THE RELATIONSHIP OF PERSONAL PROBLEMS TO ACADEMIC ACHIEVEMENT AMONG JUNIOR HIGH SCHOOL STUDENTS IN A RURAL AREA OF NEWFOUNDLAND

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THE RELATIONSHIP OF PERSONAL PROBLEMS TO ACADEMIC ACHIEVEMENT AMONG JUNIOR HIGH SCHOOL STUDENTS IN A RURAL AREA OF NEWFOUNDLAND

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ABSTRACT

The major purpose of this study was to investigate whether the number of personal problems of underachievers at the junior high school level is greater than the number of personal problems of average and overachievers. The variables of school, grade, sex, and intelligence were also examined in relationship to personal problems.

During the months of February, March, and April, the data were collected for the study by means of a standardized test and teacher-made tests. On the basis of these results for the population of 455 junior high school students on the Trinity South Shore, ninety were randomly selected for the study. These students, who represented the population, fell into three distinct groups: thirty overachievers, thirty average achievers, and thirty underachievers. In May, the sample of students was given the Mooney Problem Check List.

The data collected from the Check Lists were treated first in a descriptive manner and then by statistical analysis. The t-test of the difference between means for independent samples was used to test the difference between achievement groups, and also for areas of adjustment, grades, and sex. The Pearson product-moment correlation was used to investigate the relationship of intelligence to personal problems.

The major findings of the study suggested that underachievers did not have significantly more problems than did the average

achievers, except for the students at the below average level of intelligence where underachievers expressed more problems than did average achievers. Results of the study showed no significant difference in the number of problems of overachievers and underachievers for either level of intelligence. As for overachievers and average achievers, there was no significant difference in the number of problems of both groups, except for the students at the above average level of intelligence where the overachievers expressed more problems.

Related findings in the study revealed that students had more problems concerning 'School' than they did for any other area of adjustment. The results also suggested that there was no significant difference in the number of problems of either grade, sex, or level of intelligence.

For the field of guidance and counseling, the results of the investigation suggested that, in general, the number of personal problems of students is not significantly related to academic achievement or underachievement. In working with underachievers, greater success might be made if some other factors were related to the problem.

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CHAPTER 1

THE PROBLEM

Underachievement, a relatively new name for an old problem in education, has been studied and re-studied, treated and evaluated, investigated and analyzed, but still the problem exists. Students continue to achieve below their expected achievement level as inferred from intelligence tests, achievement tests, and teacher expectations. It does not necessarily hold true that two students with the same I.Q. will achieve at the same level in school examinations. All too often, as Roth says, "the academic achievement of some pupils is far below their intellectual ability".[1]

The reasons for such poor performance are still not clearly established in the field of education. Many conditions have been related to underachievement, but according to Wellington sociological and psychological factors contribute to the problem.[2] Some of these factors include peer acceptance, motivation, interests, attitudes, self-concept, or personality. Where one or a combination of these conditions exists, underachievement is also thought to exist. These non-intellectual variables seem to interfere with a student's performance and prohibit full academic attainment.

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[1]Robert M. Roth, Underachieving Students and Guidance (Boston: Houghton Mifflin Company, 1970), p. vii.

[2]Burleigh C. Wellington and Jean Wellington, The Underachiever: Challenges and Guidelines (Chicago: Rand McNally & Company, 1963), p. 89.

An additional single variable that might be an obstacle to achievement is the personal problems of students. A student troubled by personal problems could possibly find it difficult to concentrate on his studies or to cope with the demands of the school curriculum. It is quite reasonable to think that where personal problems exist among students, underachievement could also exist which would result in low grades and failure. But, if this variable is not related to underachievement a student's personal problems will not be a factor affecting his performance in the school situation.

I. ACHIEVEMENT IN NEWFOUNDLAND

In Newfoundland schools underachievement is a grave problem of concern to educators, teachers, parents, and students. Studies and surveys conducted in Newfoundland indicate that there are students attending our schools who have the potential to achieve successfully, but, for some reason they are not functioning at their capability level.

The Report of the Royal Commission on Education and Youth revealed information regarding achievement in Newfoundland which should cause care and concern for the students.* According to the Report, slightly more than 40% of the students who begin school reach grade eleven and nearly half of the candidates for this grade fail each year. The study went on to explain that the standard of achievement in Grade VIII is "lamentably low". Furthermore, the Report stated that "the school system as a whole is falling far short of its stated objective of enabling each human being to achieve his fullest and best development both

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*See thesis bibliography, p. 102-103.

as an individual and as a member of human society. Such a waste of human resources is contrary to the best interest of this province".[3]

This point is further illustrated in an article by Lundrigan which stated that "as many as one-third of our students in certain schools fail according to certain defined standards".[4] This is a seriously high rate of students to experience the disappointment of failure and rejection. Sometimes low academic ability is a cause of this low academic performance, but often students of low ability do better in school examinations than do students of higher ability. Considering this, there definitely must be other factors affecting the low rate of student success. Probably the personal problems of a student could be related to underachievement to such an extent that they would be detrimental to his functioning at an expected level.

