C H A P T E R V

STATISTICAL ANALYSIS AND DISCUSSION

The statistical analysis of the data has been undertaken in different stages. It is necessary to know the basic statistics of the scores obtained on different variables. Section I of the present chapter gives the descriptive statistics of the measures of all variables included in the study.

The testing of the hypotheses based on the use of 't' test is discussed in Section II.

Section III is concerned with an examination of the correlations between the dependent and the independent variables providing thereby confirmatory evidences for the findings based on 't' test analysis.

The predictors of school adaptability have been discussed in Section IV. The prediction study is mainly based on finding out the multiple correlation between the independent variables and the criterion variable and developing a multiple regression equation to predict the school adaptability.

SECTION I

DESCRIPTIVE STATISTICS OF THE VARIABLES

In the present study, there is one criterion variable and fortynine independent variables. The criterion variable is 'the school adaptability'. The adaptability scale constructed by the investigator gives a measure of this dependent variable.

Dependent variable - School adaptability

The adaptability scale gives a measure of the school innovativeness. The maximum possible score on this variable is 38 and the minimum score is 0. The seventy schools included in the sample provided 'adaptability' measures ranging from 0 to a maximum obtained score of 31. The table 5.1 gives a distribution of adaptability scores obtained by seventy schools.

TABLE 5.1

Distribution of Adaptability Scores of Seventy Schools

Adaptability score intervals	No. of schools
0 - 5	5
6 - 11	22
12 - 17	19
18 - 23	19
24 - 29	4
30 - 35	1
Total	70

The above table shows a heavy concentration of schools in the intervals 12-17 and 18-23. More than 50 per cent of the schools lie in this range.

Table 5.2 gives various statistics about this distribution of scores.

TABLE 5.2

Descriptive Statistics of the Distribution of Adaptability Scores

	Statistics	Value
1	Mean	14.21
2	σ	6.83
3	Skewness	00.44
4	Kurtosis	00.314

The distribution deviates from normal distribution with respect to skewness and kurtosis.However, it can be safely assumed that with a large sample, scores on 'School Adaptability' would follow a normal distribution. The present distribution is positively skewed indicating a concentration of scores towards the lower end. This is quite natural as the schools usually show resistance to new ideas and change rather slowly. Again the contact of schools with the change sponsoring agency also is likely to influence the school innovativeness.

Schools with high adaptability and low adaptability

In order to study the factors related to school adaptability, it is necessary to identify schools scoring high on the adaptability scale and also those scoring low on the adaptability scale. Such a categorization can be arbitrary. The psychometricians select extreme groups on a continuum as high and low scoring groups. Either the top and the bottom 25 per cent cases or the top and the bottom 27 per cent of the cases are taken to obtain two extreme groups. The second alternative is to select the extreme groups in a distribution based on the values of the mean and standard deviation. In the present investigation the investigator decided to follow the second method to obtain school groups. With a mean of 14.21 and σ of 6.83, it was decided to classify the schools into five grades viz. A, B, C, D and E. The classification was arbitrarily based on the scheme given in table 5.3.

TABLE 5.3

Classification of Schools in Five Categories

Category	Range in terms of Mean and σ	Range in terms of scores
A	M + 1.8σ and above	27 and above
B	M + .6σ to M + 1.8σ	between 19 and 26
C	M - .6σ to M + .6σ	between 11 and 18
D	M - .6σ to M - 1.8σ	between 2 and 10
E	M - 1.8σ and below	less than 2

The schools falling in category A are schools showing a high degree of adaptability. The schools in category B are those with a higher than average degree of adaptability. The schools falling in category C are schools with an average degree of adaptability. The schools falling in category D are schools with a less than average degree of adaptability. The category E represents schools with a very low degree of adaptability. It was decided to take the schools falling in categories A and B as the group of schools showing more than average degree of adaptability and schools falling in categories D and E as the second group of schools with a less than average degree of adaptability.

Table 5.4 gives the range of scores for high and low adaptable schools.

TABLE 5.4

High and Low Adaptable Schools and Their Range of Scores

Score range	No.of schools
19 to 38	21
0 to 10	22

On the basis of the above criteria, twentyone schools fall in the category of schools with high adaptability and twentytwo schools fall in the second category, i.e. those with low adaptability. The mean adaptability scores along with their scatter are given in the table below for those two categories of schools.

TABLE 5.5

Means and σs of Adaptability Scores of High and Low Groups

Category	No.	Mean	σ
Schools with high adaptability	21	22.38	6.04
Schools with low adaptability	22	6.72	3.62

The schools with a high degree of adaptability have a mean score of 22.38 with a σ of 6.04, whereas the mean score on the adaptability scale of schools of low adaptability is 6.72 with a σ of 3.62.The categorization

of schools with high and low adaptability will be useful in finding out the correlates of adaptability treated subsequently in this chapter.

Independent variables

There are fortynine independent or predictor variables selected for study in the present investigation. These variables have been classified under seven categories as already discussed in chapter III. Measures of each one of these independent variables have been obtained for the seventy schools comprising the sample in the present investigation. Table 5.6 gives the means and the standard deviations of the distribution of scores for all the variables. The statistics have been calculated for the entire sample and also for the schools with high and low adaptability.

TABLE 5.6

Means and Standard Deviations of the Scores of Independent Variables

Variable No.	Name of the variable	All the schools		Schools with high adaptability		Schools with low adaptability	
		Mean	σ	Mean	σ	Mean	σ
1	Age of the principal	27.68	8.48	28.16	9.84	27.2	11.84
2	Educational level of the principal	4.06	1.12	4.42	1.82	3.72	1.40
3	Inservice training	5.48	2.80	6.52	3.36	4.27	2.36
4	Experience in the profession	4.34	1.82	4.38	1.68	4.13	1.46
5	Experience as a principal	2.74	1.45	2.85	1.75	2.81	1.51
6	Duration of service in the same school	2.21	1.28	2.28	1.65	2.18	1.51
7	Role satisfaction	17.31	4.30	16.95	4.59	16.72	4.62
8	Feeling of security	14.05	3.55	14.57	3.50	12.21	3.81
9	Self-rated administrative ability	16.51	4.30	18.96	4.46	14.95	4.63
10	Perceived peer-rating of administrative ability	15.8	6.26	17.89	4.52	14.23	5.15
11	Perceived inspector-rating of administrative ability	16.92	3.92	18.19	4.68	15.09	4.94
12	Perceived training college personnel-rating of administrative ability	12.27	2.98	13.71	3.33	10.91	4.47
13	Perceived teachers' rating of administrative ability	17.2	3.37	18.68	4.48	15.09	5.59
14	Reported performance feedback from district inspector of schools	12.16	2.80	12.38	4.04	10.90	4.01
15	Reported performance feedback from the training college personnel	12.47	3.29	13.33	4.79	10.90	4.66
16	Perceived change orientation from the district inspector of schools	15.36	3.69	16.52	5.57	14.59	4.57
17	Perceived change orientation from the training college personnel	15.76	4.28	16.71	4.91	14.81	5.68

Variable No.	Name of the variable	All the schools		Schools with high adaptability		Schools with low adaptability	
		Mean	σ	Mean	σ	Mean	σ
18	Perceived equalitarian relationship with district inspector of schools	7.28	2.10	7.57	2.89	6.59	2.55
19	Perceived equalitarian relationship with the training college personnel	8.27	2.97	8.90	2.29	7.17	3.07
20	Perceived district inspector of schools support of innovations	4.50	0.97	4.66	1.18	4.22	1.39
21	Perceived training college personnel support of innovation	4.46	0.72	4.80	1.23	3.86	1.60
22	Perceived teachers' support of innovation	4.40	0.81	4.33	1.34	4.27	1.33
23	General mass media exposure	6.39	1.87	6.38	1.95	6.77	2.19
24	Number of non-professional journals read regularly	2.16	1.06	2.23	1.26	1.90	0.93
25	Number of educational journals read regularly	2.77	1.47	2.90	1.65	2.90	1.36
26	Frequency of professional meetings attended	3.64	1.26	4.19	1.42	2.90	1.36
27	Number of organizational membership	3.63	1.48	4.00	1.43	3.04	1.43
28	Inter school visitation	9.86	3.35	12.47	4.09	7.90	3.83
29	Cosmopolite orientation	13.18	2.56	14.42	4.74	11.54	4.51
30	Need for autonomy	8.97	1.38	8.90	2.82	8.68	2.59
31	Principal's perception of the ability of the training college personnel to provide expert guidance	10.17	2.20	11.57	3.52	8.31	3.58
32	Educational level of the community	2.80	0.95	3.04	1.36	2.90	1.09
33	Community involvement in school	6.5	3.00	7.33	2.62	5.59	2.10
34	Parents' involvement in school	10.22	3.12	12.71	5.21	8.27	4.09
35	Type of the community where the school is located	1.71	0.51	1.80	0.60	1.72	0.69

Sr. No.	Name of the variable	All the schools		Schools with high adaptability		Schools with low adaptability	
		Mean	σ	Mean	σ	Mean	σ
36	Size of the school	4.6	1.26	4.09	1.97	4.63	1.84
37	Interest of the management	12.06	2.85	13.38	2.51	11.13	3.08
38	Distance of the training college in the city from the school	1.37	1.26	1.66	1.58	0.90	1.55
39	Distance of the training college outside the city from the school	13.4	11.4	26.6	13.3	36.8	17.4
40	Disengagement	1.74	0.48	1.78	0.45	1.72	0.47
41	Hindrance	2.05	0.63	2.07	0.61	1.98	0.56
42	Espirit	2.88	0.71	2.85	0.72	2.71	0.73
43	Intimacy	2.12	0.59	2.15	0.57	2.05	0.56
44	Aloofness	2.25	0.54	2.24	0.56	2.28	0.57
45	Production emphasis	2.74	0.70	2.85	0.72	2.59	0.66
46	Thrust	2.85	0.72	2.92	0.76	2.70	0.77
47	Consideration	2.60	0.68	2.67	0.66	2.48	0.71
48	Age of the teachers	38.80	8.80	35.02	8.74	35.11	8.81
49	Experience of the teachers	10.35	3.82	9.28	3.92	10.81	4.83

SECTION II

TESTING OF THE HYPOTHESES

For testing the hypotheses formulated in the present investigation, the design adopted is to test the significance of difference between the values of various variables for the schools with high and low adaptability. The differenceshave been tested for significance by applying the 't' test. The formula used to find out the value of 't' is:

$$t = \frac{\text{Difference between the two means}}{\text{Standard error of the difference}}$$

The standard error of the difference is given by the formula:

$$\sigma_D = \sqrt{\sigma_{M_1}^2 + \sigma_{M_2}^2}$$

in which M_1 = the S.E. of the first mean

M_2 = the S.E. of the second mean

σ_D = the S.E. of the difference between the two means.

S.E. of a mean is given by the formula:

$$\sigma_{M_1} = \frac{\sigma_1}{\sqrt{N_1}}$$

In the present case, the two samples are small (less than 30). Therefore, in finding out the standard

deviation, the formula used is:

$$SD = \sqrt{\frac{\Sigma x^2}{N - 1}}$$

In the present investigation, M_1 represents the mean score obtained on a variable for the high adaptable school group and M_2 represents the score obtained for a variable on the low adaptable school group.

