CHAPTER VI

SUMMARY AND CONCLUSION

The data collected for the present investigation have been analysed and findings presented in the preceding chapters. This chapter presents a brief summary of the investigation, the findings, discussion of the findings, conclusions that have been drawn from the findings, limitations of the study, implications for education of the JNV students and suggestions for further research in the field.

6.1 Statement of the Problem

The purpose of the study was to investigate into the association of Adjustment Problem, Creativity, Self-concept, Anxiety and Achievement Motivation with Academic Achievement of students studying in JNVs of Karnataka.

6.2 General Objectives of the Study

The present study was undertaken with the following general objectives in view.

i. To investigate the relationship of surface variables with their respective source variables of students studying in JNVs.

ii. To investigate the relationship of adjustment problem, creativity, self-
concept, anxiety and achievement motivation with total academic achievement and its components of students studying in JNVs.

iii. To investigate the relationship of academic achievement variables with total academic achievement of students studying in JNVs.

iv. To determine the relative efficiency of the surface variables of adjustment problem and creativity in predicting total adjustment and total creativity of students studying in JNVs.

v. To determine the relative efficiency of the adjustment problem, creativity, self-concept, anxiety and achievement motivation in predicting academic achievement (without taking into account the internal relations among the components of academic achievement) of students studying in JNVs.

vi. To determine the relative efficiency of academic achievement variables in predicting total academic achievement of students studying in JNVs.

vii. To determine the joint effect of adjustment problems, creativity, self-concept, anxiety and achievement motivation on academic achievement (taking into account the internal relations among the components of academic achievement) of students studying in JNVs.

viii. To determine the direct and indirect effects / paths of set of surface variables on source variables of students studying in JNVs.

ix. To determine the direct and indirect effects / paths of set of source variables on different academic achievement variables of students studying in JNVs.

x. To determine the direct and indirect effects / paths of different academic
achievement variables on total academic achievement of students studying in JNVs.

xi. To determine the cluster of surface and source variables and total academic achievement and its components in terms of their contributions to variation in academic success of students studying in JNVs.

xii. To identify the factors as linear combinations of the corresponding source and surface variables as well as total academic achievement and its components of students studying in JNVs.

6.3 Variables Considered in the Study

6.3.1 Independent (Predictor) Variables

i. Adjustment Problem (TAS)

Problems relating to residence, food, peer-group, curriculum, co-curriculum, classroom teaching and evaluation.

ii. Creativity (CCI)

Factors like fluency, originality and elaboration.

iii. Self-concept (SCS)

iv. Anxiety (ANX)

v. Achievement Motivation (AMS)

6.3.2 Dependent (Criterion) Variable

i. Total Academic Achievement (TAA)

Student's performance in subjects like English, Kannada, Hindi, Mathematics, Science and Social Science.
6.4 Specific Objectives of the Study

In pursuance of the General Objectives – 1, 2 and 3, the following specific objectives were set up:

i. To investigate the relationship of surface variables of adjustment problem – residence, food, peer groups, curriculum, co-curriculum, classroom teaching and evaluation with total adjustment.

ii. To investigate the relationship of surface variables of creativity – fluency, originality and elaboration with creativity.

iii. To investigate the relationship of adjustment problem with total academic achievement and its components.

iv. To investigate the relationship of creativity with total academic achievement and its components.

v. To investigate the relationship of self-concept with total academic achievement and its components.

vi. To investigate the relationship of anxiety with total academic achievement and its components.

vii. To investigate the relationship of achievement motivation with total academic achievement and its components.

viii. To investigate the relationship of surface variables of adjustment problem – residence, food, peer groups, curriculum, co-curriculum, classroom teaching and evaluation with total academic achievement and its components.
ix. To investigate the relationship of surface variables of creativity—fluency, originality and elaboration with total academic achievement and its components.

tax. To investigate the relationship of academic achievement variables—English, Kannada, Hindi, Mathematics, Science and Social Science with total academic achievement.

In pursuance of the General Objectives—4, 5 and 6, the following specific objectives were set up:

xi. To determine the relative efficiency of the components of adjustment problem—residence, food, peer group, curriculum, co-curriculum, classroom teaching and evaluation in predicting total adjustment problem.

xii. To determine the relative efficiency of fluency, originality and elaboration in predicting creativity.

xiii. To determine the relative efficiency of each of the surface variables and source variables, i.e., adjustment problem, creativity, self-concept, anxiety, achievement motivation in predicting total academic achievement and its components without taking into account the internal relations among the components of academic achievement.

xiv. To determine the relative efficiency of each of the components of academic achievement in predicting total academic achievements.

In pursuance of the General Objective—7, the following specific objective was set up:
xv. To determine the joint effect of each of the surface variables and source variables, i.e. adjustment problem, creativity, self-concept, anxiety and achievement motivation on total academic achievement and its components taking into account the internal relations among the components of academic achievement.

In pursuance of the General Objectives – 8, 9 and 10, the following specific objectives were set up:

xvi. To determine the direct and indirect effects of i.e. residence, food, peer-group, curriculum, co-curriculum, classroom teaching and evaluation on total adjustment problem.

xvii. To determine the direct and indirect effects of fluency, originality and elaboration on creativity.

xviii. To determine the direct and indirect effects of adjustment problem, creativity, self-concept, anxiety and achievement motivation on each of the components of academic achievement.

xix. To determine the direct and indirect effects of each of the components of academic achievement on total academic achievement.

6.5 **Research Hypotheses**

Keeping in view the above specific objectives twenty three research hypotheses were framed.
6.6 Scope of the Study

i. The present study is confined to JNVs of Karnataka.

ii. The study is further confined to students studying in VIII Standard.

iii. Academic achievement of the students is influenced by various factors. However, the present study is confined to certain selected variables like adjustment problem, creativity, anxiety, self-concept and achievement motivation.

6.7 Design of the Study

6.7.1 Data Gathering Tools

Following tools were used for the reliable assessment of the variables:

i. Talawar’s Adjustment Problem Check-lists

ii. Ramachandrachar’s Creativity Response Matrices

iii. Self-concept Scale developed by the investigator

iv. Kumar’s Indian adoption of Sarson’s General Anxiety Scale for Children

v. Deo-Mohan’s Achievement Motivation Scale.