II. PURPOSES OF THE STUDY

Major Purpose

The major purpose of this study is to investigate whether any relationship exists between academic achievement and personal adjustment of students in a rural area of Newfoundland. A comparison will be made between the following groups:

(1) Overachievers and their personal problems.

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[3]Province of Newfoundland and Labrador, Report of the Royal Commission on Education and Youth. I. (St. John's, The Queen's Printer, 1967), pp. 45-48.

[4]J. Lundrigan, "It's Easier Said Than Done", Newfoundland Teachers' Association Journal, LVIII (February, 1967), p. 26.

(2) Average achievers and their personal problems

(3) Underachievers and their personal problems.

Minor Purpose

The minor purpose of this study is to try and determine the following:

(1) What is the relationship between academic achievement and school related problems?

(2) What is the relationship between grade and personal problems?

(3) What is the relationship between sex and personal problems?

(4) What is the relationship between I.Q. and personal problems?

III. SIGNIFICANCE OF THE STUDY

The degree of underachievement in Newfoundland schools is a matter of urgent concern requiring detailed study and research. To the writer's knowledge, no systematic investigation has ever been conducted in Newfoundland to try and determine whether or not academic underachievement is related to poor personal adjustment. A study of this sort may consequently shed some light on the many questions related to underachievement.

If it could be established that personal problems are definitely related to poor academic performance, this would reinforce the need for guidance programs in the schools. Since counselors are directly involved with students and their problems, a reduction of the number of

problems could result in improved achievement, particularly for the underachievers. As Robbins states in an article pertaining to guidance in the schools: "Guidance is concerned with academic achievement. It wants each child to develop to his fullest capacities".[5]

IV. HYPOTHESES

The hypotheses of the study are divided into two sections: major and minor. The major hypotheses concern achievement and adjustment; the minor hypotheses deal with areas related to adjustment in the school. The relationships are stated first in the form of a null hypothesis followed by an alternate hypothesis which indicates the expected relationship. In addition to the narrative statement, each hypothesis is also expressed in mathematical form for statistical purposes.

Major Hypothesis

Hypothesis I. There will be no significant difference in the mean number of personal problems of overachievers and the mean number of personal problems of average achievers.

$$H: \quad M_1 - M_2 = 0$$

The mean number of personal problems of average achievers will be significantly greater or smaller than the mean number of personal problems of overachievers.

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[5] C. Robbins, "What is Guidance", The Newfoundland Teachers' Association Journal, LIV (March, 1963), p. 25.

$$A: \quad M_1 - M_2 \neq 0$$

Hypothesis II. There will be no significant difference in the mean number of personal problems of average achievers and the mean number of personal problems of underachievers.

$$H: \quad M_1 - M_2 = 0$$

The mean number of personal problems of underachievers will be significantly greater or smaller than the mean number of personal problems of average achievers.

$$A: \quad M_1 - M_2 \neq 0$$

Hypothesis III. There will be no significant difference in the mean number of personal problems of overachievers and the mean number of personal problems of underachievers.

$$H: \quad M_1 - M_2 = 0$$

The mean number of personal problems of underachievers will be significantly greater or smaller than the mean number of personal problems of overachievers.

$$A: \quad M_1 - M_2 \neq 0$$

Minor Hypotheses

Hypothesis IV. There will be no significant difference in the mean number of personal problems related to the 'School area' and the mean number of personal problems in any other area of investigation.

$$H: \quad M_1 - M_{i}^{n=6} = 0$$

The mean number of personal problems related to the 'School area' will be significantly greater or smaller than the mean number of

personal problems for either other area of investigation.

$$A: \quad M_1 - M_i \overset{n=6}{\neq} 0$$

Hypothesis V. There will be no significant difference in the mean number of personal problems of students in Grade Seven and the mean number of personal problems of students in Grade Eight.

$$H: \quad M_1 - M_2 = 0$$

The mean number of personal problems of students in Grade Eight will be significantly greater or smaller than the mean number of personal problems of students in Grade Seven.

$$A: \quad M_1 - M_2 \neq 0$$

Hypothesis VI. There will be no significant difference in the mean number of personal problems of students in Grade Eight and the mean number of personal problems of students in Grade Nine.

$$H: \quad M_1 - M_2 = o$$

The mean number of personal problems of students in Grade Nine will be significantly greater or smaller than the mean number of personal problems of students in Grade Eight.

$$A: \quad M_1 - M_2 \neq 0$$

Hypothesis VII. There will be no significant difference in the mean number of personal problems of students in Grade Seven and the mean number of personal problems of students in Grade Nine.

$$H: \quad M_1 - M_2 = 0$$

The mean number of personal problems of students in Grade Nine will be significantly greater or smaller than the mean number of personal problems of students in Grade Seven.

$$A: \quad M_1 - M_2 \neq 0$$

Hypothesis VIII. There will be no significant difference in the mean number of personal problems of boys and the mean number of personal problems of girls.

$$H: \quad M_1 - M_2 = 0$$

The mean number of personal problems of boys will be significantly greater or smaller than the mean number of personal problems of girls.

$$A: \quad M_1 - M_2 \neq 0$$

Hypothesis IX. The correlation between I.Q. scores and the number of personal problems will be zero.

$$H: \quad r = 0$$

The correlation between I.Q. scores and the number of personal problems will be less than zero.

$$A: \quad r \neq 0$$

V. OPERATIONAL DEFINITIONS

This section contains a brief description of the variables and terms used in the study. The variables are operationally defined and some are expressed statistical notation so as to prevent any ambiguity in meaning. Further details involving the use of the terms are contained in subsequent chapters.