The analysis of each variable using 't' test of significance is discussed in the pages that follow.

Variable 1 - Age

The hypothesis formulated is the null hypothesis, i.e.,

"The age of the principal does not influence the degree of school adaptability".

Table below gives the value of 't' for the variable:

TABLE 5.7

't' Value for Variable No.1

Group	Mean	S.D.	SE_M	$SE_{Diff.}$	't' ratio	Significance level	
						.05	.01
Adaptable	28.16	9.84	2.08				
				3.24	.30	X	X
Non-adaptable	27.2	11.84	2.48				

The value of 't' is not significant either at .01 or .05 level. This shows that there is no difference in the degree of adaptability of schools having young or old principals. The results therefore support the null hypothesis indicating no relationship between the age of the principal and school adaptability.

Carlson (1965a) in his study of the rate of adoption in Alleghany County schools found a negative correlation (-.27) between age and rate of adoption while in his West Virginia study the correlation between these two variables was .26 which though positive, is still not significant at .05 level of confidence.

Gross (1942), Rahudkar (1961) and Rogers (1961) found significant relationship between age and innovation. According to their studies, socialization of personality

occurs mainly in very early life and hence younger principals of a social system are more innovative. Carnic (1966), Lawrence (1967) and Hinmann (1967) found age not significantly related to the principal's innovativeness. Ahnell (1967) did not find any significant relationship between age and acceptance of innovation. Fleming (1967) got a negative relationship between innovativeness and the age of the principal. Bhogle (1969) found that older headmasters adopted more innovations. Seger and Holdaway (1966) in their research study in an urban school system in Western Canada found some, though not significant correlation between the age and innovativeness.

Thus, the various studies cited above show different contradictory results as regards the influence of age of the principal on his innovativeness.

Variable 2: Educational level of the principal

The hypothesis is,

"Educational level of the principal and his innovativeness bear significant relationship to each other".

Table below gives the value of 't' for the variable:

TABLE 5.8

't' Value for Variable No. 2

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	4.42	1.82	.39				
				.48	1.46	X	X
Non-adaptable	3.72	1.40	.29				

The value of 't' is 1.46. This is not significant at .01 or .05 level. The hypothesis formulated by the investigator is thus rejected.

Mort and Cornell (1941) in their Pennsylvania study noted a commonality among superintendents of poorly adaptable schools. They conclude that,

> ...the professional and personal qualities of the leader are of paramount importance in providing the setting for adaptability. (Mort and Cornell, 1941, pp. 223-224)

Skogsberg (1950) from his interview of superintendents of the most forward looking systems found certain characteristics common among them. One of them, which is quite typical that he could see is a high degree of professional training. Hobbs (1960), Rahim (1961), Sheppard (1960) and others as cited by Rogers (1962) also found education correlated positively to innovativeness.

While studying the variable, 'amount of education', in his Allegheny County schools, Carlson (1965a) found that the variable had a significant correlation of .40 with the rate of adoption. Marion (1966) found no direct relationship between amount of education of the principal and his innovativeness. Rogers, Joyce and others (1966) in their Thailand study found that, 'the principal who becomes aware of the innovation early, tends to have more education than his peers'. Elliot (1967) got a positive relationship between professional training and receptivity of innovation. Spencer (1967) also got a positive correlation between the educational level of the principals and innovativeness. Bhogle (1969) found no significant relationship between the level of education and the adoption of innovation.

In India, professional training has still not been validated against the criterion of effective functioning of schools. It still remains to be seen whether persons having a high level of education prove to be better principals and adopt more innovations.

The present study indicates no relationship between the educational level of the principal and school adaptability.

Variable 3 - Inservice training

The hypothesis formulated for being examined in the present investigation is a research hypothesis rather

than the null hypothesis. The hypothesis is,

"The principal undergoing regular programmes of inservice education adopts more innovations".

Table below gives the value of 't' for the variable:

TABLE 5.9

't' Value for Variable No. 3

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	6.52	3.36	.73	.89	2.52	/	X
Non-adaptable	4.27	2.36	.50				

The value of 't' is 2.52. This is significant at .05 level but not significant at .01 level. The hypothesis is, therefore, accepted. The extent of inservice education of the principal is a positive factor contributing to a higher degree of adaptability of school. Past researches also support this finding.

Ebey (1940) in his St.Louis study compared eight factors related to adaptability and found that the most contributive element to adaptability is the principal. He concluded that the recency of professional training is

helpful in developing innovative programmes in schools. He concludes that a continuous contact with inservice programmes helps to develop a principal's professional alertness and also innovativeness. Kumpf (1952) defining quality of lighthouse school principal stresses the point that it is essential for the principal of a leading school to keep himself fully informed of the current trends in education in order to fulfil his role as a leader of the staff and the community as well. Carlson (1965a) found a high positive correlation between a principal's recency in training and the rate of adoption. The correlation found by Carlson (1965a) between the inservice training and adaptability is .326, significant at .01 level of confidence. Fox and Lippitt (1964) found in their study that,

> ...those teachers participating in intensive summer workshop experience became the most highly involved, attempted the greatest number of new ideas in their classrooms and were most successful in bringing about some changes.

They further found that,

> ...teachers experiencing summer workshop plus consultation plus monthly clinic sessions produced a higher rate of innovation than those who were involved less extensively. (Miles, 1964, p. 296)

All these studies and also the present one show that inservice education of principals influences their ability to accept and implement new ideas in schools.

Variable 4 - Experience in the profession

The hypothesis formulated in the present study is,

"Schools having principals with long teaching experience are more adaptable".

Table below gives the 't' value for the variable.

TABLE 5.10

't' Value for Variable No.4

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	4.38	1.68	.36	.47	.53	X	X
Non-adaptable	4.13	1.46	.31				

The value of 't' is .53. This is not significant at .01 or .05 level. The hypothesis is, therefore, rejected. This means that the teaching experience of a principal does not contribute to the adaptability of a school.

Rogers, Joyce and others(1966) in their Thailand study found that principals of innovative schools had more experience as principal than those of non-innovative schools. Seger and Holdaway (1966) in their joint study found a negative correlation between the amount of experience and the indices of innovativeness. Klingenberg (1967) found that administrators having long experience contributed greatly in making the school more innovative.

Demeter (1951) found that educators with more than fifteen years of experience had always given a high rating to new educational activities. Bhogle (1967) concurs with the idea that headmasters with long teaching experience adopt more innovations.

The present study, however, does not identify the teaching experience of a principal as a contributing factor to school adaptability.

Variable 5 - Experience as a principal

The hypothesis formulated is the null hypothesis, i.e.,

"The experience of an individual as a school principal is not related to the adaptability of the school".

Table below gives the value of 't' for the variable.

TABLE 5.11 -

't' Value for Variable No.5

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.85	1.75	.38	.49	.08	X	X
Non-adaptable	2.81	1.51	.32				

The value of 't' ratio is .08 which is not significant at any level, either .01 or .05. The null hypothesis is, therefore, supported.

Variable 6 - Duration of service in the same school

The hypothesis formulated in the present study is a research hypothesis. It is hypothesized,

"Schools having principals with a long tenure have a greater degree of adaptability than those having principals with a short tenure".

Table below gives the value of 't' for the variable.

TABLE 5.12

't' Value for Variable No.6

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.28	1.65	.36	.48	.21	X	X
Non-adaptable	2.18	1.51	.32				

The value of 't' ratio is .21. This is not significant at .01 or .05 level. The hypothesis is, therefore, rejected. The results do not prove that the duration of service in the same school of a principal is

in anyway related to the adaptability of the school.

Normally, it is seen that longer a person holds a particular position, deeper becomes his understanding of the goals, problems and the role of the institution. It so happens at times that the person starts identifying himself with the instituion to such an extent that the prestige of the institution becomes his own prestige for him. This is really praise wortny as far as routine chorus is concerned, but the problem is, to what extent this adjustment and affinity help him in changing himself and his institution in this fast changing time.

Griffith (1959) finds that the longer an administrator stays in a position the less likely he is to accept and introduce change. Carlson (1965a) while comparing the scores attained by innovators and all those who had an equal chance to be innovators found a tendency for the innovators "to have shorter tenure in their present positions". In his Allegheny County study he found negative correlation whereas in his West Virginia study he found a positive correlation between 'term-in-office' and 'rate of adoption'. Hinman (1957) and Carnie (1966) found no association between the mean number of years in the school system of the principal/superintendent and the school's involvement in innovations. Seger and Holdaway (1966) found a negative though not significant

correlation between 'years in the system' and 'innovativeness'. Roosa (1969) found a correlation of .57 between 'years on the job as chief school administrator' and the rate of adoption of educational innovations". Laverne (1968) arrives at the conclusion that the tenure of a principal is always short in case of schools which are more innovative. Kaplan (1970) concludes from his study that principals with a longer tenure show greater concern for initiating structure. The findings are conflicting.

The present study does not show any relationship between a principal's tenure in the same school and adaptability of the school.

Variable 7 - Role satisfaction

The hypothesis being examined in this study is,

"Greater the satisfaction a principal has in performing his role, the higher is the degree of adaptability of the school".

Table below gives the value of 't' for the variable.

TABLE 5.13

't' Value for Variable No. 7

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	16.95	4.59	1.00	1.40	.16	X	X
Non-adaptable	16.72	4.62	.98				

The 't' ratio is not significant at either level. The above hypothesis is, therefore, rejected. The degree of role satisfaction does not seem to contribute to school adaptability.

This finding is contrary to Tannenbaum (1966) who concluded from his study that persons who dislike their jobs or working conditions usually withdraw in one way or the other. The diffusion study undertaken by Rogers, Nan Lin and others (1966) in three Michigan High Schools shows a positive relationship between role satisfaction and change orientation. The study by Rogers, Joyce and others (1966) shows a low but positive correlation between adoption time and role satisfaction.

Variable 8 - Feeling of security

The hypothesis being examined in the present

study is,

"The feeling of security of a principal and the adaptability of a school are positively related".

Table below gives the value of 't' for the variable.

TABLE 5.14

't' Value for Variable No. 8

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	14.57	3.50	.76	1.11	2.12	✓	X
Non-adaptable	12.21	3.81	.81				

The value of 't' (2.12) is significant at .05 level. The hypothesis is accepted. The results thus show significant relationship between principal's feeling of security and school adaptability.

This variable has been studied by a number of investigators during the course of last 20 years. McClellan (1952) in his study of 41 suburban members of the Metropolitan School Study Council, found that a feeling of security helps the principal in accomplishing his aims. Lippitt et al. (1958) list fear of anxiety among the most

frequently noted sources of resistance to innovation. They put,

> ...fear of losing some current satisfaction is the source of resistance to change. The leader at times sees a change or the adoption of innovation as a threat to the stability of his role. (Lippitt, et al., 1958, p. 180)

Rogers (1962) concludes, "This variable is only one of the antecedents in the actor's identity which are related to the degree of innovativeness of the actor". Ray Johns and others (1963) allude the need for security in adapting innovation. According to Kallen (1964) innovations are mostly resisted due to motives of self-interest and fear. Social psychologists have also recognized fear of anxiety as one of the intervening variables in the acceptance of change. Bohlem (1962) generalises that innovators and early adopters tend to be more secure as individuals than late adopters and laggards. He reports a high correlation between risk taking with relatively early adoption. Seger and Holdaway (1966) also find anxiety to be related to innovativeness. In their study they find anxiety contributing upto 33.7 per cent to predicting innovativeness. Marion (1966) does not find any significant relationship between innovativeness and feeling of security.