6.7.2 Sample

There were 20 JNVs in the State during the year 1996-97. From the population of 20 JNVs with 1242 students, 7 JNVs with 453 students were selected randomly keeping in view the four revenue divisions of the Karnataka
All the students in both the sections of Standard VIII in each JNV were involved in the study. Thus, in all $70 + 67 + 67 + 74 + 66 + 52 + 57 = 453$ students constituted the sample for the present study.

### 6.7.3 Collection of Data

The investigator personally visited each JNV in order to collect data relating to predictor variables. 11 scales - RAPC, FAPC, PAPC, CAPCA, CAPCB, CTAPC, EAPC, CCI, SCS, ANX and AMS were administered to 453 Ss. 7 check-lists were administered on the first day, 3 scales on the second day and the remaining tests on the 3rd day. After the annual examination, the achievement score in all the school subject were collected from the school records and were converted into t-scores. Along with it even the raw scores of the adjustment problem, creativity, anxiety, achievement motivation and even the t-scores of academic achievement (individual subject scores) and total academic achievement scores were converted into equally weighed scores using the formula.

$$\text{Equally Weighed Score} = \frac{\text{Obtained Score}}{\text{Maximum Score}} \times 100$$

### 6.7.4 Statistical Techniques Used

1. In pursuance of the General Objectives – 1, 2 and 3 the Pearson’s Product Moment Coefficient of Correlation was used to find the relationship of the predictor variables with the criterion variable. Further, the obtained values were tested for significance using 't' test.
ii. In pursuance of the General Objectives – 4, 5 and 6 Multiple Regression Analysis (step down) was used with the different independent variables fitted into a Regression Equation when dependent variables are not related. Thus, the relative contribution of each variable to the dependent variable was calculated.

iii. In pursuance of the General Objective – 7, the Multivariate Regression Analysis was used with an intention of finding the relationship between independent (predictor) variables and dependent (criterion) variables especially when dependent variables are being interrelated.

iv. In pursuance of the General Objectives – 8, 9 and 10, Path Analysis was used in order to calculate the direct and indirect effects of independent variables on dependent variables.

v. In pursuance of the General Objectives – 11 and 12, the Principle Component Factor Analysis was used with a view to find out the combination that accounts for maximum variation when all the variables are in the linear combinations with each one as distinct identity by itself.

6.8 Major Findings

The findings of the study are listed below pointwise.

I. Findings of Simple Correlation

a. Surface and Source Variablewise

i. Components of adjustment problem and components of creativity have positive and significant relationship with respective source
variables i.e., total adjustment and creativity. This shows that the surface variables identified under the source variables are confirmed.

b. Source Variablewise

i. The types of problems which the students are facing in adjusting to the JNV set up and their anxiety in the new environment are having negative impact on their academic achievement. These factors will have suppressing influences on the academic performance of the students in JNVs.

ii. The creativity, self-concept (except for performance in Hindi) and achievement motivation of the students studying in JNVs are having positive impact on their academic achievement. These factors will act as boosters of the academic performance of the students in JNVs.

c. Surface Variablewise

i. In JNVs, the adjustment problem which the students are facing in residence, food, peer group, curricular, cocurricular, classroom teaching and evaluation are having negative influences on their academic achievement.

ii. The creativity factors like fluency (except for English, Hindi and Mathematics) originality and elaboration are having influence on their academic achievement.

iii. The self-concept of the students studying in JNVs is having significant influence on their academic performance. However, its influence on performance of the students in Hindi is not significant.
iv. The anxiety of the students in JNVs is having negative impact on student's performance in all the school subjects.

v. However, achievement motivation of the students is having its significant effect on performance of the students in all the subjects.

d. Academic Achievement Variables and Total Academic Achievement

i. The academic achievement variables have positive impact on total academic achievement of students studying in JNVs.

II. Findings of Multiple Regression Analysis

a. Surface to Source

i. The potency of RAPC, FAPC, PAPC, CAPCA, CAPCB, CTAPC and EAPC taken together in the prediction of TAS of the total sample of JNV students. FAPC makes the maximum contribution and CTAPC and RAPC make considerable contribution for prediction.

ii. The potency of CSF, CSO and CSE taken together in the prediction of CCI of the total sample of JNV students, CSE makes the maximum contribution and CSO makes its considerable contribution next to CSE.

b. Source Variablewise

i. The potency of CCI, AMS taken together in predicting AAE of 453 JNV students CCI makes the maximum contribution and AMS considerably good contribution to prediction.

ii. The potency of AMS, ANX, CCI and TAS taken together in the prediction of AAK of the total sample of JNV students, CCI makes the
maximum contribution and AMS considerably good contribution to prediction.

iii. The potency of AMS, ANX, CCI, TAS and SCS taken together in predicting AAH of JNV students. CCI makes the maximum contribution whereas the two variables AMS and TAS make more or less equal considerable contribution for prediction.

iv. The potency of CCI and TAS taken together in the prediction of AAM of the total sample of JNV students. CCI makes the maximum contribution and TAS makes its considerable contribution next to creativity.

v. The potency of AMS, CCI and TAS taken together in the prediction of AAS of JNV students, whereas CCI makes the greatest possible contribution and AMS makes considerable contribution for prediction.

vi. The potency of AMS and CCI taken together in the prediction of AASS of JNV students. CCI makes the maximum contribution and AMS makes considerably good contribution to prediction.

vii. The potency of AMS, ANX, CCI and TAS taken together in the prediction of TAA of JNV students, as usual, CCI stands first in its maximum contribution and the two variables AMS and TAS make more or less equal considerable contribution for prediction.

c. Surface Variablewise

i. The potency of EAPC, CSE, AMS, CAPCB and CAPCA taken together
in the prediction of AAE of JNV students, CSE makes maximum contribution and the AMS and CAPCB make more or less equal considerable contribution for prediction.