Intelligence

Intelligence refers to the ability of the individual to learn, understand, and manipulate his environment as indicated by the Otis-Lennon Quick Scoring Mental Ability Test, Form K.

The Intelligence Quotient derived from this test is used in the study and is represented by the symbol X_1.

Achievement

Achievement refers to the academic achievement of students in the school subjects being taught this year. This measure was preferred to the results of standardized achievement tests because the writer wanted to know how the students were achieving during the school term, rather than a measure of the basic skills they have developed over their school years.

Achievement Score

The achievement score for each student is computed by finding his average percentage from the mid-term examinations in January. This score is represented by the symbol Y_1.

Predicted Achievement Score

This was a student's expected average percentage in his school subjects as tabulated from his intelligence score (X). This prediction is based on the correlation of I.Q. with achievement score (Y) and the equation of the straight line $\hat{Y} = bx + c$.

The predicted achievement score was represented by the symbol $\hat{Y}$.

Underachiever

An underachiever was a student whose achievement score (Y) was greater than minus 0.75 standard error of estimate of his predicted

score ($\hat{Y}$).

UA: $Y > -0.75$ SEest ($\hat{Y}$).

Average Achiever

An average achiever was a student whose achievement score (Y) falls within plus or minus 0.75 standard error of estimate of his predicted score ($\hat{Y}$).

AA: $Y < \pm 0.75$ SEest ($\hat{Y}$).

Overachiever

An overachiever was a student whose achievement score (Y) was greater than plus 0.75 standard error of estimate of his predicted score ($\hat{Y}$).

OA: $Y > +0.75$ SEest ($\hat{Y}$)

Personal Adjustment

Personal Adjustment refers to the total adjustment of the individual, including social, emotional, physical, and intellectual, and as measured by the Mooney Problem Check List. A lower score indicates better personal adjustment.

The score on the Mooney Problem Check List is represented by Z_1.

Problems

A problem refers to an item on the Mooney Problem Check List that is indicated by the student as a matter of some concern for him or her.

School Area

The Mooney Problem Check List covers seven problem areas relevant to student adjustment. The 'School area' is one of these seven.

VI. LIMITATIONS

Any interpretation of the results of this study must take into consideration the following limitations:

(1) Only two variables, namely achievement and adjustment are investigated in the study.

(2) Only the Junior High School grades of Seven, Eight, and Nine are involved in the research.

(3) The study includes only the regular classes in the school systems. Students of special education classes are not involved in the investigation.

(4) The only students samples in the study are from the rural areas of Trinity Bay South.

(5) The study is limited by the methods of randomized sampling which may affect the representedness of samples.

VIII. ORGANIZATION OF THE REPORT

Chapter II reviews the literature related to each hypothesis presented in this Chapter. Chapter III contains the procedures followed in carrying out the study and the methods of collecting the data. The content of Chapter IV is a descriptive analysis of the collected data, while Chapter V contains an inferential analysis of the results. Chapter VI gives a summary of the study, conclusions, implications, and possible recommendations for educational research.

CHAPTER II

REVIEW OF LITERATURE

This chapter is divided into sections reporting the literature related to each area of investigation as indicated by the hypotheses. The studies conducted in these areas have not established any definite relationship since investigation results are contradictory and inconclusive. Because of the vast quantity of material available over the past forty years pertaining to achievement and adjustment, this review of literature will consist of a summary of the most relevant studies reported during the past twelve years. The reader is also reminded that in the review of literature the terms 'personal adjustment' and 'personal problems' are used synonymously and imply the same meaning.

I. THE RELATIONSHIP BETWEEN ACHIEVEMENT AND PERSONAL ADJUSTMENT

In the winter of 1960 Frankel reported a study he had conducted which compared underachieving and achieving high school boys of high intellectual ability at the Bronx High School of Science, New York. A number of boys in the school were failing to achieve at the level of their ability so Frankel formed fifty pairs of students from the school population. Each pair was composed of an achiever and an underachiever who were matched on I.Q. and age. He then investigated the relationship of several variables to the two groups. One of these variables was the personal problems of stu-

dents as indicated by the Mooney Problem Check List. The results of the Check List showed that there was no statistically significant difference in the total number of problems of achievers and underachievers. This study concluded that underachievers had no more personal problems than achievers.[1]

However, later the same year this evidence was contradicted by a study done by Pierce and Bowman. Using 229 superior high school students in Grades ten and twelve of the Quincy Public Schools System, he compared high-achieving and low-achieving students on a number of non-intellectual variables. First, the subjects were given an intelligence test and then grouped according to grades in school. In regard to adjustment, Pierce and Bowman hypothesized that the high achieving boys and girls would score higher on adjustment as measured by the California Psychological Inventory than their low-achieving peers. As hypothesized, the results of the Inventory indicated that high achievers were significantly better adjusted than the low achievers.[2] These findings did not support the results of Frankel's study.

