6 INDEPTH STUDIES OF DISADVANTAGED CHILDREN

To get a vivid picture of what might have accounted for the high/low achievement of disadvantaged children, indepth studies of 100 students were conducted with respect to some factors which were felt to be associated with academic achievement. The high and low achievers were selected from the disadvantaged group based on their scores in the achievement tests. A total score of academic achievement was obtained for each student by adding the scores obtained by them in the four achievement tests administered by the investigator. The total academic achievement scores of disadvantaged students were arranged in discending order. The top 50 students and the bottom 50 students were selected as high and low-achievers respectively for indepth studies.

4.6.1 Indepth Studies of High-Achievers.

Out of the 50 high-achievers selected for indepth studies 23 were boys and 27 were girls. The investigator personally interviewed the high-achievers to get a detailed account of the conditions associated with their academic achievement. The teachers of these students were also interviewed to know about these students participation in curricular and co-curricular activities.

Of the sample taken, 42 high-achievers (84%) had literate parents. The minimum educational qualification of their parents was found to be class VIII. The parents of the remaining 8 students were illiterates.

About three-fourth (76 per cent) of the high-achievers hailed from urban areas while the rest were from rural areas.

Regarding their birth order, it was found that 26 per cent of them were first born, 52 per cent the middle born and 22 per cent the last born.

Out ofthe 50 high-achievers interviewed 38 students (76 per cent) belonged to nuclear families and 12 [illegible] students (24 per cent) to joint families. Further more than half of them (56 percent) had small sized families and about a quarter of them each, were from medium sized and large sized families.

When they were asked about the educational facilities available at home, (i) it was found that 72 per cent of them had moderately equipped houses with minimum required facilities such as electricity and water while the rest of them had ill-equipped "kachcha" houses devoid of electricity and water.

(ii) 60 per cent of them reported that they were guided by their parents or elder brothers and sisters in doing their home assignments and the remaining 40 per cent of them did not get any such help. (iii) One-third of the high-achievers (32 per cent) were found to be attending private tuition classes and the rest had no such assistance.

When they were asked about their favourite school subjects, it was found that 38 per cent of them liked their mother tongue (Tamil) most, 8 per cent of them liked English, 6 per cent of them liked mathematics, 14 per cent of them reported science as their favourite subject and 34 percent of them liked History and Geography. Whereas when they were asked about the subjects which they do not like, 4 per cent of them reported that they do not like English and 14 per cent of them do not like mathematics. The rest of them reported that they do not have disliking toward any subject.

Of the sample interviewed, 24 per cent have obtained prizes, medals and certificates through participation in different competitions conducted in the school. While the remaining 76 per cent reported that they did not receive any rewards. Further more 28 per cent of them had the experience of being

leaders either in the class-room, in the school or in the sports teams and the rest did not have any such experience.

When they were asked whether they had repeated any of the standards due to failure, it was found that none of them had such experience in their school life.

When an enquiry was made as how they spent their leisure time, 36 per cent of them reported that they spent their leisure time in playing games, 32 per cent of them passed their time reading books and 32 per cent of them helped their parents in their occupation.

When thehigh-achievers were asked about their ambition in life, 52 per cent of them aspired to be either doctors or engineers, 24 per cent of them desired to be government officers and the rest wanted to be teachers.

When the teachers were interviewed about the high-achievers, they reported that these students are regular and punctual in attending the school. They are, more attentive in the class room and also participate in class-room discussions. They clarify their doubts by asking questions. They are very puncutal in submitting the home assignments and they maintain their books and notebooks very well. They also participate in

co-curricular and extra-curricular activities. They help in keeping the class-room neat and clean. The teachers had very good attitude toward these students. From the discussion with the teachers, it was found that the high-achievers were clean, punctual, active, attentive and co-operative in nature. It can be concluded that much of the students' learning depends on the teachers perception of them.

4.6.2 Indepth Studies of Low-achievers

Out of the 50 low-achievers selected for indepth studies, 28 were boys and 22 were girls.

28 per cent of them had literate parents with a minimum educational qualification of standard VIII. The remaining 72 per cent had illiterate parents.

More than half of the low-achievers (68%) hailed from rural areas while the rest were from urban areas.