ii. The potency of AMS, ANX, CSE, EAPC, CAPCB and RAPC taken together in the prediction of AAK of JNV students, CSE makes maximum contribution and AMS and CAPCB make more or less equal considerable contribution for prediction.

iii. The potency of AMS, ANX, PAPC, CSE, EAPC, CAPCA, SCS, CAPCB and CTAPC taken together in the prediction of AAH of JNV students, CSE makes greatest possible contribution and AMS has its considerable contribution for prediction.

iv. The potency of EAPC, CSF, CSE, CAPCA and CAPCB taken together in the prediction of AAM of JNV students, CSE makes greatest possible contribution and CAPCB makes considerably good contribution to prediction.

v. The potency of AMS, CSE, EAPC, CAPCA, CAPCB and CTAPC taken together in predicting AAS of JNV students, CSE makes maximum contribution and the AMS and CAPCB make more or less equal considerably good contribution to prediction.

vi. The potency of AMS, CSE, EAPC, CAPCB and CTAPC taken together in the prediction of AASS of JNV students, CSE makes greatest possible contribution and AMS makes considerably good contribution to prediction.
vii. The potency of EAPC, ANX, CSE, AMS, CAPCB, CAPCA and CTAPC taken together in the prediction of TAA of JNV students, where as usual CSE stands first with its maximum contribution and the two components EAPC and CTAPC of adjustment variable make more or less equal contribution for prediction.

d. Academic Achievement Variables to Total Academic Achievement

i. The potency of AAE, AAK, AAH, AAM, AAS, and AASS taken together in the prediction of TAA of JNV students AAH and AASS both stand first with their maximum contribution and the three components AAE, AAM and AAS make more or less equal contribution for prediction.

III. Findings of Multivariate Regression Analysis

a. Source Variablewise

i. The potency of only AMS, CCI and TAS taken together, others being non-significant, in the prediction of AAE of JNV students reveals that CCI makes the maximum contribution and next AMS makes considerably good contribution to prediction.

ii. The potency of AMS, ANX, CCI and TAS taken together, others being non-significant, in the prediction of AAK of the total sample of JNV students, reveals that CCI makes the maximum contribution and AMS considerably good contribution to prediction.
iii. The potency of AMS, ANX, CCI, TAS and SCS taken together, in the prediction of AAH of the total sample of JNV students, reveals that CCI makes the maximum contribution and next AMS makes considerably good contribution to prediction.

iv. The potency of CCI and TAS taken together, other being non-significant, in the prediction of AAM of the total sample of JNV students reveals that CCI makes maximum contribution and TAS makes considerable contribution next to creativity.

v. The potency of only AMS, CCI and TAS taken together, others being non-significant, in the prediction of AAS of JNV students reveals that CCI makes the greatest possible contribution and next AMS makes considerable contribution for prediction.

vi. The potency of only AMS, CCI and TAS taken together, others being non-significant, in predicting AASS of JNV students reveals that CCI makes the greatest possible contribution and next AMS makes considerable contribution to prediction. In this model TAS is found to cast significant negative effect on AASS.

In short, on all the academic achievement variables CCI is found to cast the maximum effect with the considerable effect being casted by either AMS or TAS or both of them.

b. Surface Variablewise

i. The potency of CAPCA, CAPCB, CTAPC, EAPC and CSE taken together, others being non-significant, in predicting AAE of JNV
students reveals that CSE makes maximum contribution and next
CAPCB makes considerable contribution for prediction.

ii. The potency of CAPCB, EAPC and CSE taken together, others being
non-significant, in the prediction of AAK of JNV students reveals that
CSE makes maximum contribution and CAPCB makes considerable
contribution for prediction.

iii. The potency of PAPC, CAPCB, EAPC and CSE taken together, others
being non-significant, in predicting AAH of JNV students reveals that
CSE makes the greatest possible contribution and next CAPCB makes
considerable contribution for prediction.

iv. The potency of CAPCA, CAPCB, EAPC, CSF and CSE taken together,
others being non-significant, in the prediction of AAM of JNV students
reveals that CSE makes maximum contribution and next CAPCB makes
considerable contribution for prediction.

v. The potency of CAPCA, CAPCB CTAPC, EAPC and CSE taken
together, others being non-significant, in predicting AAS of JNV
students reveals that CSE makes the greatest possible contribution and
next CAPCB makes considerable contribution for prediction.

vi. The potency of CAPCB, EAPC and CSE taken together others being
non-significant, in predicting AASS of JNV students reveals that CSE
makes maximum contribution and next CAPCB makes considerable
contribution for prediction.
In short, on all the academic achievement variables CSE is found to cast the maximum effect with the considerable effect being casted by CAPCB.

IV. Findings of Path Analysis

a. Effect of Source Variables to Academic Achievement Variables

i. Creativity and achievement motivation both have direct significant effects on academic achievement in English. Further, their indirect significant effects on English is through each other.

ii. Adjustment problem, self-concept and anxiety have no direct significant effects on academic achievement in English. But, their indirect significant effects on English are through creativity and achievement motivation.

iii. Adjustment problem, creativity, anxiety and achievement motivation each of them is having direct significant effect on academic achievement in Kannada. Further, their indirect significant effects on Kannada is through all other subjects.

iv. Self-concept has no direct significant effect on academic achievement in Kannada. But its indirect significant effect on Kannada is through adjustment, creativity, anxiety and achievement motivation.

v. Each of the adjustment problem, creativity, self-concept, anxiety and achievement motivation variables have direct significant effect on
academic achievement in Hindi. Further, their indirect significant effects on Hindi are through all other subjects.

vi. Adjustment and creativity have direct significant effects on academic achievement in Mathematics. Further, their indirect significant effects on Mathematics are through other variables.

vii. None of the self-concept, anxiety and achievement motivation has direct significant effect on academic achievement in Mathematics. But their indirect significant effects on Mathematics are through adjustment and creativity only.

viii. Adjustment, creativity and achievement motivation possess direct significant effect on academic achievement in Science as well as Social Science. Further, their indirect significant effects on both the subjects are through others.

ix. Self-concept as well as anxiety have no direct significant effect on academic achievement in Science and Social Science. But they exert indirect significant effects on both the subjects through adjustment, creativity and achievement motivation.