In 1961 the Department of Special Services Staff of Champaign, Illinois, conducted a study on underachievement and overachievement which substantiated the findings of Frankel's study. From Grades

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[1]E. Frankel, "A Comparative Study of Achieving and Underachieving High School Boys of High Intellectual Ability", The Journal of Educational Research, LIII (1960), pp. 172-80.

[2]James V. Pierce and P. Bowman, "Motivation Patterns of Superior High School Students", The Gifted Student, Cooperative Research Monograph. No. 2, U.S. Department of Health, Education, and Welfare, 1960.

two, three, four, and five, a sample was drawn of 233 pupils who were intellectually gifted and were scoring markedly below and above the level expected, on the basis of their I.Q. In designing the study, intelligence and socio-economic background were held constant for the two groups of achievers. With these two variables controlled, the overachievers and underachievers were compared on a number of other variables, one of which was personal adjustment. Using Roger's Test of Personal Adjustment it was expected that overachievers would be better adjusted than underachievers. However, the results of the Test reflected a non-significant difference in the scores for subjects in the two groups. The students in the underachieving group scored lower on some aspects of adjustment, but the difference was of no significance.[3]

In the same year the results of the study by Pierce and Bowman were also substantiated. Dana and Baker have reported data from a research project on the factors affecting achievement in junior and senior high schools. From a sample of 250 male and female students, three groups were formed on the basis of GPA: high achievers, low achievers, and normal achievers. The groups were chosen randomly and no specific level of intelligence was sampled. The Bell Adjustment Inventory was given to the three groups, and the results indicated that adjustment was related to achievement. It was concluded for this study that high achievement in high school could be equated with relative free-

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[3]Department of Special Services Staff, Champaign, Illinois, "Underachievement and Overachievement of Intellectually Gifted Children", Exceptional Children, XXVIII (Dec., 1961), pp. 167-175.

dom from conflict with parents and from personal problems.[4]

In 1963, research was still endeavoring to reach some conclusive evidence on the relationship of adjustment to achievement. Anderson and Spencer, sampling 2,085 college freshman from the University of Minnesota, conducted a study that disagreed with the findings of Pierce and Bowman, and Dana and Baker. This survey which investigated whether achievement was related to personal-emotional adjustment, employed the MMPI as an indication of the degree of adjustment. From the results of this Inventory three adjustment groups were formed: normal, one-peak, and maladjusted. These three groups were then compared on the GPA scores they had obtained in their courses. The results of these comparisons suggested that there were no significant differences between the adjustment groups and academic success. Academic achievement as measured by GPA scores is not related to personal-emotional adjustment as based on the MMPI.[5]

The following year Durr and Schmatz presented a well-controlled study that reflected the theory that adjustment and achievement are related. Sampling pupils from Grades four, five, and six, the researchers selected 81 subjects whose intelligence rating was above the 90th percentile. These pupils were divided into two groups: forty-seven high

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[4]Richard H. Dana and David H. Baker, "High School Achievement and the Bell Adjustment Inventory", Psychological Reports, VIII (1961), pp. 353-356.

[5]Bryce L. Anderson and P. Spencer, "Personal Adjustment and Academic Predictability Among College Freshman", The Journal of Applied Psychology, XLVII (L963), pp. 97-100.

achievers and thirty-four low achievers. The high achievers had scored at or above the 90th percentile on the California Achievement Test, and the low achievers had scored at or below the 60th percentile. These two groups were then compared on personal adjustment as measured by the California Test of Personality, Junior Form. The scores of the two groups showed that the high-achievers indicated significantly fewer personal problems than the low achievers. The latter group was more prone to fears, worries, and feelings of personal inadequacy and expressed greater needs in manual and social skills, hobbies and recreation.[6]

In 1965 the results of the Durr and Schmatz investigation were further substantiated. Watley planned to examine the relationship between personal adjustment and academic achievement by designing a study which sampled 188 freshman male students at the University of Denver. These students had just been transferred from the high school to the College of Business Administration at the University. The researcher used the Guilford-Zimmerman Temperament Survey which classified his subjects into 'positive', 'average', and 'negative' adjustment groups. GPA was used as the achievement quotient. In comparing the three adjustment groups on GPA, the results showed that adjustment was related to grades achieved in high school. There was a significant difference between the achievement of 'positive' and 'average' groups as compared with the 'negative' group in that the higher achievers were better adjusted.

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[6]William K. Durr and Robert R. Schmatz. "Personality Differences Between High-Achieving and Low-Achieving Gifted Children", The Reading Teacher, XVII (January 1964), pp. 251-4.