The present study shows significant relationship between innovativeness and feeling of security.

Variable 9 - Perceived self-rated administrative ability

The principal in his capacity as the administrator has to mind a number of problems arising from day-to-day administration. The school adaptability is likely to depend on the administrative ability of the school principal. The hypothesis being examined in this study is,

"The principal of a more adaptable school rates his administrative ability higher than the principal of a less adaptable school".

Table below gives the 't' value for the variable.

TABLE 5.15

't' Value for Variable No.9

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	18.96	4.46	.97	1.38	2.90	✓	✓
Non-adaptable	14.95	4.63	.98				

It is seen from the above table that the value of 't' ratio is significant at .01 level. The results show a significant relationship. The hypothesis is, therefore, accepted. This variable has been examined by Rogers,Joyce and other (1966) in their Michigan study and by Rogers,

Nan Lin and others (1966) in their Thailand study. Both the studies indicate that the principal of an innovative organization is likely to rate his administrative ability significantly higher than the principal of a non-innovative school. The present study also provides similar evidence regarding the relationship between school adaptability and the self-rated administrative ability of the school principal. Self-rated administrative ability is found to be a very significant determinant of school adaptability.

Variable 10 - Perceived peer-rating of administrative ability

The hypothesis formulated with respect to this variable is,

"Perceived peer-rating of the administrative ability of the principal and the school adaptability are positively related".

Table below gives the 't' value for the variable.

TABLE 5.16

't' Value for Variable No.10

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	17.89	4.52	.98	1.67	2.19	✓	X
Non-adaptable	14.23	5.15	1.09				

The difference between the mean scores of the two groups of schools is 3.66 in favour of more adaptable schools. The 't' value (2.19) is more than 2.02 which is required if the difference is to be statistically significant. Thus, there is a difference in the perceived peer-rating of administrative ability of the two groups and the difference is significant. The hypothesis, therefore, is accepted. This result agrees with the findings of Carlson (1965a) and Marion (1966). Marion (1966) found a positive relationship between peer-rating of principal's administrative ability and his innovativeness.

The present study also gives evidence of a significant difference between perceived peer-rating of administrative ability of principal of a more adaptable and a less adaptable school.

Variable 11 - Perceived inspector-rating of administrative ability

The district education officer exerts a powerful influence on school programme. This is specially so as the DEO's functions include supervision as well as inspection. In his role as a supervisor, he promotes innovations. In his role as an inspector, he evaluates the school and sanctions the grant. The school principal is always anxious to find out his reactions towards new programmes initiated by him. He is also concerned as to how his administrative

ability is rated by the DEO. At times there is a conflict between principal's perception of their role as change agents and the expectations of the DEO giving rise to a role conflict in the principal. The hypothesis being examined is formulated as,

"Principal's perception of inspector's rating of his administrative ability is significantly related to the adaptability of the school".

Table below gives the value of 't' for the variable.

TABLE 5.17

't' Value for Variable No.11

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	18.19	4.68	1.02	1.46	2.12	/	X
Non-adaptable	15.09	4.94	1.05				

It is seen from the table that the score on the perceived DEO's rating of principal's administrative ability is more in case of highly adaptable schools than that in case of non-adaptable schools. The difference is significant at .05 level. The hypothesis is, therefore, accepted.

No specific finding is available with regard to this variable in previous studies. One finding of Carlson (1965a) points that a superintendent performing his duties under conflicting standards is slow to adopt new practices. Bhogle (1969) did not find any relationship between role conflict and adoption of innovations. In the present study, however, statistical evidence is available to show the influence of perceived inspector-rating of administrative ability on school adaptability.

Variable 12 - Perceived training college personnel rating of administrative ability

Training college personnel are generally looked upon as persons with sound educational judgment, broader outlook and having a high calibre for rating the ability of school personnel to bring about the educational change. Naturally, when a principal perceives that his administrative ability is held high by teacher educators, he develops greater confidence in his role as a change agent. A school principal values quite high the ratings of his administrative ability by a teacher educator and especially the extension worker because he knows that his rating is done against the background of the ability of principals of other schools with whom the training college member is in contact. The hypothesis under study in this investigation is,

"Principal's perception of training college personnel's rating of his administrative ability is significantly related to the adaptability of the school".

Table below gives the value of 't' for the variable.

TABLE 5.18

't' Value for Variable No.12

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	13.71	3.33	.72	1.19	2.35	✓	X
Non-adaptable	10.91	4.47	.95				

It is clearly seen from the table that the difference between the scores of perceived training college personnel rating of administrative ability of principals of two groups of schools is statistically significant. The value of 't' ratio is 2.35 which is statistically significant at .05 level. This supports the hypothesis.

Rogers, Nan Lin and others (1966) have a similar finding.

Variable 13 - Perceived teacher-rating of administrative ability

While working in a social system like a school, an innovative principal is concerned about the perception of his administrative ability as rated by his teachers. His perception as to how his teachers rate him influences his morale and gives him greater confidence in pursuing his programmes. Thus, his perception of the rating of his administrative ability by teachers determines to a considerable extent his ability to develop new programmes and innovative practices. The hypothesis under study in this investigation is,

> "A school principal who perceives a higher teacher-rating of his administrative ability adopts more innovations than other principals".

Table below gives the value of 't' for the variable.

TABLE 5.19

't' Value for Variable No.13

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	18.68	4.48	.97	1.53	2.34	✓	X
Non-adaptable	15.09	5.59	1.19				

It is seen from the table that the score on this variable for highly adaptable schools is 18.68 whereas the score on the same for less adaptable schools is 15.09.This is definitely in favour of schools with high adaptability. The difference is statistically significant. The value of 't' ratio (2.34) is significant at .05 level. The hypothesis is, therefore, accepted. Teacher-rating of the administrative ability of the principal is a significant factor promoting school adaptability.

Variables 14, 15 - Reported performance feedback from the district education officer and training college personnel

These are two different variables belonging to the same group. Two different hypotheses were formulated with respect to these variables. They are:

"There is a significant relationship between the reported performance feedback from the district education officer and the adaptability of the school".

and

"There is a significant relationship between the reported performance feedback from the training college personnel and the adaptability of the school".

Table below gives the value of 't' for the variables.

TABLE 5.20

't' Value for Variables No.14 and 15

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	12.38	4.04	.88	1.23	1.20	X	X
Non-adaptable	10.90	4.01	.85				
Adaptable	13.33	4.79	1.04	1.44	1.68	X	X
Non-adaptable	10.90	4.66	.99				

Values of 't' ratio as seen from the table are 1.20 and 1.68 respectively. These values are not significant either at .01 or .05 level. The hypotheses formulated for the two variables are, therefore, rejected. Even though the values are not statistically significant in both the cases, it is found that the mean scores for the group of high adaptable schools are more than those of less adaptable schools. The principals of schools with high adaptability usually receive more feedback from the district inspector of schools and from the training college personnel than the principals of schools with low adaptability. Of course, these are not significant statistically. The casual constructive criticism mingled with constant encouragement and friendly suggestions from

the district inspector of schools make the principal more change oriented. Again the school principals take the observations by extension workers of colleges of education seriously and they feel encouraged in the pursuit of their innovative practices rather than discouraged. The training colleges have no authority over the schools. On the contrary, it is their professional responsibility to assist the schools in becoming change oriented. This peculiar position of the colleges of education make them more effective in bringing about change in schools. Mort and Cornell (1941) while discussing the role of teacher training institutes advocate.,

> ...skepticism combined with the desire to make changes where the reason for the changes is well understood, can perhaps be indicated by the teacher colleges. Along with this healthy skepticism, the teacher college should bring to the teachers an understanding of those forward steps which are now accepted without question in practice in the best schools, but which have not yet made their appearance in the vast majority of schools. Also, they should make the recruits to the profession more acutely aware of the dead practices that pervade the average school system. (Ross, 1958, p. 532).

The feedback from the training colleges does result in greater change orientation among the school principals. This is more so in India where innovating practices are taken to schools by colleges of education through their Extension Services Departments. Regarding the district inspector of schools, this agency has still not

been recognized as the prime source of recognition though efforts are being made to develop the district inspectors of schools as change agents. Rogers, Nan Lin and others (1966) found a correlation of .26 between the reported performance feedback from the principal and the self-perceived change orientation of the teachers. Rogers, Joyce and others (1966), however, got no relationship ($r = .067$) between the feedback from the district inspector of schools and the innovativeness of the principal. The present study does not indicate any relationship between the school adaptability and the performance feedback from either the district education officer or training college personnel.

Variables 16, 17 - Perceived change orientation of the district education officer and training college personnel

These are two separate variables clubbed together for sake of discussion. The two separate hypotheses are,

"The school adaptability and the perceived change orientation of the district education officer by the principal, bear a significant relationship with each other". and

"The school adaptability and the perceived change orientation of the training college personnel by the principal, bear a significant relationship with each other".

Table below gives the 't' value for the variables.

TABLE 5.21

't' Value for Variables No.16 and 17

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	16.52	5.57	1.21	1.55	1.24	X	X
Non-adaptable	14.59	4.57	.97				
Adaptable	16.71	4.91	1.07	1.61	1.18	X	X
Non-adaptable	14.81	5.68	1.21				

The low value of 't' ratio (1.24) shows that the difference is not significant in case of perceived change orientation of the district education officer. The hypothesis is, therefore, rejected. With respect to the perceived change orientation of the training college personnel, the value of 't' ratio (1.18) shows that the hypothesis is not accepted. These two variables do not seem to influence school adaptability.

Variables 18, 19 - Perceived equalitarian relationship with the district education officer and the training college personnel

These are again two separate variables, one related to the district inspector of schools and the other to the training college personnel. The two separate

hypotheses are:

"Principal's perception of equalitarian relationship with the district education officer is significantly related with the adaptability of the school". and

"Principal's perception of equalitarian relationship with the training college personnel is significantly related with the adaptability of the school".

Table below gives the value of 't' for the variables.

TABLE 5.22

't' Value for Variables No.18 and 19

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	7.57	2.89	.63	0.83	1.18	X	X
Non-adaptable	6.59	2.55	.54				
Adaptable	8.90	2.39	.52	0.84	2.06	✓	X
Non-adaptable	7.17	3.07	.65				

The value of 't' ratio in the first case is 1.18 which is not significant at .01 or .05 level. The

hypothesis is, thus, rejected. It indicates no relationship between the two variables viz. perceived equalitarian relationship with the district education officer and the school adaptability.

The value of 't' ratio in the second case is high compared to the first one. It is 2.06, significant at .05 level. The hypothesis is, therefore, accepted. It is interesting to compare the values of 't'. The higher value of 't' in case of training college personnel, indicates a greater influence of training college personnel in making the principal change oriented than that of the district inspector of schools. The perceived equalitarian relationship with the training college staff is a significant factor in promoting school adaptability.