b. Effects of Different Academic Achievement Variables to Total Academic Achievement

i. English, Kannada, Hindi, Mathematics, Science and Social Science exert direct significant effect on total academic achievement. Further each subject has its indirect significant effect on total academic achievement through all other subjects.
V. Findings of Principle Component Factor Analysis

i. Academic performance in English, Kannada, Hindi, Mathematics, Science and Social Science in JNVs have been clustered under a single group (factor) with high factor loading. This implies that academic subjects taught in JNVs play a major role in the overall academic success of the students studying in the JNVs.

ii. Residence adjustment, food adjustment, peer-group adjustment, curriculum adjustment, co-curriculum adjustment, classroom teaching adjustment and evaluation adjustment in JNVs have been clustered under a single group with high factor loading. This implies that JNVs being residential vidyalayas, 'adjustment' plays a major role in the overall academic success of the students.

iii. Contributors of creativity - fluency, originality and elaboration have been clustered under a single group (factor) with high factor loading. This implies that JNVs being pace-setter institutions call for organising more creative activities in these vidyalayas.

iv. Contributors of personality, viz., self-concept, anxiety and achievement motivation have been clustered under a single group which forms fourth factor. The negative loading of self-concept and achievement motivation and positive loading of anxiety on personality factors implies that the climate prevailing in JNVs promote anxiety among
students and is not congenial for fostering self-concept and achievement motivation among students studying in these vidyalaya. This need to be taken into account seriously and remedied as early as possible.

6.9 Discussion

6.9.1 Adjustment Problems

From the result obtained in the present study, it is found that there is a negative and significant relationship between adjustment problems and academic achievement. The negative relationship is due to the correlation between adjustment problem scores and achievement scores. Study conducted by Smeler (1980) reported a linear relationship between adjustment scores and achievement scores. This may be due to the correlation between adjustment and achievement scores directly. Sondefur, et al. (1986) also found the inverse relationship between the number of adjustment problems and achievement scores. This inverse relationship may be due to the correlation between the number of adjustment problem scores and achievement scores. This finding is in direct concurrence with the finding of the present study. The results obtained by other investigators, viz., Sontakey (1975), Chen, et al. (1997) and Tamlinson (1998) are in line with the finding of the present study.

adjustment and academic achievement. The results of all these studies support the finding of the present study. In addition, the study by Ramachandran (1991) revealed a similar conclusion that adjustment problems found to be negatively associated with academic achievement. This finding is in direct concurrence with the finding of the present study.

However, outcome of the few studies, Seetha (1975) and Joshi (1990) contradict with the finding of the present study. Since majority of the studies conducted in India and abroad stand in support of the finding of the present study, the outcome of this study may be accepted at large scale.

Further, in the present study it is found that, among all (the predictor variables affecting TAA) TAS accounts for little variation in the academic achievement of JNV students, as compared to the other potential predictors of TAA. This implies that adjustment problem has indirect positive impact on academic achievement. In the recent studies conducted by Chen, et al. (1997) and Tamlinson (1998) it is noticed that children's social and academic adjustment contributed to academic achievement.

Some of the Indian studies, viz., Rao (1964), Sinha (1966), Chawla (1970). Sharma (1972) and Mathew(1976) reported that over and under achievement groups differed significantly on their adjustment. Hiregange (1970) found that socio-emotional adjustment was also a best predictor of academic success. Saxena (1972) investigated that the over achieving students had consistently and significantly lower number of adjustment problems in the various areas measured than the under-achiever. These findings are in line with the finding of the present study.
As almost all the studies conducted in India and abroad support directly or indirectly the finding of the present study, the outcome of the study may be accepted widely.

6.9.2 Creativity

The present study revealed that there is a positive and significant relationship between creativity and academic achievement. Study conducted by Yamamoto (1964) also revealed that there exists a significant relationship between performance on creativity tests and success in school learning. However, Kim and Michal (1995) reported that measures of creativity showed little relationship to school performance. But Getzels and Jackson (1962), Clin et al. (1963) and Hudson (1966) have found that creativity has significant relationship with academic achievement.

Some of the Indian studies, viz., Mehdi (1977), Acharyulu (1978), Menon (1980), Sharma (1982), Singh (1982), Dye (1984), Rani (1986), Raina (1986), Chadha and Chandna (1990), Khare and Grewal (1997) showed that the coefficient of correlation between creativity and academic achievement is positive and significant. The results of all these studies are in agreement with the finding of the present study. In addition to these the recent study conducted by Bawa and Kaur (1995) revealed that the relationship of creativity was better with the language when compared with Social Studies and General Science.

However, the result of the studies by Flescher (1963) and Irudayaraj (1989) contradict with the finding of the present study. Since majority of the studies conducted in India and abroad stand in support of the finding of the present study, the outcome of the study may be accepted.
The relative contribution of this predictor (CCI) accounts for maximum 15.57 percent of the variance in the achievement of JNV students as compared to the accountable percentage of variance of other potential predictors of TAA. It means that creativity has positive impact on academic achievement. In a study by Yamamoto (1964) it is noticed that there exists significant difference between high creatives and low creatives in terms of their school achievement. Torrance (1962) reported that high creative children tend to do better in reading and language skills. Cropy (1970) found that high achievement scores as well as low achievement scores can be affected by creativity. These findings clearly reveal that creativity is a best predictor of academic achievement studies by Vijayalaxmi (1980), Golwalkar (1986) and Gupta (1991) reported that high creatives and low creatives differed significantly in their academic achievement. Kaile (1988) revealed that joint effect of intelligence and creativity varies in different schools subjects. Padhi (1991) reported that the interaction effect of creativity and classroom environment is significant on scholastic achievement. Brar (1986) revealed that the influence of creativity on academic performance was significant. These two studies are in direct concurrence with the finding of the present study.

As almost all the studies conducted in India and abroad support the finding of the present study, the outcome of this study may be accepted widely.