A relationship apparently exists between these two variables.[7]

In a carefully controlled study a year later, Teigland, Winkler, Munger and Kranzler designed and conducted a study which supported the studies of Pierce and Bowman, Dana and Baker, Durr and Schmatz, and Watley. The sample employed in the investigation was drawn from 700 fourth-grade students in the public school system at Grand Forks, North Dakota. Their intelligence, as measured by the WISC I.Q. score, was correlated with their GPA to identify whether they were achievers or underachievers. In this way, differences in achievement between underachievers and the central group of achievers could not be attributed to differences in intellectual ability. The two groups were then administered the California Test of Personality, Elementary Form, as a measure of their degree of adjustment. The results of the CPI indicated that achievers scored significantly higher or towards better adjustment on all variables of the Inventory.[8]

While the majority of studies tend to support each other in the relationship of adjustment to achievement, Jolly conducted a Canadian study in 1966 which supported the findings of Frankel, and Anderson and Spencer. The overachievers and underachievers were chosen from a sample of 100 grade eleven students. Those students whose percentage

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[7]D. J. Watley, "Personal Adjustment and Prediction of Academic Achievement", The Journal of Applied Psychology, XLIX (1965), pp. 20-23.

[8]John J. Teigland, Ronald C. Winkler, P. F. Munger, and Gerald D. Kranzler, "Some Concomitants of Underachievement at the Elementary School Level", Personnel and Guidance Journal, (May, 1966), pp. 950-5.

in school examinations was above the 67th percentile were overachievers, and those scoring below were underachievers. This resulted in two groups: twenty-four overachievers and twenty-four underachievers. These subjects were given the Mooney Problem Check List to complete, and the scores of this Inventory suggested that there was no significant difference in the total number of problems identified by the over-achievers and the underachievers.[9]

In 1967 Coombs and Davies reported a study they had carried out with a group of 186 freshman students at Washington State University. The research investigated socio-psychological adjustment as a factor in collegiate scholastic success. Exercising little control over such variables as intelligence, socio-economic background, or achievement, the researchers had students rate their friends from one to five on a number of non-intellectual variables, one of which was emotional adjustment. The results of the study were consistent with the belief that achievement and adjustment are not related. It was suggested by the ratings and GPA's of the students that there is little confidence in emotional adjustment as a factor in school achievement.[10]

Conflicting evidence was again published in 1969 by Bachtold. This investigator did a study on high ability underachievers which employed

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[9]Gurdev S. Jolly, "The Relationship Between Personal Problems and Academic Achievement of Seemingly Bright Students", Unpublished Master's Thesis, University of New Brunswick, (October, 1966), pp. 1-65.

[10]Robert H. Coombs and Vernon Davies, "Socio-Psychological Adjustment in Collegiate Scholastic Success", The Journal of Educational Research, LXI (December, 1967), pp. 186-189.

227 fifth-grade students of the Rio Linda Union School District, California. Two groups were formed for comparison purposes; underachievers of high ability were compared to achievers of high ability. To estimate adjustment, the Children's Personality Questionaire was given to all the students. The results of this study reinforced the belief that underachievers are not so emotionally stable, serious, or sensitive as are achievers. The achievers appear to be better adjusted emotionally than do the underachievers.[11]

In 1971 an article written by M. G. Zilli summarized the varied opinions of the numerous conflicting studies done on underachievement. Although it is not conclusive, the findings reported by Zilli suggest very strongly that achievement and adjustment are related. In reference to the reason for underachievement, Zilli wrote that it is because of "... illness, problems with teachers, etc. in 10% of the cases, relatively serious neurotic problems in 50% of the cases, and serious emotional problems requiring immediate attention in 10% of the cases". After studying the reports of other investigations Zilli concluded that a factor existing with achievers that is missing among underachievers is a high personal adjustment score for the pupil.[12]

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[11]Louise M. Bachtold, "Personality Differences Among High Ability Underachievers," The Journal of Educational Research, LXIII (September, 1969), pp. 16-18.

[12]M. G. Zilli, "Reasons Why the Gifted Adolescent Underachieves and Some of the Implications of Guidance and Counseling to this Problem", The Gifted Child Quarterly, XV (Winter, 1971), pp. 279-291.

II. RELATIONSHIP BETWEEN ACHIEVEMENT AND PERSONAL PROBLEMS RELATED TO SCHOOL

It has become quite natural for educators to assume that the school is one of the most influential variables associated with the academic success or failure of students. Four of the studies already cited considered this variable in their investigation and all the results agreed with each other that problems and adjustment concerning the school are related to underachievement.

Frankel maintained in 1960 that there was no significant difference in the total number of problems of achievers and underachievers, except in the school area. Here the underachievers had more problems than the achievers.[13]

Four years later in 1964 Durr and Schmatz substantiated this by finding through the California Test of Personality that the low-achievers had most of their problems in matters related to the school. They had poorer attitudes towards school, less satisfaction with school work, and a feeling that their needs were less likely to be met in school.[14]

In the study by Teigland and his colleagues in 1966, they not only maintained that achievement and adjustment are related but went even further to indicate that problems pertaining to 'School Relations'

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[13] Frankel, op. cit., p. 179.