Variable 20 - Perceived district inspector of school's support of innovation

The hypothesis formulated for this study is,

"Greater the district education officer's support of innovation as perceived by the principal, the higher the adaptability of the school".

The table below gives the 't' value for the variable:

TABLE 5.23

't' Value for Variable No.20

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	4.66	1.18	.25	.38	1.16	X	X
Non-adaptable	4.22	1.39	.29				

The value of 't' (1.16) is not significant at .01 or .05 level indicating no difference in the perceived district inspector of school's support of innovation by the principal of schools with high adaptability and those with low adaptability. The hypothesis is, therefore, rejected.

The study by Rogers, Nan Lin and others (1966) and that by Rogers, Joyce and others (1966) indicate a significant positive correlation between these variables. The support of district inspector of schools is necessary for innovative programmes in schools. However, the academic supervision by school inspectors has not reached a level of maturity when the inspector understands his role as a change agent and the promoter of innovations.

Variable 21 - Perceived training college personnel's support of innovations

The hypothesis formulated for this variable is,

"The principal who perceives a better support of innovations by training college personnel, adopts more innovations than other principals".

Table below gives the value of 't' for the variable.

TABLE 5.24

't' Value for Variable No.21

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	4.80	1.23	.26	.43	2.18	/	X
Non-adaptable	3.86	1.60	.34				

The high value of 't' (2.18) shows a statistically significance difference at .05 level. This indicates a positive influence of the perceived training college support of innovations on the school adaptability. The hypothesis is accepted.

Variable 22 - Perceived teachers' support of innovation

The hypothesis formulated is,

"There is a significant positive relationship between the perception of the principal of the teachers' support of an innovation and the school adaptability".

Table below gives the 't' value for the variable.

TABLE 5.25

't' Value for Variable No. 22

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	4.33	1.34	.29	.40	.15	X	X
Non-adaptable	4.27	1.33	.28				

The low value of 't' (.15) does not support the hypothesis. The hypothesis is, therefore, rejected.

Chester and Lippitt (1963) in their joint investigation on 'the attitude of the principal and staff norms in jointly influencing creative thinking' found that the highest number of innovations per teacher (5.2) were found to be in schools where the support of innovations was gained from both the sides, while the lowest number of innovations per teacher (3.5) were disclosed in schools where there was a lack of such support from both the sides.

Rogers, Joyce and others (1966) found .358 correlation between the principal's perception of teachers' support of innovations and the adoption of innovations.

The present result is contrary to other findings and logical thinking. The possible reason is a lack of democratic procedures in school administration in Indian schools.

Brickell (1961a) through his study of the process of innovation and change concludes that certain innovations could be introduced in schools by principals even though the same are not looked upon with favour by teachers. The position of the school principal in India gives him adequate power and authority. In many schools the administrator is highly authoritarian . Once the principal takes a decision, the teachers accept the same. No doubt, teachers' support of the innovation would give a greater momentum to the process of change in the school. The present finding only indicates that even without teachers' involvement some change is possible.

Variable 23 - General mass media exposure

The hypothesis formulated with respect to this variable is,

"A principal who is more exposed to mass media, adopts more innovations".

Tabel below gives the value of 't' for the variable.

TABLE 5.26

't' Value for Variable No.23

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	6.38	1.95	.42	0.62	0.63	X	X
Non-adaptable	6.77	2.19	.46				

The value of 't' (0.63) is not significant either at .01 or .05 level. The hypothesis is, therefore,rejected. Rogers, Nan Lin and others (1966) also did-not find any relationship between general mass media exposure and change orientation of the principals in their Michigan study. However, Rogers, Joyce and others (1966) study in Thailand reports significant positive correlation (.351) between general mass media exposure and the adoption of innovations by the principal. Marion (1966) reports that innovators and early adopters use mass media sources of information. The finding of the present study, however, does not show any relationship between principal's exposure to mass media and school adaptability.

Variable 24 - Number of non-professional journals read regularly

The hypothesis being examined is,

"A principal who reads a greater number of non-professional journals regularly, adopts more innovations".

Table below gives the value of 't' for the variable:

TABLE 5.27

't' Value for Variable No. 24

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.23	1.26	.27	0.33	1.00	X	X
Non-adaptable	1.90	0.93	.19				

The small value of 't' (1.00) indicates that the difference is not significant. The hypothesis is, therefore, rejected. From the discussion and observation of the routine work of the principals, one thing was clear that they hardly had the habit of reading non-professional literature. Lack of time is the normal reason given and the non-availability of non-professional journals is the second reason extended. This variable is found to have no

influence on the school adaptability.

Variable 25 - Nnmber of educational journals read regularly

The hypothesis formulated for the study is,

"There is a significant relationship between the number of educational journals read regularly by a principal and the adaptability of the school".

Table below gives the value of 't' for the variable.

TABLE 5.28

't' Value for Variable No.25

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.90	1.65	.36	0.46	0.00	X	X
Non-adaptable	2.90	1.36	.29				

It is seen from the table that the mean score of the number of journals read by the principal of a school with high adaptability and that of a school with low adaptability is the same. The value of 't' is 0. The hypothesis is, therefore, rejected. This result is rather strange. The past researchers unanimously show a positive

relationship between the number of professional journals read and innovativeness.

Carter and Williams' (1957) study of innovativeness of fifty English industrial firms showed that, "Adequate information sources as measured by subscription to scientific journals and degree of contact with universities", was one of the five factors related to innovativeness.

Kumpf (1952) commenting on the reading habits of the teachers said that weaker teachers were found to be more interested in novels or the fiction type of literature than were their more competent colleagues. According to him the fact whether the educational literature is considered dry and uninspiring or is looked upon as an important source of guidance for future action, gives a clue in judging the degree of interest of the person concerned in the problems of education.

Study by Rogers, Nan Lin and others (1966) showed a significant correlation of .22 between the number of professional journals read regularly by the teacher and the internalization of innovation.

Study by Rogers, Joyce and others (1966) showed significant correlations of .154, .148 and .138 between the number of professional journals read regularly by the teachers and all the three dependent variables (time of

awareness, time of adoption and perceived beneficiality of innovation) respectively.

From the past research, it is seen that innovators as well as early adopters give greater weightage to scientific information about innovations which is likely to be found in professional journals in form of research reviews and abstracts.

The present study, however, indicates no relationship between the number of professional journals read and school adaptability. The investigator on further inquiry found that most of the schools subscribe to three or four professional journals which are available in Gujarati. These are: (1) Nutan Shikshan, (ii) Saraswat, the journal published by Gujarat State Headmasters' Federation, (iii) Kodiyun and (iv) Gharshala. A few schools subscribe to 'Progress of Education' also. In absence of a large number of professional journals available in Gujarati language, even the innovative principals cannot read more journals though they would like to do so very much. Almost all the headmasters were of the opinion that there is a general apathy towards reading materials printed in English and therefore the schools did not subscribe to professional journals in English language. This might possibly explain the strange finding in the present case.

Variable 26 - Frequency of professional meetings attended

The hypothesis examined with respect to this variable is,

"The adaptability of a school is significantly related to the frequency of professional meetings attended by the principal".

Table below gives the value of 't' for the variable.

TABLE 5.29

't' Value for Variable No.26

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	4.19	1.42	.81	.43	3.00	✓	✓
Non-adaptable	2.90	1.36	.29				

The high value of 't' (3.00) indicates that the mean difference between the number of professional meetings attended by the principal of adaptable and non-adaptable school is statistically highly significant. The hypothesis is accepted. One of the main factors influencing the school adaptability is positively the frequenty of professional meetings attended by the principal. A number

of other studies also support this finding.

Rogers (1952) found that innovators and early adopters always depended more on impersonal sources of information. Thus, the willingness to meet more unknown people from outside through such meetings is a sure sign of innovativeness.

Menzel and Katz (1955) showed that medical doctors who were innovators attended more out of town professional meetings than non-innovators.

Carlson (1965a) while differentiating between adopters and non-adopters indicated that "non-adopters participated in fewer professional meetings". Rogers, Nan Lin and others (1966) did not find any correlation of this variable with any of its dependent variables. But Rogers, Joyce and others (1966) from their study concluded that principals who adopted innovations relatively early tended to communicate more frequently with other principals.

Variable 27 - Number of organizational membership

The hypothesis is,

"A principal of a school with high adaptability holds membership of a greater number of educational organizations".

Table below gives the value of 't' for the variable.

TABLE 5.30

't' Value for Variable No. 27

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	4.00	1.48	.32	.44	2.18	/	X
Non-adaptable	3.04	1.43	.30				

The value of 't' is 2.18. This is significant at .05 level. The hypothesis is, therefore, accepted, School adaptability is directly related to the number of organizational membership of the principal. The findings of other studies also are in support of the present finding.

Seger and Holdaway (1966) held this factor significant to a certain extent in predicting innovativeness. Carlson (1965a) attached considerable importance to council membership and adoption of innovation. Rogers, Nan Lin and others (1966) found significant correlation (.26) between the number of organizational membership held by a teacher and the internalization of an innovation. Marion (1966) in his study found that innovative and non-innovative principals differ in the type and number of organizational membership they hold.

In the present study, this variable has come out as a significant factor contributing to school adaptability.

Variable 28 - Inter-school visitation

The hypothesis formulated with respect to this variable is,

"The adaptability of a school is related significantly to the extent of inter school visitation programme of the principal".

Table below gives the value of 't' for the variable.

TABLE 5.31

't' Value for Variable No.28

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	12.47	4.09	.89	1.20	3.80	✓	✓
Non-adaptable	7.90	3.83	.81				

The table shows that the mean score on the variable, 'inter school visitation' is 12.47 for principals of schools with high adaptability and the same is 7.90 for principals of schools with low adaptability. The difference is 4.57. The value of 't' is 3.80 which is highly significant. The hypothesis is, therefore, accepted. Inter school visitation by the principal is one of the major

contributing factors promoting school adaptability. Other studies also yield similar findings.

Lant (1950) with his staff conducted a number of experiments to find out the best out of inter visitation programme. He found that without any plan to visit, or without checking up for which practice to visit, the inter visitation does not serve any purpose. Unless the practice for which the inter visitation programme is undertaken is getting done in a better way, with newer technique, there is no fun in visiting the schools and wasting time. The gist of his research can be,

> "...with proper preparation and follow-up,inter visitation programmes were among the most effective supervisory devices for the improvement of instruction. (Ross,1958, p.433)

Kumpf (1952) also advocated the inter visitation programme as one of the means to infuse creativity and innovativeness in teachers.

Carlson (1965a) in his study found that though inter visitation was considered to be a powerful factor in making a superintendent aware of new practices, of all the variables, this variable had the least relationship (.02) with rate of adoption.

Visiting , he wrote,

> Considered to be evidence of the superintendent's interest in new practices and experimentation, as well as a means of communicating about new ideas, was thought to be correlated with rates of

> adoption. It was assumed that the more a superintendent and his staff visited other school systems to study new practices, the higher the rate of adoption of innovation. (Carlson, 1965a, p. 55).