6.9.3 Self-concept

The present study revealed that the self-concept is having positive and significant relationship with all the school subjects. However, its relationship with Hindi is positive and low. Edwards (1966) and Blair (1968) reported linear

Mehta (1968) found linear relationship between self-concept and academic achievement. Whereas, Sharma (1968) reported a curvilinear relationship between self-concept and academic achievement. Some of the Indian studies like Bhatnagar (1966), Sharma (1968), Sexena (1972), Ramkumar (1973), Goswami (1978), Homchauduri (1980), Hirunval (1980), Singh (1983), Patel (1987), Srivastva (1992), Krishnan (1993) showed that there is a significant positive relationship between self-concept and academic achievement. The results of these studies supported the finding of the present study.

However, outcomes of the very few studies Jean (1993), Helmake, et al., (1995) and Maikhuri and Pande (1997) contradict with the finding of the present study. Since majority of the studies conducted in India and abroad stand in support of the finding of the present study, the outcome of the study may be accepted.

Although the present study has revealed a positive and significant relationship between self-concept and academic achievement of students studying in JNVs. However, SCS did not survive in the multiple regression analysis. It may be due to the effects of other interacting factors. Brookover & Thomas (1964) revealed that self-concept is a significantly better predictor of
grade point average in Mathematics, Social Studies and Science. Jones and Grieneeks (1970) found that self-perception appeared to be the most accurate predictor of academic achievement. Marsh and Yeung (1997) reported that self-concept effects tend to be larger and more systematic for Mathematics than Science and particularly English.

Studies conducted by Varase (1970), Sween (1984) and Rangappa (1994) reported that students with high self-concept achieved significantly higher scores than those with low-self-concept. Pathani (1985) reported that self-concept was a significant predictor of academic achievement. Madasamy (1992) revealed that positive development of self-concept in the students is likely to enhance their academic achievement.

However, the study conducted by Taylor (1964) found that academic underachievers are less confident, less-optimistic and less self-accepting than academic achievers. Helmke, et al. (1995) revealed that self-concept does not significantly contribute to the prediction of subsequent achievement. The result of the present study is in line with Taylor (1964) and Helmke, et al. (1995). These controversies with regard to the impact of self-concept on academic achievement could be cross-validated.

### 6.9.4 Anxiety

From the result obtained in the present study, it is found that there is a negative and significant relationship between anxiety and academic achievement. Cox (1960) reported a curvilinear relationship between anxiety and academic achievement. Randel, et al. (1992) and Williams (1993) reported
that anxiety and significant correlation with academic achievement. Studies conducted by Sarason (1961), Feldherson and Klausmeier (1962), Philips (1962), Walter (1964), Hill and Sarason (1967), Newbegin and Owens (1996) and Williams (1996) showed that there is a negative and significant relationship between anxiety and academic achievement.


However, finding of a very few studies Randel, et al. (1992), Hussain (1977). Lakshmi (1977), Homchaudhuri (1980), Patel (1986) contradict with the finding of the present study. Since majority of the studies conducted in India and abroad stand in support of the finding of the present study, the outcome of this study may be accepted at a large scale.

In the present study it is found that among all the predictor variables affecting TAA, ANX accounts for negligible variance in the achievement of JNV students. It means that anxiety has negative impact on academic achievement.
The studies conducted by Carriver and Jewell (1966) and Hill and Sarason (1971) reported that repeaters or low-achievers to be more anxious than children making normal progress through grades. Schonetter (1995) revealed that low test anxious males showed higher achievement outcomes, perceived more success over their performances and felt more confident than high test anxious male or female. Lucking and Manning (1996) found that anxiety is contributing to low academic achievement. These findings are in line with finding of the present study.

Some of the Indian studies viz., Bhaduri (1971), Rai (1974), Deshpande (1984) and Patel (1997) reported that low level of anxiety helped in achieving high, whereas very high level of anxiety was detrimental to achievement. Tiwari and Rai (1975) revealed that anxiety is a differential personality correlate of low and high achievers. Verma (199%) found significant main effect of test anxiety on academic performance. All these results support the finding of the present study.

However, the finding of Lakshmi (1977) contradict with the finding of the present study. Since majority of the studies conducted in India and abroad stand in support of the finding of the present study, the result of the study may be accepted widely.

6.9.5 Achievement Motivation

In the present study it is revealed that there is a positive and significant relationship between achievement motivation and academic achievement. The studies by Atkinson and Litwin (1960), Sultan (1961), Caplehorn and Sultan
Entwistle (1968) and Bruce (1977) also reported a significant and positive correlation between achievement motivation and academic achievement. Uhlinger & Stephens (1960) showed that high achievers evidence greater need for achievement than low-achievers. Schultz (1993) reported that achievement motivation is a significant mediator of academic performance among minority children.

Studies by Bhatnagar (1967), Sinha (1967), Mehta (1968), Mehta, et al. (1969), Gokulnathan (1970), Dutt and Subhrawal (1973), Pathak (1974), Parikh (1976), Patel (1977), Christian (1977), Mitra (1985), Mehta (1987), Minnalkodi (1997) showed that there is a positive and significant relationship between achievement motivation and academic achievement. The results of all these studies support the finding of the present study. In addition to these, Sontakey (1986) found that achievement motivation had positive association with achievement in Biological Sciences as well as Natural Sciences. Rao and Rao (1997) reported a positive correlation between achievement motivation and academic achievement. This finding is in direct concurrence with the finding of the present study.

Since none of the studies conducted so far contradict with the finding of the present study the outcome of this study may be accepted at the highest level.

From the results obtained in the present study it is also found that among all the predictor variables affecting TAA, the second best potential predictor variable is AMS which accounts for 4.37 percent of the variance in the
academic achievement of JNV students. This implies that achievement motivation has positive impact on academic achievement. The studies conducted by Ringness (1967) and Raynor (1971) revealed that high achievement motivation students performed better than low achievement motivation students. Sultan (1961) concluded that children's poor performance is due to lack of motivation. Schultz (1993) revealed that achievement motivation is a significant mediator of academic performance among minority children. These findings are in line with the present findings.