[14] Durr and Schmatz, op. cit., p. 253.

was one of the most significant variables in comparing adjustment to underachievement.[15]

Finally, this question was further supported in the same year by Jolly's study. The academic success of students was significantly related to curriculum and teaching procedures, even though total adjustment was of no relationship to underachievement.[16]

III. THE RELATIONSHIP BETWEEN PERSONAL PROBLEMS AND GRADE LEVEL

In a study already cited, Pierce and Bowman reported a relationship between adjustment and grades in the school. After their investigation of adjustment and achievement amongst Grade ten and Grade twelve students, the results indicated that the Grade tens were more maladjusted than were students in Grade twelve. This maladjustment was associated with the areas of aggression and withdrawal. There was no significant difference in total adjustment.[17]

In 1968 a study by Datta, Schaefer, and Davis, shed additional light on the question. Sampling a Grade seven class of Negro and White pupils of the northern Virginian Integrated School System, teachers were required to rate the students' adjustment. The rating was done on

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[15]Teigland et al., op. cit., p. 954.

[16]Jolly, loc. cit.

[17]Pierce and Bowman, loc. cit.

a scale developed by A. E. Ullman in 1952 designed to measure social and emotional adjustment. When the students had been rated it was found that there was no difference between the adjustment of Grade seven students and the adjustment of a Grade nine class that had been studied by Ullman in 1952 using the same adjustment scale.[18]

IV. THE RELATIONSHIP BETWEEN PERSONAL PROBLEMS AND SEX

In their study of motivational patterns of superior high school students, Pierce and Bowman also investigated the relationship of sex to adjustment. From the results of the Inventory they used, it was concluded that generally, girls were better adjusted than boys.[19]

Further reference to the study done by Teigland and his colleagues with fourth-grade pupils reported additional data on the question of adjustment and sex. From the results of the personality test they used, no significant differences were found between sexes within either the achiever or underachiever group. This would indicate that girls are no better adjusted than boys, or that boys are not any better adjusted than girls.[20]

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[18]Louis-Ellin Datta, E. Schaefer, and M. Davis, "Sex and Scholastic Aptitude as Variables in Teachers' Rating of the Adjustment and Classroom Behavior of Negro and Other Seventh-Grade Students", Journal of Educational Psychology, LIX (February, 1968), pp. 94-101.

[19]Pierce and Bowman, loc. cit.

[20]Teigland et al., op. cit. pp. 954-5.

The conclusions of Teigland were substantiated in the same year when Purkey conducted his study of ninety-five gifted, and sixty-three average high school students from the Governor's School of North Carolina and Albemarle High School, Virginia. From the results of the CIP it was concluded that there was no difference in the adjustment of either boys or girls. Neither sex was better adjusted than the other.[21]

Reports would seem to indicate that there is no difference in adjustment for boys and girls, however, in 1968 this theory was contradicted. In a study already cited, Datta and her associates had Negro and White students rated on an adjustment scale. The results of this rating suggested that girls were significantly more likely than boys to be rated as well adjusted, whether Negro or White.[22]

V. THE RELATIONSHIP BETWEEN PERSONAL PROBLEMS AND INTELLIGENCE

There seems to be little disagreement among research studies as to the relationship between adjustment and intelligence. Brennon, in 1962, conducted a study which sampled 548 primary school children in Farnworth, Lancashire. After giving them a group intelligence test

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[21]W. W. Purkey, "Measured and Professed Personality Characteristics of Gifted High School Students and an Analysis of their Congruence," The Journal of Educational Research, LX (November, 1966), pp. 99-103.

[22]Datta et al., op. cit., p. 99.

they were divided into three groups: bright, average, and dull. These same students were given the Bristol Social Adjustment Guides to assess their degree of adjustment. The results from this Inventory were correlated with the Intelligence Quotients and it was indicated that there is a consistent and positive correlation between intelligence score and the level of emotional adjustment. As intelligence increases, so does better adjustment.[23]

Purkey, in his study of gifted high school students, also found a relationship between intelligence and adjustment. The results of the California Personality Inventory indicated that the mean score of the gifted students and average students differed significantly. Those of higher intelligence were more favourably adjusted than those of lower intelligence.[24]

A year after Purkey's study, Sister M. Rita Flaherty carried out a study on the personality traits of college leaders. The results of Flaherty's study also substantiated the data indicating a relationship between adjustment and intelligence. Her sample consisted of 198 college students of Mount Mercy College, Pittsburgh, Pennsylvania. First, the subjects were given the CPI followed by the Scholastic Aptitute Test.

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[23]W. K. Brennon, "The Relation of Social Adaptation, Emotional Adjustment and Moral Judgement of Intelligence in Primary School Children", The British Journal of Educational Psychology, XXXII (June, 1962), pp. 200-204.

[24]Purkey, op. cit., p. 101.

The results of this study showed that the students of higher verbal intelligence were more sociable, confident, and indicated a sense of personal worth. Those of lower intelligence differed significantly from the above in each of these personal characteristics.[25] Intelligence seems to be related to adjustment from this study as well.

A further investigation in 1968 was consistent with previous results. Besides reporting a relationship between adjustment and sex, Datta and her colleagues also maintain there is a relationship between adjustment and intelligence. The results of the California Mental Maturity Test suggested that negro students with a low I.Q. are seen as poorly adjusted, whereas the higher I.Q. negro students appeared to be better adjusted. The difference between these two groups in adjustment was of statistical significance. However, the white students involved in this study showed no significant difference in adjustment as compared at ability levels.[26]

This final point of the study disagrees with the majority of material reported on this topic which strongly suggests that adjustment and intelligence are related.