In his Alleghany County study the matrix shows a significant correlation (.36) between "council membership" and "the number of visits". Therefore, he concluded that,

> ...visiting schools to study new practices, though it may achieve other purposes, does not contribute to the rate of adoption of innovation. (Carlson, 1965a, p. 57)

Variable 29 - Cosmopolite orientation

The hypothesis is,

"The school adaptability and the cosmopoliteness of the principal are significantly related".

Table below gives the value of 't' for the variable.

TABLE 5.32

't' Value for Variable No. 29

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	14.42	4.74	1.03	1.41	2.04	/	X
Non-adaptable	11.54	4.51	.96				

The 't' value is 2.04 which is significant at .05 level. The hypothesis is, therefore, supported statistically. School adaptability is, thus, directly related to the cosmopolite character of the principal. A large number of adoption studies have studied this factor in relation to adoption of innovations.

Suthoff (1960) in his study found cosmopolites to have broader perspective of education and have fresh ideas about educational practices. They prefer innovation consonant with educational development at the State and National level.

Menzel and Katz (1955) reported that doctors who were innovators showed greater interest in attending out of town professional meetings than those who were non-innovators.

Research in industrial sociology reports a positive correlation between cosmopoliteness as indicated by worldwide travel of executives, lack of secretiveness with plant visitors and innovativeness.

Ryan and Gross (1943) also reported a positive significant relationship between time of adoption of hybrid seed and the number of trips outside the locality by the adopters.

According to Ross (1958) the educational

researchers have found that schools which are more innovative are characterized by teachers who attend out-of-town educational meetings and who read widely to find new ideas. These teachers turn out to be those who have worked in several different school systems.

Advocating cosmopoliteness Tarde (1903) writes,

> ...to innovate, to discover, to awake for an instant, the individual must escape, for the time being, from his social surroundings.Such unusual audacity makes him super-social rather than social. (Miles, 1964, p. 475)

Majmudar (1966) while undertaking a study with 30 farmers in 24 paragnas, in order to discriminate between the adopters and non-adopters of some improved agricultural practices with reference to some important adjustment patterns gave the findings that there was highly significant difference in the social adjustment of adopters and non-adopters. Non-adopters were found to be introvert and were resistant to change and felt psychologically strained in altered social surroundings. They also felt insecure with any new orientation or re-organization in their pattern of life.

Carlson (1965a) gathered data on cosmopoliteness in three ways; (i) on the count of professional meetings held outside the geographical area and attended by the respondent, (ii) sources of information and advice; (iii) the summation of the above two. He could find the

variable significantly correlated only in one sample (West Virginia).

Rogers, Nan Lin and others (1966) did not find any correlation between cosmopolite orientation and diffusion of innovation among the teachers of three different schools in Michigan.

Cosmopolite orientation has been found to be a significant factor influencing school adaptability in the present study.

Variable 30 - Need for autonomy

The hypothesis is,

"The need for autonomy felt by the principal is not in anyway related to school adaptability".

Table below gives the value of 't' for the variable.

TABLE 5.33

't' Value for Variable No.30

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	8.90	2.82	.61	.82	.26	X	X
Non-adaptable	8,68	2.59	.55				

The low value of 't' (.26) indicates absence of significant difference between the scores on 'need for autonomy' of principals of adaptable and non-adaptable schools. The hypothesis formulated for the variable in the study is accepted. In schools in India, there is no difference between the principals of adaptable and non-adaptable schools so far as need for autonomy is concerned. Rogers, Nan Lin and others (1966) also found a negative but not significant correlation between 'the need for autonomy' and 'internalization of innovations'.

Variable 31 - Principal's perception of the ability of the training college personnel to provide expert guidance

The hypothesis formulated for being examined is,

"The adaptability of a school is related positively to the principal's perception of the ability of the training college personnel to provide expert guidance".

Table below gives the 't' value for the variable.

TABLE 5.34

't' Value for Variable No.31

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	11.57	3.52	.76	1.08	3.01	✓	✓
Non-adaptable	8.31	3.58	.76				

The high value of 't' (3.01) shows that the difference is significant. The hypothesis is, therefore, accepted. The adaptability of the school is positively influenced by the principal's perception of the ability of the training college personnel to provide expert guidance. Rogers, Nan Lin and others' (1966) study also provides a similar finding. The study yields a significant correlation (.19 and .20) between this variable and teacher's innovativeness.

Variable 32 - Educational level of the community

The hypothesis under examination is,

"The adaptability of a school is positively related to the educational level of the community".

Table below gives the value of 't' for the variable.

TABLE 5.35

't' Value for Variable No.32

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	3.04	1.36	.29	.37	.37	X	X
Non-adaptable	2.90	1.09	.23				

The low value of 't' (.37) shows that the difference between the scores for the two groups of schools is not significant. The hypothesis is, therefore, rejected. It means that school adaptability and the educational level of community are not related. There are other studies with different findings so far as this factor is concerned. Mort and Vincent found that,

> ...schools tend to be better in communities where the general educational level of the population is high, where occupations run toward the professions, the white-collar jobs and highly skilled trades with few unskilled workers' in the population. (Mort and Vincent, 1946,pp.89-90)

Pierce (1947) studying the various characteristics of the community on adaptability, concluded,

> There is a significant relationship between the present status of education in a community and the level of education which has been attained by the adult population of the community. (Ross, 1958, p. 237)

The finding in the present study can possibly be explained by the fact that there is no special involvement of the community in the school establishment. The schools are either managed by government or by private managements. The way in which the community is involved in running of the schools in the western country, specially in U.S.A., is absent in India. Of course, in small towns and villages, the community does take interest in school. But here a few leaders who are either political workers or the rural rich are involved in the management. Most of these persons do

not differ as far as their educational level is concerned.

Variable 33 - Community involvement in the school

The hypothesis in the present investigation is,

"The school adaptability is significantly related with the extent of community involvement in the school".

Table below gives the value of 't' for the variable.

TABLE 5.36

't' Value for Variable No. 33

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	7.33	2.62	.57	.72	2.41	/	X
Non-adaptable	5.59	2.10	.44				

The value of 't' (2.41) is significant at .05 level. The hypothesis is, therefore, accepted.

Variable 34 - Parents' involvement in the school

The hypothesis for this variable is,

"The school adaptability is significantly related to the parents' involvement in the school".

Table below gives the 't' value for the variable.

TABLE 5.37

't' Value for Variable No. 34

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	12.71	5.21	1.13	1.43	3.10	/	/
Non-adaptable	8.27	4.09	.87				

The value of 't' (3.10) is highly significant. The hypothesis is, therefore, accepted. Parents' involvement in the school is one of the major factors influencing the adaptability of school. Two studies undertaken during fifties also arrive at the same conclusion. Gallagher (1949) found a highly significant relationship between functioning of parent-teachers associations and adaptability, while analysing the effect of various types of symbiotic groups. Britton (1947) found that wherever the parents' organizations were alert and active the schools having these organizations were found to be more adaptable. He advocated the idea that in order to get more involvement of parents' organizations in the working of the schools, they should be well informed of the needs for change and of the means of satisfying the same.

Variable 35 - Type of the school

The hypothesis for this variable is,

"The adaptability of a school is not significantly related to the type of community where it is located".

Table below gives the 't' value for the variable.

TABLE 5.38

't' Value for Variable No. 35

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	1.80	0.60	.13	.19	.42	X	X
Non-adaptable	1.72	0.69	.14				

The value of 't' is .42. This is not significant at either .01 or .05 level. The null hypothesis is, therefore, supported.

Variable 36: Size of the school

The hypothesis being tested is,

"The school adaptability and the size of the school are significantly related".

Table below gives the value of 't' for the

variable.

TABLE 5.39

't' Value for Variable No.36

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	4.09	1.99	.41	.50	1.08	X	X
Non-adaptable	4.63	1.84	.29				

The value of 't' (1.08) is not significant at .01 or .05 level. The hypothesis is, therefore, rejected. The size of the school according to this study does not influence its adaptability. There are some studies, which show a positive relationship between the school size and adaptability.

Mort (1946), Adler (1955) and Griffith (1963) found that larger schools possessed certain characteristics which were conducive to change. In India, Bhogle (1969) found that larger schools were more ready to adopt a larger number of innovations. Rao (1967) found that schools with a strength of pupils within the range of 500 to 750 adopted more innovations than schools falling outside this range.

Variable 37 - Interest of the management

The hypothesis in the present investigation is,

"The adaptability of a school is significantly related to the interest taken by the management in the school programme".

Table below gives the value of 't' for the variable:

TABLE 5.40

't' Value for Variable No. 37

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	13.38	2.51	.54	.98	2.29	✓	X
Non-adaptable	11.13	3.88	.82				

The value of 't((2.29) is significant at .05 level. The hypothesis is, therefore, accepted. Interest of the management is, therefore, a factor in determining the adaptability of a school.

Variables 38, 39 - Distance of the school from the training college and school adaptability

This variable has been treated in two ways. One deals with the schools located in the same place as the

training college. In the second case the schools located in the moffusil area are considered. In both the cases the same hypothesis is being examined.

"The more adaptable schools are located near the training colleges".

Table No.5.41 gives the value of 't' ratio for schools located within the city where the training college is situated.

TABLE 5.41

't' Value for Variable No. 38

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	1.66	1.58	.34	.47	1.61	X	X
Non-adaptable	0.90	1.55	.33				

The value of 't' (1.61) is not significant at .01 or .05 level. The hypothesis, therefore, in this case is rejected. The conclusion is that within the same city, distance of a school from the training college does not influence its adaptability. Regarding the schools which are located in the interior, value of 't' is given in table 5.42.

TABLE 5.42

't' Value for Variable No.39

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	26.6	13.3	2.9	4.6	2.22	/	X
Non-adaptable	36.8	17.4	3.7				

The value of 't' (2.22) is significant at .05 level. The hypothesis is accepted. This shows that the distance of schools situated in moffusil area from the training college influences their adaptability. The mean distance of schools with high adaptability is about 27 kilometers whereas the mean distance of schools with low adaptability is about 37 kilometers. Thus, more adaptable schools are normally located in places near the training college than less adaptable schools.

Within the same city, schools find it easy to approach a training college because of the facility of public transport. Even a school located at a considerable distance from a training college does not find difficult to approach training college because of quick means of transport. Distance, therefore, does not affect school adaptability within the city. On the other hand, schools located in moffusil area have to depend upon the State

Transport which will mean expenditure. Schools which are located in places not far from the places of the training college can make more frequent visits to the training college than schools situated in far off places. This variable seems to influence school adaptability specially in case of schools situated in the moffusial area.

Variable 40 - Disengagement

The hypothesis formulated with respect to this variable is,

"The school adaptability is not significantly related to the tendency of disengagement on the part of the teachers".

Table below gives the value of 't' for the variable.

TABLE 5.43

't' Value for Variable No.40

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	1.78	0.45	.09	.23	.26	X	X
Non-adaptable	1.72	0.47	.21				

The value of 't' (.26) is not significant. The

null hypothesis is accepted. The disengagement tendency on the part of teachers does not influence the school adaptability.