The studies by Muthayya (1965), Chandrakala (1972), Srivastava (1974), Pathak (1974), Seetha (1975), Deshpande (1984), Mehta (1987), Rao (1997) found that academic motivation influence the academic achievement of students. Walaytiran (1974) reported that achievement motivation had significant influence on all the school subjects. Shanmugasundaram (1983) found that among high achieving urban students achievement motivation had a significant positive influence upon academic achievement. Pramod (1996) reported that achievement motivation was the most dominating influencing factor an academic performance. All the above studies directly support the finding of the present study. However, the finding of Sontakey (1986) contradict with these findings. Since majority of the studies conducted in India and abroad stand in support of the finding of the present study, the outcome of this study may be accepted at a large scale. In case of the findings emerged through multivariate analysis, path analysis and principle component factor analysis, no parallel studies of exact nature can be quoted here for comparison of results.
6.10 Conclusions

Based on the discussion of findings of the study the following conclusions could be drawn:

i. The 'adjustment problem' of students studying in JNVs – a) has negative and significant relationship with academic achievement of students; b) is a third potential predictor among the five predictor variables of academic achievement; c) accounts for little contribution to total academic achievement of students; d) has direct significant effect on all the components of academic achievement except English; and e) reserved its place in the second factor with more factor loading than any other factors.

ii. The ability 'creativity' among students studying in JNVs – a) has positive and significant relationship with academic achievement of students; b) is the best predictor with maximum amount of variation in the academic achievement; c) has direct significant effect on all the components of academic achievement; and d) reserved its place in the third factor with highest factor loading by fluency and originality when compared to elaboration.

iii. The 'self-concept' of students studying in JNVs – a) has a positive and significant relationship with all the components of academic achievement, except with Hindi; b) did not survive in influencing on the academic achievement variable in the effects of other interacting factors; c) has no direct significant effect on all the components of academic achievement, except on Hindi. Even with Hindi, it has negative significant effect; and d) is having highest factor loading in the Factor - 4 'personality'.
iv. The ‘anxiety’ of students studying in JNVs – a) has negative and significant relationship with all the components of academic achievement; b) accounts for negligible amount of variation in the academic achievement of students; c) has negative impact on academic achievement; d) has a positive significant direct effect on subjects Kannada and Hindi; and e) is having least factor loading in the Factor - 4 ‘personality’.

v. The ‘achievement motivation’ of students studying in JNVs – a) has a positive and significant relationship with all the components of academic achievement of students; b) is the second highest predictor variable of the variance in the academic achievement; c) has a positive significant direct effect on all the components of academic achievement except the subject Mathematics; and d) is the second highest factor loading in the Factor - 4 ‘personality’.

6.11 Educational Implications

The findings of the present study have important implications for Jawahar Navodaya Vidyalayas. They are as follows:

1. Adjustment Problems

The following measures are suggested to improve the adjustment level of students to the climate prevailing in JNVs. The componentwise suggestions are given below:

i. The causes of residence adjustment problems ultimately have their roots in the nature of students and the culture of their families. Students be oriented to the lifestyle in the JNVs. They should be sufficiently guided in
understanding this new climate. Problems arising out of deviations from the expected behaviour be settled through cordial discussions with the house master / mistress. These will help in improving students residential adjustment.

ii. The causes of food adjustment problems are rooted in the issues such as repeated supply of same food/tiffin; lack of cleanliness in the mess as well as on the part of cooks themselves; serving of improperly boiled food items; misconception of students regarding different kinds of food item; lack of table mannerisms among the students; individual food habits, etc. Thus, supply of varied kinds of food / tiffin of good quality; maintaining cleanliness in the mess as well as on the part of cooks themselves; serving properly boiled food items; developing correct understanding of 'balanced diet' and nutritive values of different kinds of food items; gradual introduction of common food with due respect to individual differences, etc., will help students to improve their food adjustment with particular reference to the allergy to the food served in the JNV mess.

iii. The adjustment problems with regard to peer-group are created and maintained by a circular social process to which a child, his classmates and his teacher contribute. The child himself contributes by reacting with hostility, withdrawal or ineptness to his own negative self-evaluation and by "his insensitive and defensive reception of feedback from which might potentially give him more guidance for his own behaviour". The classgroup contribute to the problem by rapidly attaching an evaluate label to the child and then tends to act in ways that perpetuate the negative social
reputation. The group generally responds to the social difficulty of an
individual child by ignoring or rejecting him rather than by sympathetic
guidance. The teacher contributes to the situation by a lack of teaching
effort focused on developing personal attitude and group standards about
good human relations; a lack of interpersonal grouping practices and other
procedures guided by mental health goals; a lack of clear presentation of
constructive behaviour patterns towards low status children which could
be imitated by other students. Thus, creating opportunities to interact with
their agemates is perhaps the way to help them build good social relations
with peers. Teachers can encourage them to strengthen the mutual relations
with their school-mates by urging them to participate in group activities,
such as, join sports team, a musical group or a scouting group. On special
occasions, such as New Year’s Day, the children’s Day, or a birthday,
teachers can help their children to make better relationships with other
children by encouraging them to share with their friends either presents or
goodwish. These practices may help children to overcome their peer-group
adjustment problems.

iv. In view of the fact that most of the students admitted to JNVs are taught
earlier through the medium of the mother tongue / regional language,
instruction is provided through the same medium upto class VII or VIII
during which time intensive teaching of Hindi / English, both as language
subjects and co-media is undertaken. After class VII or VIII the common
medium in all JNVs is Hindi / English. Thus, lack of conducive atmosphere
for learning Hindi in Southern States; too much impact of mother-tongue
on students: pressure of other school subjects like Science, Mathematics, Social Studies and others on students: late introduction of English subject (standard V) in school system: lack of audio-visual materials for enriching students' English knowledge, etc., are some of the causes of this adjustment problem.