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[25]Sister Rita M. Flaherty, "Personality Traits of College Leaders", The Journal of Educational Research, LX (April, 1967), pp. 377-8.

[26]Datta et al., op. cit., p. 98.

CHAPTER III

DESIGN OF THE STUDY

This chapter describes the procedures followed in conducting the study. Specific sections deal with the area of the study, reason for using junior high school grades, collection of data, samples, instruments, administering and scoring of tests, and method of analysis.

I. AREA SELECTED FOR THE STUDY

In deciding which area to be used for the study several specific conditions were required of the location. First, the schools involved in the study must all be without guidance facilities since a section of the study assumed an absence of these services. This requirement limited the areas of selection to the rural districts where formal guidance and counseling services do not exist. In choosing some particular rural district, it was desired that the area should be typical of most rural areas of Newfoundland so as to be representative of the rural population. Also, the area should be easily accessible from the city by road so as to facilitate the collection of data. A final condition pertained to the population of the schools involved in the research. It was felt that they should be large enough so as to allow the samples to be drawn randomly which would result in more significant findings.

Taking these conditions into consideration, a section of the Avalon North Integrated School Board District met all of the requirement. The writer, having taught and lived on the Trinity South shore for two

years, was aware of the general living conditions and school systems in this area and felt they met the conditions required for the study.

II. REASONS FOR USING THE JUNIOR HIGH SCHOOL GRADES.

The junior high school grades of seven, eight, and nine, were preferred for the study for two specific reasons. One of these reasons is the dearth of educational information at this level in the Newfoundland system of education. Since the junior high school level of education is a relatively recent development in the Province, very little research has been conducted in this area. Consequently, the amount of information available on junior high school students is very limited and inadequate.

According to Thomas R. Ford's survey, junior high school students have very descriptive problems pertaining to adjustment.[1] At this age level, the boys and girls become more mature both physically and socially. Definite social roles are established for both sexes which could lead to academic problems. Ford states that "at this (junior high school) age the American boy is frequently seeking to validate his maleness through appropriate behavior, and scholastic achievement probably does not serve this function as well as does performance in other areas — athletics, for example".[2] The combination of changes and demands forced on the life of junior high school students would seem to suggest that academic achievement could be seriously affected by such factors that might exist.

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[1]Thomas R. Ford, "Social Factors Affecting Academic Performance: Further Evidence", The School Review (Winter, 1957), pp. 415-422.

[2]Ibid. p. 417.

III. COLLECTION OF DATA

In January, 1972, verbal consent was granted by the Avalon North Integrated School Board to conduct the research in the Trinity South area. It was suggested by the Board that the study involve the schools from Woodland Junior High in Dildo, Trinity Bay, to the Winterton Elementary School which included grades seven and eight. Appendix A contains a list of the schools and communities involved in the study.

The following month a visit was made to each of the school systems affected by the study and permission was obtained from each of the principals to involve their students in the research. At this time information was also obtained regarding the type of I.Q. tests that had been administered to the junior high school students, which grades, if any, had not taken the I.Q. test, and when the mid-term marks might be available.

In March, a third visit to the schools involved the collection of the mid-term marks of each junior high school student from Winterton to Dildo. At the same time each student's I.Q. score was obtained from the school files, with the exception of four grade seven classes and one grade eight class which had not been given any I.Q. test.

During the month of April the five classes mentioned above were administered the required I.Q. test, the answer sheets scored, and the results tabulated. These I.Q.'s were then included with the others already obtained.

In May, after the samples had been drawn, a final visit to each school involved administering the Mooney Problem Check List to the students. These inventories were handscored and entered on coding sheets together with the mid-term marks, and I.Q. scores for processing by computer.

IV. SAMPLING

When all the mid-term marks and all the I.Q. scores were collected, a number of specific procedures was followed before the sample could be administered the Mooney Problem Check List.

After the incomplete information regarding I.Q. or mid-term marks had been eliminated, the total population was 455 students. The I.Q. score for each student in this population was then processed. Using these scores, a frequency distribution was compiled and percentiles developed so that local norms could be established. These norms allowed the population to be divided into three groups: above average intelligence, average intelligence, and below average intelligence. The above average group was composed of students whose I.Q. fell at or above the 75th percentile. The average group was the students whose I.Q. scores fell between the 25th percentile and the 75th percentile. The below average group was composed of the students whose I.Q. score fell at or below the 25th percentile. The number of students in each of these groups was 112, 224, and 119 respectively. The 25th and 75th percentiles were chosen as the cut-off points since this proportion would provide the number of students in both extreme groups to be large enough so as to allow samples to be drawn randomly later in the procedures. Appendix B contains the norms, percentiles and groups formed from the I.Q. scores.

For each student in the population, his or her average percentage was computed from the mid-term marks. This involved totaling the percentages of each school subject and then dividing by the number of subjects taken by that student. This was done for each student giving his or

her average percentage, or actual achievement score. Using the achievement score and I.Q. score of each student in the population, and the prediction formula $y = bx + c$, the predicted achievement score was tabulated for each student. See Appendix C.

The next step was to compute the standard error of estimate for the actual achievement score and the predicted achievement score. Table 1 shows the value for one standard error of estimate and 0.75 standard error of estimate which was used to determine the level of achievement.