Bennet (1968) in his study of secondary schools adopting innovations in Pennsylvania and New York also found no relationship between this variable and the number of innovations adopted by the school system. He concluded that disengagement taken independently has no relationship with the number of innovations adopted by the school.

Variable 41 - Hindrance

The hypothesis being examined is,

"The adaptability of the school is not significantly related to the feeling of hindrance on the part of the teachers".

Table below gives the value of 't' for the variable.

TABLE 5.44

't' Value for Variable No.41

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.07	0.61	.13	.18	.50	X	X
Non-adaptable	1.98	0.56	.12				

't' value is not significant. The null hypothesis is, therefore, accepted. The school adaptability bears no relationship with the feeling of hindrance on the part of teachers.

Bennet (1968) has also arrived at the same conclusion.

Variable 42 - Espirit

The hypothesis is,

"The feeling of espirit amongst teachers and school adaptability are significantly related".

Table below gives the 't' value for the variable.

TABLE 5.45

't' Value for Variable No. 42

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.85	0.72	.15	.21	0.67	X	X
Non-adaptable	2.71	0.73	.15				

The value of 't' is not significant. The hypothesis is, therefore, rejected. Teachers' morale is not found to be a contributing factor to the adaptability of the school.

Bennet (1968) has felt the importance of this variable. He got a positive correlation (.23) between 'espirit' and 'number of innovations' adopted by the secondary school. The finding of this study, however, is contradictory to Bennet's finding.

Variable 43 - Intimacy

The hypothesis is,

"The feeling of intimacy among the teachers and school adaptability are significantly related to each other".

Table below gives the value of 't' for the variable.

TABLE 5.46

't' Value for Variable No.43

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.15	0.57	.12	.17	.58	X	X
Non-adaptable	2.05	0.56	.12				

The value of 't' is not significant. The hypothesis is rejected. This shows that intimacy is not a significant factor contributing to school adaptability.

Bennet (1968) found a correlation of .21 between 'intimacy' and 'number of innovations' adopted by the school which, however, is not statistically significant.

Variable 44 - Aloofness

The hypothesis formulated for this variable is,

"The principals of non-adaptable schools have a greater tendency to remain aloof than those of adaptable schools".

Table below gives the value of 't' for the variable.

TABLE 5.47

't' Value for variable No.44

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.24	0.56	.12	.17	.23	X	X
Non-adaptable	2.28	0.57	.12				

The value of 't' is not significant. The hypothesis is, therefore, rejected. The principal's aloofness does not influence the school adaptability. Some interesting results have been reported with respect to this variable

from past studies.

Marry Estill (1945) has concluded that aloofness in the principal correlated negatively with the innovativeness amongst teachers. Moyer (1954) and Arensberg and Nichoff (1960) arrived at the same conclusion. Bennet (1968), however, found a high positive correlation between aloofness and number of innovations. Though the relationship is not statistically significant, he is of the opinion that as the principal keeps himself quite aloof even emotionally, he is likely to get more work from the teachers using his businesslike approach in dealing with them and this may induce a larger number of innovations amongst teachers.

Variable 45 - Production emphasis

The hypothesis is,

"The principal with a strong production emphasis adopts more innovations".

Table below gives the value of 't' for the variable.

TABLE 5.48

't' Value for Variable No.45

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.85	0.72	.15	.20	1.30	X	X
Non-adaptable	2.59	0.66	.14				

The value of 't' is not significant at any level. The hypothesis is, therefore, rejected. Production emphasis on the part of the principal does not contribute to school adaptability. Contradictory findings are found in past researches on this variable.

Griffith (1963) found positive correlation between production emphasis and adoption of innovations. Hilfinker (1970) found no relationship between production emphasis and number of innovations. Rogers (1963) advocated the theory of psychological freedom and stated that a group would spontaneously form greater number of creative products if conditions of psychological freedom were established by the leader.

Miles (1965) also indicated that groups could be expected to experience high autonomy and spontaneity with freedom for creative experimentation, high quality problem

solving through increased communication and norms that actively support change.

Moyer (1954) in his study found that the more the principal encouraged teachers to be less dependent on him and more interdependent, the higher was the teacher satisfaction in the group. He found a positive relationship between teacher activities and teacher relations.

Flesche, Masters and Eliot (1964) observe that a leader is very important in innnvation process, but group support is also equally important. If the innovative person or the group obtains support of the high status members from the target system (staff) in which innovation is contemplated, the more likely it is that the innovation will be adopted.

Bennet (1968) found a correlation of -.45 between production emphasis and number of innovations. He concluded that high production emphasis had an inverse relationship with number of innovations.

Variable 46 - Thrust

The hypothesis is,

"The principal of a more adaptable school possesses greater thrust than the principal of a less adaptable school".

The table below gives the 't' value for the variable.

TABLE 5.49

't' Value for Variable No.46

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.92	0.76	.16	.23	.96	X	X
Non-adaptable	2.70	0.77	.16				

The value of 't' is not significant. The hypothesis is, therefore, rejected. Thrust on the part of the principal does not contribute to increasing the school adaptability. The present finding agrees with the finding of Bennet (1968) who did not observe any significant relationship between thrust and number of innovations.

Variable 47 - Consideration

The hypothesis under investigation is,

"The principal of an adaptable school shows more consideration to his staff than the principal of a non-adaptable school".

Table below gives the 't' value for the variable.

TABLE 5.50

't' Value for Variable No.47

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	2.67	0.66	.14	.21	.90	X	X
Non-adaptable	2.48	0.71	.15				

The value of 't' is not significant.The hypothesis is, therefore, rejected. According to this finding consideration is not related to school adaptability. The findings by other researchers are also conflicting.

Hilfinker (1970) in his study found significant relationship between innovativeness and interpersonal process norms of openness and thrust, as well as the social support perceived by the teachers from the principal.

Roosa Jack (1969) did not find significant relationship between the rate of adoption of educational innovations and the 'consideration of the school administrator to the staff'.

Variable 48 - Age of the teachers

The hypothesis formulated in the present study is,

"The school adaptability is not related to the median age of the teachers".

Table below gives the 't' value for the variable.

TABLE 5.51

't' Value for Variable No.48

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	35.02	8.74	1.90	2.67	.03	X	X
Non-adaptable	35.11	8.81	1.87				

The value of 't' is .03. This is not significant at .01 or .05 level. The null hypothesis is, therefore, accepted. The study shows that the median age of teachers is not in anyway related to school adaptability.

Mort and Cornell (1941) found a positive and significant though not high relationship between the median age of the teachers and the adaptability of the school system. But keeping the influence of financial resources and size of the community constant, it is reported that the relationship between teachers' median age and adaptability disappears completely. They, at the end of their study, concluded that the belief that older teachers are out-of-date or unprogressive in their ideas, as well as

the belief that younger teachers because of their recent training are well-informed and more receptive to educational change, were both false and cannot be sustained.

Rao (1967) and Hilfinker (1970) also did not find any relationship between innovativeness and the age of the teachers, but Laverne (1968) found schools having younger professional staff to be more innovative whereas Bhogle (1969) concluded that older teachers were more ready to accept innovations. The findings are conflicting.

Variable 49 - Experience of the teachers

The hypothesis being examined is,

"Schools having teachers with long teaching experience adopt more innovations".

Table below gives the 't' value for the variable.

TABLE 5.52

't' Value for Variable No.49

Group	Mean	S.D.	SE_M	SE_{Diff}	't' ratio	Significance level	
						.05	.01
Adaptable	9.28	3.92	.85	1.84	.83	X	X
Non-adaptable	10.81	4.83	1.63				

The value of 't' is .83. It is neither significant

at .01 or .05 level. The hypothesis is, therefore, rejected. The study indicates no relationship between the experience of teachers and the adaptability of schools.

Bhogle (1969) in her study did not find any significant relationship between the experience of teachers and acceptance of innovations. Study by Rao (1967) also has yielded similar results.

Age, experience, cosmopoliteness are all mutually interdependent variables. With increased age, the experience increases which may result into increased cosmopolite orientation. In the present study, age and experience have been found to have no influence on the school adaptability.

DISCUSSION

The above analysis of the data using the technique of 't' test has identified eighteen variables which seem to influence the ability of a school to be innovative. The investigator had started with fortynine variables. Out of these variables age, experience, educational level, long duration of service in the same school, role satisfaction and most of the dimensions constituting the organizational climate etc. do not appear to be related with school adaptability. The eighteen variables found as influencing factors of school adaptability are:

1. Inservice training,
2. Feeling of security,
3. Perceived self-rated administrative ability,
4. Perceived peer-rating of administrative ability,
5. Perceived inspector's-rating of administrative ability.
6. Perceived training college personnel rating of administrative ability,
7. Perceived teacher-rating of administrative ability,
8. Perceived equalitarian relationship with the training college personnel,
9. Perceived training college personnels' support of innovations.
10. Frequency of professional meetings attended,
11. Number of organizational membership,
12. Inter school visitation,
13. Cosmopolite orientation,
14. Principal's perception of the ability of the training college personnel to provide expert guidance,
15. Community involvement in the school,
16. Parents' involvement in the school,
17. Interest of the management,
18. Distance of the training college outside the city from the school.

Some of the personality variables of the principal like aloofness, production emphasis, thrust, consideration and the need for autonomy have been found to have no significant influence on the school adaptability.

An analytical study of the variables found related to school adaptability reveals different variables forming specific meaningful clusters. One finds at least four clear-cut categories into which seventeen out of the eighteen variables could be classified. These are:

A. Exposure to new ideas:

The following variables belong to this category:

1. Inservice training
2. Frequency of professional meetings attended
3. Number of organizational membership
4. Inter school visitation
5. Cosmopolite orientation
6. Equalitarian relationship with training college personnel.

B. Administrative ability:

The following variables belong to this category:

1. Perceived self-rated administrative ability
2. Perceived peer-rating of administrative ability
3. Perceived district inspector of schools rating of administrative ability

4. Perceived training college personnel rating of administrative ability
5. Perceived teachers' rating of administrative ability.

C. Positive reinforcement from authorities - administrative and academic:

The following variables belong to this category:

1. Feeling of security
2. Interest of the management
3. Perceived training college personnel's support of innovations
4. Principal's perception of the ability of the training college personnel to provide expert guidance.

D. Community involvement in school activities:

The following variables belong to this category;

1. Parents' involvement in the school
2. Community involvement in the school.

One stray variable found influencing school adaptability is:

(i) Distance of the training college outside the city from the school.

The use of 't' test technique in a study involving

a large number of variables has one limitation viz. the inability to control the mutual influence of variables on one another. Where there are as many as fortynine variables, such a control poses complex statistical problems. The multivariate analysis is the sound statistical technique for the analysis of data in a problem of this type. This analysis has been undertaken in Section IV of this chapter.

SECTION III

STUDY OF CORRELATIONS

In this section the relationship of each independent variable with the criterion variable viz. 'school adaptability', has been studied using the correlational technique. As there are fifty variables, the inter-correlations were calculated by feeding the data to the computer. A 50 x 50 matrix of inter-correlations between the variables was got prepared. The matrix was necessary as the final stage of the analysis was to be the multiple regression analysis. The product moment 'r's between the independent variables and the dependent variable were calculated.