Therefore, conducive atmosphere be developed for learning Hindi / English: equal weightage be given to Hindi on par with other school subjects in the curriculum: remedial teaching for the students with poor performance in Hindi be undertaken: collateral and supplementary material be provided in the library to enrich the students' knowledge in all the school subjects; desire for learning Hindi / English be developed among the students: 'supervised study' be practiced instead of self-study especially in lower classes: steps are to be taken for early introduction of English subject in lower classes: number of periods in class VI and VII be increased for English subject, etc., are some of the measures suggested to resolve the problems related to the curriculum.

v. The main causes of adjustment problems with regard to co-curricular activities are: non-organization of rural games: group-songs: group-dance: dramatics: indoor games: quiz competitions: celebrations of rural festivals: lack of opportunities for the collection of stamps, pictures and coins: non-organization of NCC, NSS and CTCs: lack of materials and duly trained teachers in rural crafts: inadequate play-ground facilities: shortage of funds for co-curricular activities, etc.
Organization of rural games; group-songs; group-dance; 
principles: indoor games; quiz competition; celebration of rural festivals; 
provision of opportunities and resources for the collection of stamps; pictures 
and coins; organization of NCC, NSS, and CTCs; provision of materials 
and duly trained teachers in rural crafts; provision of adequate play ground 
facilities and sufficient funds, etc., will help the students in improving their 
co-curricular adjustment.

vi. The some of the causes of classroom teaching adjustment problems are: 
non-preparation of lesson plans in advance by the teachers; rare use of 
variety of instructional aids by the teachers, national educational programs; 
lack of students familiarity with the modern techniques of teaching such as 
experimental, interactive, activity method, discussion method, heuristic 
method, etc., extensive use of English by the teacher while teaching; rare 
use of black board to write significant points by the teacher, etc.

Regular preparation of lesson plans in advance by the teacher; 
use of variety of instructional aids and national educational programs (UGC, 
NCERT, IGNOU etc.); gradual use of modern methods of teaching; use of 
familiar terms preferably in regional language; frequent use of black-board 
by the teachers to draw figures and write significant ideas or concepts, 
important words, new words, etc., are some of the measures suggested in 
order to improve the students classroom teaching adjustment.

vii. The main cause of adjustment problems with regard to evaluation are: 
failure of grading system in revealing the students exact position; lack of
adequate tools for measuring the real performance of students in non-scholastic area: lack of importance for the students performance in non-scholastic area due to grading system; lack of students seriousness in non-scholastic area due to grading system; teacher's mechanical assessment; ignorance of students regarding evaluation system, etc.

Exact marks along with the grades to the achievement in the non-scholastic area; adequate tools for measuring students' real achievement in non-scholastic area; enlightening students regarding need and importance of non-scholastic achievement; creating interest among students in the achievement in non-scholastic area; avoiding mechanical assessment of performance in non-scholastic area; orient the students regarding various tools of evaluation, etc. are some of the measures suggested in order to improve the students evaluation adjustment.

2. Creativity

Creative ability of the students studying in JNVs has highest encouraging effect on their academic achievement in all the school subjects. On the bases of research findings in the area of creativity the following suggestions are made for encouraging the development of creative thinking in children:

i. Encourage the child whenever he shows his creative ideas or performance by praising or being delighted with him over the new things he discovers.

ii. Stimulate the child's imagination by providing opportunities for divergent play experiences and divergent questions. The child should be allowed to explore the environment and be encouraged to do things by himself.
iii. Accept the child's extraordinary questions and unusual ways of solving problems. Criticizing or ignoring the child's curiosity and activities will hinder his creativity. Teachers should show the child that his thoughts are worthy.

iv. Do not ignore creative ideas or performance.

v. Give rewards immediately.

vi. Answer the child's questions directly and honestly. Teachers should respond to his questions with liveliness and understanding.

vii. Support the child when he fails and guide him when the tasks are too difficult. Teachers should help him realize that he cannot be good at every thing.

viii. Permit the child to contribute his ideas in planning and to participate in teachers' activities. Teachers may sometime help him in carrying out some of his ideas and the ideas should be used at times.

ix. Give the child opportunities to learn to experiment, to explore, to read, to make a journey and to communicate to others. Having much experience will enrich the child's thoughts.

These suggestions are useful to both teachers and principals in fostering a creative imagination, an alertness of intellect, an open mind and a healthy curiosity in the world around them.

3. **Self-concept**

The way students respond to school subjects depends to a greater extent on their self-perceptions. In addition, a more positive self-concept is related
to more favourable attitude towards school subjects. To encourage students to experience feelings of positive self-worth, Purkey (1970) recommended that teachers develop and use skills of 'invitational learning'.

Purkey (1970) defines an 'invitation' as 'a summary description of messages continuously transmitted to students with the intention of informing them that they are responsible, able and valuable' (p.3). He suggests seven skills to be used by a classroom teacher to encourage students positive self-concept:

i. Reaching each student (for example, learning names and having one-to-one contact).

ii. Listening with care (for example picking up subtle cues).

iii. Being real with students (for example, providing only realistic praise).

iv. Being real with oneself (for example, honestly appraising your own feelings and disappointments).

v. Inviting good discipline (for example, showing students you respect them).

vi. Handling rejection (for example, not taking lack of student response in personal ways).

vii. Inviting oneself (for example, thinking positively about oneself).

Purkey (1970) suggests that four student self-concept factors are likely to lead to academic success: relating (to others), asserting (or experiencing a sense of self-control), investing (encouraging students to get involved with learning and with classmates) and coping (how well students meet school
expectations). In the final chapter of "Inviting School Success", Purkey suggests that teachers try to establish an atmosphere of warmth and a cooperative spirit, and that they convey positive expectations. These measures will help students in JNVs to build positive self-concept.

4. Anxiety

Students who are not able to complete a task satisfactorily often end up with a feeling of anxiety, or "an experience of general uneasiness, a sense of forbidding, a feeling of tension" (Hansen, 1977, p.91). Anxiety appears to improve performance on simple tasks or on skills that have been heavily practiced, but to interfere with the accomplishment of more complex tasks or skills are not thoroughly practiced.

From the time of the earliest work by Yerkes and Dodson (1908), to the present day researchers have consistently reported a negative effect of anxiety on academic achievement (Covington and Omelich, 1987). Some students are anxious because they are not prepared. Other students may have studied effectively, but 'freeze and forget' on tests.