Regarding their birth order, it was found that 24 per cent of them were first born, 52 per cent, the middle born and 24 per cent the last born.

Of the sample interviewed, 21 students (42 per cent) belonged to nuclear families and 29 students (58 per cent) to joint families. It was also found that 14 per cent of them

had small sized families, 62 per cent of them had medium sized families and 24 per cent of them had large sized families.

When they wereasked about the educational facilities available at home, (i) it was found that 88 per cent of them were living in ill-equipped "Kachcha" houses devoid of electricity and water facilities. Their surroundings were found to be dirty and densely populated. Whereas only 12 percent of the low-achievers had moderately equipped houses. (ii) Only 3 students (6 per cent) reported that they were helped by their parents or elder brothers and sisters in doing their home assignments and the remaining 47 students (94 per cent) did not get any such encouragement and guidance. (iii) 16 per cent of the low-achievers were found to be attending private tuition classes and 84 per cent of them were not attending any such class.

When an enquiry was made about their favourite subjects, it was found that 66 per cent of them liked Tamil and 34 per cent of them liked History and Geography. Whereas when they were asked about the subjects which they do not like, 32 per cent of them reported that they do not like English and 24 per cent of them do not like Mathematics. The rest of them (44 per cent) reported that they do not have disliking

toward any subject. When they were asked about the prizes, medals or certificates obtained by them, it was found that none of them received any such rewards. Whereas 6 students had the experience of being leaders in the class-room or sports teams.

When they were asked whether they had repeated any of the standards due to failure, it was found that 30 per cent of them had the experience of failture in their academic life. When they were asked the reasons for the failure, they attributed it to the non-availability of educational facilities at home. It was also found that most of these low achievers remain engaged in extra burden other than their studies such as helping their parents in their occupation and doing service for others even in their study period.

When an enquiry was made as to how they spend their leisure time, 66 per cent of them reported that they help their parents in their occupation, 26 per cent of them spent their leisure time in playing games and 8 per cent of them passed their time reading books.

When they were asked about their ambition in life, 14 of them (28 per cent) aspired to be either doctors or engineers and the rest desired to be government officers.

When the teachers were interviewed about the low achievers, they reported that most of these students are irregular and not punctual in attending the school. They remain absent for a long time and come to school only during examination time. They never participate in classroom activities. They are not punctual in submitting their home assignments and also they do not maintain their books and notebooks properly. The teachers describe these students as irregular, unclean, unpunctual and dull.

Summary of the Indepth Study of Disadvantaged Group

(In Percentage)

Characteristics	High Achievers (N=50)	Low Achievers (N=50)
1. Sex		
Boys	46	56
Girls	54	44
2. Parents' Education		
Literates	84	28
Illiterates	16	72
3. House Location		
Urban	76	32
Rural	24	68
4. Birth Order		
First born	26	24
Middle born	52	52
Last born	22	24
5. Size of the Family		
Small	56	14
Medium	24	62
Large	20	24
6. Nature of the Family		
Nuclear	76	42
Joint	24	58

contd...

(In Percentage)

Characteristics	High Achievers (N=50)	Low Achievers (N=50)
7. Type of the House		
Well equipped	Nil	Nil
Moderately equipped	72	12
Illequipped	28	88
8. Parental Guidance		
Helped by family members	60	6
Get no help	40	94
9. Private Tuition		
Attending	32	16
Not attending	68	84
10. Favourite subjects		
Tamil	38	66
English	8	-
Mathematics	6	-
Science	14	-
History & Geography	34	34
11. Participation in Extra Curricular Activities		
Prize winners	24	-

Contd...

(In Percentage)

Characteristics	High Achievers (N=50)	Low Achievers (N =50)
12. Leadership activities	28	12
13. Experience of failure	-	30
14. Leisure time Activities.		
Playing games	36	26
Reading books	32	8
Helping the parents	32	66
15. Ambition in Life		
Doctors and Engineers	52	28
Teachers	24	-
Government service	24	72
16. Teachers General Opinion	Clean	Unclean
	Punctual	Irregular
	Active	Dull
	Attentive	Inattentive
	Co-operative	