TABLE 5.53

Product Moment 'r' Between the Independent Variables and 'School Adaptability'

Independent Variable No.	Product moment 'r' of the independent variable with 'school adaptability'	Remarks
1	.085	
2	.103	
3	.328	* *
4	.178	
5	.046	
6	.083	
7	.125	
8	.305	*
9	.325	* *
10	.366	* *
11	.339	* *
12	.394	* *
13	.361	* *
14	.199	
15	.258	*
16	.202	
17	.274	*
18	.183	
19	.336	* *
20	.279	*
21	.409	* *

Independent Variable No.	Product moment 'r' of the independent variable with 'school adaptability'	Remarks
22	.094	
23	-.048	
24	.054	
25	.102	
26	.413	* *
27	.295	*
28	.495	* *
29	.334	* *
30	.048	
31	.483	* *
32	.095	
33	.317	* *
34	.447	
35	.076	
36	-.061	
37	.314	* *
38	.283	*
39	-.269	*
40	.0852	
41	.064	
42	.149	
43	.149	

Independent Variable No.	Product moment 'r' of the independent variable with 'school adaptability'	Remarks
44	-.073	
45	.250	*
46	.273	*
47	.298	*
48	-.029	
49	-.117	

* denotes significant 'r' at .05 level

* * denotes significant 'r' at .01 level.

From table No. 5.53, it is seen that fifteen variables show a high coefficient of correlation (.01 level of significance) with the criterion variable and ten other variables also yield a product moment 'r' significant at .05 level with the criterion variable. Those variables which yield significant 'r' at .01 level are also found associated with adaptable schools in the 't' test analysis in Section II. These variables are, variables Nos. 3, 9, 10, 11, 12, 13, 19, 21, 26, 28, 29, 31, 33, 34, 37. Variables Nos. 8, 27 and 29 yield a value of 'r' significant at .05 level. These variables are also found associated with adaptable schools in 't' test analysis. Seven additional variables which have not been found discriminating in the 't' test analysis have been found to yield significant 'r' (at .05 level). These variables are:

1. Reported performance feedback from the training college personnel.
2. Perceived change orientation of the training college personnel.
3. Perceived district inspector of schools' support of innovation.
4. Distance of the training college in the city from the school.
5. Production emphasis.
6. Thrust.
7. Consideration.

Earlier it was shown in Section II that the variables associated with school adaptability appeared to fall into four distinct categories. A study of the variables showing significant relationship with school adaptability on the basis of product moment 'r' again indicates similar clusters or categories.

These clusters may again be named as (i) exposure of school faculty to newer ideas, (ii) administrative ability of the school principal, (iii) positive reinforcement received from authorities and (iv) community involvement in school activities. In the following pages an account is given of the variables included under the above clusters as related to the innovativeness of the school.

TABLE 5.54

Variables Significantly Related to Adaptability Score

Variables	Correlation with adaptability score
A. Exposure to new ideas:	
(i) Inservice training	0.328
(ii) Professional meetings	0.413
(iii) Inter school visitation	0.495
(iv) Cosmopolite orientation	0.334
(v) No. of organizational membership	0.295
(vi) Contact with training college:	
(i) Perceived equalitarian relationship with training college personnel	0.336
(ii) Perceived change orientation of the training college personnel	0.274
B. Administrative ability:	
(i) Self-ratings	0.325
(ii) Perceived ratings of peers	0.366
(iii) Perceived ratings of training college personnel	0.394
(iv) Perceived teachers' ratings	0.361
(v) Perceived inspectors' ratings	0.339
C. Positive reinforcement from authorities:	
a. administrative -	
(i) interest of the management	0.314
(ii) feeling of security	0.305

Variables		Correlation with adaptability score
b.	academic support -	
	(i) Principal's perception of the ability of the training college personnel to provide expert guidance	0.483
	(ii) Inspector's support of innovations	0.279
	(iii) Training college support of innovations	0.409
D.	Community involvement in schools:	
	(i) Parents' involvement	0.447
	(ii) Community involvement	0.317

Exposure to new ideas

The inservice and extension programmes conducted by educational institutions at State and national levels extend new ideas to the teaching community. These new ideas are the products of thinking and the results arrived at through important researches conducted by these institutions and other agencies in the field. Further this exposure to new ideas is largely consequent to the contact being established between schools and training colleges. The school principals not merely see an equalitarian relationship with the training college personnel but they realize that training college

personnel (at least some of them) are change oriented and the feedback received from them is valuable in modifying and improving school practices. This is likely to make some impact on the principal and consequently upon the innovativeness of his school. This contention is borne out by the present study. Variables like inservice training, professional meetings, inter school visitation, cosmopolite orientation and contact with training college, expose the principal and the staff to new ideas in the education world. These have been found to be significantly correlated (at 1 per cent level of significance) with adaptability of the school. Among the variables which expose the school faculty to new ideas, inter school visitation tops with 0.495 correlation followed by participation in professional meetings, contact with training college, cosmopolite orientation and inservice training in that order as can be seen from table No.5.54. Correlation between inter school visitation and innovativeness of school may be towards higher side because the former provides principal and the staff with an opportunity to exchange with teachers in other school, their views about new ideas and the practical difficulties which they face in executing them. They may also very often find in the course of discussions, workable solutions to these problems. This may pave the way for new ideas to take roots in the school. It may also be of significance to note from table No.5.54 that, of all the variables

that have been studied in this study, inter school visitation correlates highest with adaptability score of the school.

Administrative ability

Five variables listed under B in table No.5.54 reflect administrative ability of the principal (as perceived by him) in adapting new educational practices. This administrative ability refers to: (i) his ability to introduce new ideas and practices in school, (ii) his ability to get along with his staff, and (iii) the effectiveness of his supervision skills. The significant correlations of these variables with the school adaptability strengthen the proposition that adaptability is related to the staff-image of the principal and his perceived ratings of significant 'others' like the inspector of schools, the training college personnel, his own colleagues in the school and his peers (i.e. other principals).

Here the correlation between the perceived ratings of training college personnel with the adaptability has been found to be the highest (0.394, significant at 1 per cent level) and the self perception the lowest (0.325, also significant at 1 per cent level). Rating of peers, teachers and inspectors range from 0.339 to 0.361 (all of these significant at 1 per cent level).

His self perceived rating by 'others' of his administrative ability may speak of his confidence in his being equipped with new ideas and may improve his self-image. This may also reflect as to how congenial he finds the atmosphere around him for implementing new ideas. This may give him necessary encouragement for introducing new practices in school. Basic professional ability of the principal for introducing new practices coupled with his perception of acceptability of his ideas by 'others' may make the school innovative. The correlational figures mentioned above provide empirical support to this theoretical stand point.

Positive reinforcement from authorities

The third group of variables which emerges from the correlational study may be named as positive reinforcement from authorities. This includes reinforcement received from the school management and the expert guidance received from the training college.

If the training college personnel, in whom the principal has faith for their capacity to help him and with whom he gets along well, supports the changes introduced by him, this is likely to serve as positive feedback to the principal and may reinforce his action and zeal for introducing new ideas in school education, Correlation figures under C in table No.5.54 appear to substantiate this reasoning. The perceived academic

guidance received from the training college shows the significant correlation of 0.483 with the school adaptability. This is highest in the group. Simply the moral support from the training college staff also shows a significant correlation of 0.409.

If the management takes interest in school activities, grants financial help for new projects and discusses such programmes with teaching staff and encourages them to undertake them, it not only solves financial problems in this venture but also provides positive reinforcement to staff as it exercises administrative control over the school. The correlation figures of 0.314 express this relationship between interest of the management and adaptability score. The above mentioned correlations are significant at 1 per cent level.

Community involvement in school activity

The remaining two variables which have been found to be significantly related to the school adaptability are the parents involvement in the school and the support received from the community. Correlation of school adaptability with parents involvement is 0.447 and with the support of the community 0.317 (both significant at 1 per cent level).

The correlation figures mentioned above support the view that with the active interest and help from

community (including parents), any new programme in its school can easily be executed even if it involves some finances. Correlation of school adaptability with parents involvement is comparatively on the higher side. This may be due to the fact that they are more directly concerned with their wards and their education. They can be of real help in introducing new schemes in school because their successful execution depends to a great deal on the active co-operation of home.

Five variables are stray variables but they also can be grouped into two minor categories as given below:

a. Vicinity of the training college:
   (i) Distance of the training college in the city from the school.....0.283
   (ii) Distance of the training college outside the city from the school.-.283

b. Some personality traits:
   (i) Production emphasis..... 0.250
   (ii) Thrust..... 0.273
   (iii) Consideration..... 0.298

The above account of relationships that different variables have with the school adaptability substantiate the theory that the latter is a function of the interaction between the principal's administrative abilities, the school principal's exposure to new ideas, the positive

reinforcement received from the experts in the field and community (including parents) involvement in school activities.

SECTION IV

PREDICTORS OF SCHOOL ADAPTABILITY

In Section II of this chapter 't' test technique was used to find out those variables which discriminated between adaptable and non-adaptable schools. Eighteen variables were found to be discriminating. In Section III the correlations between the independent variables and the criterion variables were studied. Fifteen variables were found to yield high product moment 'r' significant at .01 level and ten variables were found to be significantly related at .05 level. Both the analyses have one limitation viz. the absence of control of the influence of different variables on one another. The appropriate technique in investigations involving a large number of variables is one of the multivariate analysis techniques. In this Section multiple regression analysis has been undertaken and the multiple correlation (R) calculated. This analysis has also resulted in developing a multiple regression equation to predict school adaptability. The use of multiple regression analysis was dictated by a desire to establish the per cent of variance in the adaptability scores that could be explained by some of the

variables included in the study.

Multiple correlation (R)

A multiple correlation is an extension of the theory of simple linear correlation. When there are three or more than three variables being studied, the correlation between two variables is sometimes misleading and may be erroneous if there is little or no correlation between the variables other than that brought about by their common dependents upon one or several other variables. The coefficient of multiple correlation (R) indicates the strength of relationship between one variable and other variables taken together. The multiple correlation is not merely the sum of the correlation of the dependent variable and the various independent variables taken separately. It is related to the intercorrelations of independent variables as well as their correlation with the dependent variable. Another interpretation of the coefficient of multiple correlation (R) is that it is the correlation between the predicted values of the dependent variable and its obtained values.

A number of computational procedures exist for calculating the multiple R. Two of these methods widely used are, the 'Doolittle' method and 'Aitken's' method. Whatever the method, the important starting point is the correlation matrix.

As mentioned above, multiple correlation provides an analysis of relations among two or more predictor measures and a single criterion measure. One result of the analysis is an equation for predicting the criterion score viz. adaptability score from a known set of predictor scores. Some of the important principles borne in mind while selecting the independent variables involved in the multiple regression analysis are:

(i) R tends to be high when the independent variables have high correlation with the criterion variable.

(ii) R is larger when the independent variables selected have relatively low correlations among themselves.