When students are learning new material, attention is very important. To learn something, student must pay attention to it. Highly anxious students divide their attention between the new material and their preoccupation with concerns about how nervous they are feeling. So instead of concentrating on what they are reading their attention is taken up with negative thoughts regarding the life in JNVs. Because of this, anxious students may miss much of the informations they are supposed to learn. Sometime even if they are paying
attention, many anxious students have trouble in learning material that somewhat disorganized and difficult. Unfortunately, much material in JNVs could be described this way. In addition, many highly anxious students have poor study habits. Again, highly anxious students often lack critical test taking skills. So anxiety interferes at several points in the learning.

Teachers should help highly anxious students to set realistic goals. Since these individuals often have difficulty in making wise choices. They tend to select either extremely difficult or extremely easy tasks. In the first step they are likely to fail, which will increase their sense of homelessness and feeling of foreboding associated with JNVs. In the second step they probably will succeed but they will miss the sense of satisfaction that would encourage greater effort and ease their fears about school work. They may need a good deal of guidance in choosing both short-term and long-term goals. They may also need help working at a moderate pace especially when taking tests. These students often work either too quickly and make many careless errors or too slowly and are never able to finish the task. Since anxiety appears to interfere with both attention and retention highly anxious students benefit most from instruction that is very structured and allows for repetition of parts of the lesson that are missed or forgotten.

5. Achievement Motivation

Basically the student is unmotivated because: subject is boring or presented in a boring way, effort must be expended before mastery or enjoyment occurs; pupil would rather not exert self; pupil does not know what to do; high school pupil has identity problems; lack clear goals; pupil lacks aptitude or ability;
parents of pupil are neutral or negative about schooling; pupil comes from a
disadvantaged background; has limited experiences; pupil has had negative
experiences in school or with a particular subject; pupil associates subject with a
disliked individual; pupil dislikes subject because of envy or jealousy of those
who do well at it; pupil feels tired, hungry, uncomfortable; pupil feels insecure,
anxious, scared; pupil experiences little sense of acceptance, belongingness,
esteem; pupil has never earned high grades, has been "punished" by low grades;
pupil has low level of aspiration; pupil has weak need of achievement; pupil is
afraid to try because of fear of failure; pupil assumes failure is due to lack of
ability and that there is no point in trying; pupil learns only when required to
learn; pupil resents learning only what others say must be learned, etc. These
are some of the hazards which interfere between achievement motivation and
academic achievement of the students.

It is very fortunate to note from the findings of the study that such
climate is not prevailing in JNVs. Hence, the achievement motivation was the
second best predictor of academic achievement of students in JNVs. However,
in order to further boost the influence of achievement motivation on academic
achievement in JNVs the following measures are suggested: try to make subject
as interesting as possible, supply incentives to learn; make a systematic effort to
arouse and sustain indirect: explain about delayed payoff, use behaviour
modification techniques to encourage perseverance, provide short term goals;
specify objectives, rewards, attempt to make lack of effort seem unappealing;
state specific instructional objectives, explain how these can be met what the
rewards will be: urge pupil to select short term goals, think about long term
goals: give less capable pupils individual help more time to complete tasks try
different kinds of instruction: emphasize that learning can be enjoyable, that
doing well in school opens up opportunities: check on range of experiences,
supply necessary background information: make experiences in your classroom
as positive as possible. make sure reinforcement occurs frequently: try to be a
sympathetic, responsive person so that pupil will build up positive associations:
play down comparisons between pupils, urge self-improvements: try to allow
for or alleviate discomfort: make your classroom physically and psychologically
safe: show pupil that you respond positively, that pupil is worthy of esteem:
avoid public comparisons, stress self competition and individual improvement:
urge pupil to set and achieve realistic goals: try to strengthen pupils
self-confidence. stress values of achievement: arrange a series of attainable goals,
help pupil to achieve them; try to strengthen pupil’s self-concept; set up a series
of short-term goals. help pupil to succeed after initial failure: invite pupil to
participate in selecting goals, deciding how they will be met. encourage pupil to
be self-directed: invite pupil to participate in selecting instructional objectives.
Probably these measures may help the students who are studying in JNVs to
arouse their achievement motivation and thereby improve their academic
achievement in all the school subjects.

6.12 Suggestions for Further Research

While conducting this study, a need for undertaking a few specific
research studies relating to the field was felt. The suggestions for such studies
are enumerated below under two categories, one, studies that arise out of the
limitations of the present investigation, and the other studies that are related to
the field.

6.12.1 Studies arising out of the limitations of the present investigation

i. Development of valid and reliable achievement tests in all the school subjects
prescribed for standard VIII based on CBSE syllabus:

ii. Identification and measurement of surface variables for self-concept, anxiety
and achievement motivation:

iii. Cross-validation of the findings of present study:

iv. A critical study of influence of selected variables on academic achievement
of students in all the classes of JNVs.

6.12.2 Studies related to the problem

i. A study could be undertaken by including other important variables not
covered by the present study. For example, a study of factors like scholastic
aptitude, attitude towards school, interest, social maturity, vocational
aspiration, reactions to frustration and other environmental variables in
relation to academic achievement of JNV students at different levels of
education may be considered.

ii. Contrary to the findings of certain studies, the present investigation has
revealed a negligible contribution of self-concept to academic achievement
of JNV students. In order to tackle this contradictory finding, a further
indepth study may be undertaken.
iii. This study may be extended to other residential schools like Sainik Schools, Morarji Desai Residential Schools, and other Residential Schools run by N.G.O.s, private bodies, defense services, etc.

iv. The same type of study may be undertaken with regard to residential teacher training institutions like, DIETs, CTEs, and Regional Institutes of Education (R.I.E.s).

v. A comparative study of JNVs and Morarji Desai Residential Schools may be undertaken with the same design of this study.

vi. A comparative study of Hindi and Non-Hindi speaking students migrated and non-migrated JNV students may be carried out with the same design.

vii. This design of the study may be extended to JNVs located in Northern, Eastern and Western zones of India.

viii. A comparative study of students studying in VIth std, and XIIth std in JNVs may be undertaken with the same design of this study.