(iii) Mere examination of the correlation of an independent variable with the criterion variable should not be the guiding factor for the selection of a variable to be included in the multiple regression analysis. The educational consideration should also have a place in the selection of variables as many times the real relationship of a sound predictor variable may be suppressed when there are a large number of independent variables.

The investigator, therefore, carefully studied the correlation matrix and also consulted the data processing experts of the computer centre at the Operation Research Group, Baroda, for the selection of variables to be included in the multiple regression analysis. The advances in computer technology have made the work of regression studies very easy. The experts advised that stepwise multiple regression analysis programmes existed which could select automatically those variables which could give a high R. The programme is so devised that out of the total number of variables fed, the computer will pick up one variable at a time in such a way that R will be maximum. With this facility, the task of the investigator was very much simplified. She selected fourteen variables which gave a significant r with the criterion variable. She also felt that 'the support provided by the district inspector of schools to innovations' might also be helpful in predicting school adaptability. She, therefore, decided to include this variable also in multiple regression analysis even though it did not correlate significantly with the criterion variable. The following variables were selected to be included in the regression study mainly on the basis of their correlations with the criterion variable.

TABLE 5.55

Variables Included in the Multiple Regression Analysis

Sr. No.	Name of the variable	'r' with the criterion score
1	Inter school visitation	.495
2	Principal's perception of the ability of the training college personnel to provide expert guidance.	.483
3	Parents' involvement	.447
4	Professional meetings attended	.413
5	Training college support of innovation	.409
6	Perceived teachers' rating of administrative ability	.361
7	Perceived district inspector of schools rating of administrative ability	.339
8	Equalitarian relationship with the training college personnel	.336
9	Cosmopolite orientation	.334
10	Inservice training	.328
11	Perceived self-rated administrative ability	.325
12	Community involvement in school	.317
13	Interest of the management	.314
14	Feeling of security	.305
15	Perceived district inspector of schools support of innovation	.279

The scores on the above variables for the seventy schools included in the study and also the adaptability scores for the same schools were got punched on the cards

and the data fed to the computer using the stepwise multiple regression analysis programme. The following table gives the multiple correlation coefficient (R) and the successive F-values along with the degrees of freedom step by step.

TABLE 5.56

Stepwise Results of Regression Analysis

Order of entry	Variable name	Computed R	DF	F-values
1	Inter school visitation	0.4958	1,68	66.88
11	Self-rated administrative ability	0.6054	1,67	18.61
3	Parents' involvement	0.6688	1,66	12.63
4	Professional meetings attended	0.7065	1,65	8.34
14	Feeling of security	0.7277	1,64	4.99
5	Training college support of innovation	0.7342	1,63	1.54
6	Teachers' rating of administrative ability	0.7399	1,62	1.35
7	District inspector of schools rating of administrative ability	0.7444	1,61	1.09
12	Community involvement	0.7483	1,60	0.91
8	Equalitarian relationship with training college personnel	0.7519	1,59	0.87
13	Interest of the management	0.7531	1,58	0.27
10	Inservice training	0.7534	1,57	0.08
9	Cosmopolite orientation	0.7536	1,56	0.03
2	Principal's perception of the ability of the training college personnel to provide expert guidance	0.7536	1,55	0.01
15	DIS support of innovation	0.7536	1,54	0.00

The F-values shown in column No.5 in the above table 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.

In the table 5.56, the fourth column indicates the degrees of freedom. In the use of the F tables, the df_1 degrees of freedom are given by $(m_1 - m_2)$ and the df_2 degrees of freedom by $(N - m_1 - m_2)$.

It is seen from table 5.56 that the correlation between inter school visitation and school adaptability is .4958. The multiple R between the variables viz. inter school visitation and self-rated administrative ability taken together and school adaptability is .6054. The increase in multiple R is from .4958 to .6054. This increase in R is significant as seen from the value of F which is 18.61 with degrees of freedom 1 and 7. With the

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* Guilford, J.P., Fundamental Statistics in Psychology and Education. (New York: McGraw Hill Book Company, INC. Third edition, 1956), p. 400.

addition of each variable multiple R increases. After the first thirteen variables have been added step by step, the multiple R reaches the maximum value viz. .7536. The addition of two more variables does not increase multiple R. The cumulative per cent of variance accounted for by thirteen variables comes out to be 56.8 per cent (R^2). Thus the combination of the first thirteen variable given in table 5.56 appears to provide the maximum prediction power. A perusal of the F-values, however, indicates that the F-value is significant at .01 level for the first four variables only. With these four variables the multiple R is .7065. The addition of the variable No.14 as the fifth variable increases the R to .7277 with the F-value of 4.99 significant at .05 level. Any further addition of a variable increases the multiple R only slightly as indicated by the subsequent values of F which are not significant. Considering purely statistically it can be concluded that the five best predictors of school adaptability are: (i) inter school visitation, (ii) perceived self-rated administrative ability, (iii) parents' involvement in the school, (iv) professional meetings attended, (v) feeling of security. In terms of economy also, it can be concluded that the above five variables constitute the best predictors of the school adaptability. However, academic considerations should have an additional say in interpreting the results of a statistical analysis. The present researcher is of the opinion that even though the

addition of further variables after the first five does not yield adequate increase in the multiple R, multiple R does increase appreciably though not significantly upto the addition of six more variables. Thus, for the first eleven variables the multiple R is .7531. Any further addition increases R only in the fourth decimal place and consequently can be dropped. These additional variables are: (i) training college support of innovation, (ii) teachers' rating of administrative ability, (iii) DIS rating of administrative ability, (iv) community involvement, (v) equalitarian relationship with training college personnel, (vi) interest of management. This analysis, thus, identifies eleven predictors of school adaptability accounting for about 57 per cent of the variance in the criterion variable. If the first five variables are taken, together they account for 53 per cent of the variance in the criterion variable. The addition of six variables increases the total accountable variance in the criterion variable by four per cent. These additional variables are academically important; and it is desirable to retain them. The computer analysis provided not only the multiple R and F-values but also the regression coefficients and also the value of the constant needed for developing the regression equation. Table No.5.57 gives these values upto eleven variables.

TABLE 5.57

Multiple R Regression Coefficients and the Alpha Values

Sr. No.	Name of the variable	Multiple R correlation coefficient	Alpha	Regression coefficients										
				1	2	3	4	5	6	7	8	9	10	11
1	Inter school visitation	0.4958	5.82	0.85										
2	Self-rated administrative ability	0.6054	- 9.17	0.23	0.89									
3	Parents' involvement in school	0.6688	-13.00	0.73	0.92	0.48								
4	Professional meetings attended	0.7065	-15.41	0.60	0.85	0.47	1.35							
5	Feeling of security	0.7277	-23.94	0.58	0.80	0.47	1.17	0.72						
6	Training college support of innovations	0.7342	-25.12	0.53	0.82	0.43	1.11	0.65	0.78					
7	Teachers' rating of administrative ability	0.7399	-25.36	0.56	1.00	0.43	1.16	0.68	1.05	-0.31				
8	District inspector of schools' rating of administrative ability	0.7444	-26.00	0.57	0.90	0.38	1.13	0.65	1.16	-0.37	0.22			
9	Community involvement in school	0.7483	-26.78	0.57	0.89	0.31	1.11	0.69	1.24	-0.45	0.23	0.32		
10	Equalitarian relationship with training college personnel	0.7519	-26.83	0.58	0.92	0.30	1.27	0.72	1.65	-0.51	0.26	0.33	-0.35	
11	Interest of the management	0.7531	-26.77	0.60	0.95	0.31	1.27	0.77	1.67	-0.51	0.25	0.34	-0.35	-0.12

From the above table the following regression equations have been developed:

Regression equation with only five variables (R = .7277)

$$Y = .58X_1 + .80X_2 + .47X_3 + 1.17X_4 + .72X_5 - 23.94$$

where:

X_1 = scores on inter school visitation,

X_2 = scores on self-rated administrative ability,

X_3 = scores on parents' involvement in school,

X_4 = scores on professional meetings attended,

X_5 = scores on feeling of security,

Y = scores on school adaptability.

Regression equation with eleven variables (R = .7531)

$$Y = .60X_1 + .95X_2 + .31X_3 + 1.27X_4 + .77X_5 + 1.67X_6 - .51X_7 + .25X_8 + .34X_9 - .35X_{10} - .12X_{11} - 26.77$$

where:

X_1, X_2, X_3, X_4, X_5 are as mentioned above.

X_6 = scores on training college support of innovation.

X_7 = scores on teachers' rating of administrative ability.

X_8 = scores on DIS rating of administrative ability.

X_9 = Community involvement.

X_{10} = equalitarian relationship with the training college personnel.

X_{11} = interest of management.

DISCUSSION

The findings of the multiple regression analysis have revealed between five to eleven variables which are helpful in predicting school adaptability. If these variables are scrutinized carefully, they can again be classified into specific categories.

A. Exposure to new ideas:

(i) inter school visitation

(ii) professional meetings attended

(iii) equalitarian relationship with training college personnel.

B. Administrative ability:

(i) self-rated administrative ability

(ii) teachers' rating of administrative ability

(iii) DIS rating of administrative ability.

C. Positive reinforcement from authorities:

(i) training college support of innovation

(ii) interest of the management

(iii) feeling of security.

D. Community involvement in school:

(i) parents' involvement in school

(ii) community involvement in school.

These are again the same categories under which factors related to adaptability were classified on the basis of the correlational study in Section III. Carlson (1965a) also undertook a regression analysis study where some of the predictors identified by him have been: (i) professionalism, (ii) council membership, (iii) cosmopoliteness, (iv) friendship choices received etc. Carlson's study has yielded a multiple R of .88 with fifteen variables in Allegheny County schools and multiple R of .943 with six variables in West Virginia schools. Wallace (1970) studied variables affecting installation of innovations and obtained a multiple R of .3709 with twentyeight different variables (ten related to teacher morale, twelve to teacher personality and remaining six to organizational climate in schools). In India, whatever the degree of innovativeness that has developed in schools is mainly due to the planned efforts of the Extension Services Departments of the college of education and the activities of the various departments of the National Council of Educational Research and Training. It is significant that inter school visitation, professional meetings attended, equalitarian relationships with training college personnel and training college support of innovations have come out

as some of the predictors of adaptability. Cosmopolite orientation has been found to bear a positive relationship with school adaptability, though this variable has not come out as a significant predictor in the regression study. This is because it bears a fairly high correlation with inter school visitation and number of professional meetings attended.

In conformity with the findings of Mort and others, perceived administrative ability whether by self or by DEO or by teachers has come out as a significant predictor of school adaptability. This factor will play an increasing role in India in school improvement with the development of better programmes in administrative training. This is a neglected area in teacher education programme. The training programme developed by Institutes of Management provide good models from which a training programme for school administrators can gain much.

The community support and parents' involvement are gradually increasing in India as far as school education is concerned. Even though one cannot say that community as a whole has started taking interest in matters like curriculum, instruction etc., one finds a growing awareness on the part of parents and the community about the need for improving school education.

The regression equations developed in the present

study are the first of their type in India. Such studies will need replication to establish the validity of these equations. The investigator has already undertaken further work in this area in the Centre of Advanced Study in Education, Baroda. The next two years are likely to throw more light on the process of educational change and its correlates.