TABLE I

VALUES FOR THE STANDARD ERROR OF ESTIMATE*

	1 SEest	0.75 SEest
Points of Achievement	10.44	7.83

From this information three groups of achievers could be formed: overachievers, average achievers, and underachievers. Referring to the definition of terms stated in Chapter I, an underachiever was a student whose actual achievement score was greater than 0.75 standard error of estimate (7.83) of his or her predicted achievement score. The average achievers were the students whose actual achievement score fell within plus or minus 0.75 SEest of his or her predicted score. Underachievers were those students whose actual achievement score was less than 0.75

*$b = \frac{SP}{SS}$ $C = \bar{Y} - b\bar{x}$ $SEest = \sqrt{\frac{\Sigma(y-\hat{y})^2}{N-2}}$

SEest of his or her predicted score. Appendix C shows the group in which each student was placed. Based on these groups and the I.Q. score, each member of the population was given a code number.

Ninety students were then chosen randomly so that 20% of the population was sampled. In selecting the subjects, the samples were stratified so as to sample each achievement group at each level of intelligence. To illustrate, the 112 students of above average intelligence were selected such that eighteen were overachievers, sixty-two were average achievers, and thirty-two were underachievers. Ten subjects were chosen randomly from each of these three achievement groups so that there would be ten overachievers, ten average achievers, and ten underachievers. This gave a total of thirty students of above average intelligence. The same step was followed for the students of average, and below average intelligence so that a total of ninety subjects was drawn from the entire population: thirty overachievers, thirty average achievers, and thirty underachievers. Of these ninety subjects, thirty-one were in grade seven, thirty-four were in grade eight, and twenty-five were in grade nine. There were forty-six boys and forty-four girls in the sample. Appendix D contains a list of the sample of students.

After these samples had been drawn, an analysis was made of the three achievement groups to determine whether they did not differ significantly in intelligence, but did differ significantly in achievement. A t-test of the difference between means for independent samples was employed for the analysis, testing at the 0.05 level of significance. The results of these t-tests are shown in Table II. The values of the t-tests indicate

that the difference in achievement between the three groups cannot be attributed to differences in intellectual ability, since there is no significant differences in the I.Q. of the students in each of the three achievement groups. (See Appendix C)

After the groups were analyzed, the Mooney Problem Check List was administered to the sample of students.

TABLE II

VALUES FOR THE T-TESTS FOR THE ACHIEVEMENT GROUPS

	Intelligence	Achievement
Overachievers and Average Achievers	0.713	2.530*
Average Achievers and Underachievers	0.413	4.572*
Overachievers and Underachievers	o.286	6.445*

*Significantly different at the 0.05 level

V. INSTRUMENTS

The instruments used in procuring the data for the study were: The Mooney Problem Check List, The Otis-Lennon Mental Ability Test, and teacher-made tests. Each of these instruments will be described in detail in this section.

The Mooney Problem Check List

This Check List is designed to measure the degree of personal adjustment by listing problems that have been found common to students of the particular age range for that particular form. It is composed of seven areas with thirty items in each area. The seven areas are as follows: Health and Physical Development; School; Home and Family; Money, Work and the Future; Boy and Girl Relations; Relations to people in General; Self-Centered Concerns. The person filling out the inventory is to underline the problems which are bothering him or her, and then answer four short questions related to his feelings about the questionnaire. This process usually takes forty-five to fifty minutes.[3]

The Mooney Problem Check List is preferred to other personality inventories because it appears to be oriented more towards the school situation. There is a whole area of thirty items concerning school related problems. Another reason is because of the simple language and procedures used by the inventory since there is a Form designed for different grade levels in the school.

The Check List was developed in 1942 and revised in 1950. The items were selected from a master list of over 5000 items from reliable sources, such as analysis of case records and interviews, review of literature on student problems, and experiences of counselors. According to planned criteria, the best items were selected and combined into the present

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[3]Ross L. Mooney, and Leonard V. Gordon, The Mooney Problem Check Lists, (New York: The Psychological Corporation, 1950), pp. 4-5.

instrument for measuring pupils' problems.[4]

The question concerning the Mooney Problem Check List as a measure of personal problems rather than a measure of personal adjustment is surveyed rather thoroughly in a study done by Goldman. Whether the number of personal problems is a reflection of the degree of personal adjustment or not was investigated in the research. Using 301 undergraduates of North-Eastern State University, Goldman administered the Mooney Problem Check List and the California Test of Personality to the students. After analysis, Goldman had this to say:

> The relationships were primarily negative, i.e., those who demonstrated a high degree of adjustment (high score on the CTP) checked fewer problems on the MPCL that those who demonstrated poor adjustment (low scores on the CTP). On the basis of this study which is in agreement with similar work by an earlier researcher, the present writer asserts that the MPCL may permit an assessment of the person's adjustment status.[5]

From studies that have been done, it suggests very strongly that the Check List measures what it purports to measure. Leonard V. Gordon in a study reported that 92% of those who responded to the question: "Do you feel that the items you have marked on the list gives a well-rounded picture of your problems?" felt that the items they had marked gave a fairly complete picture of their problems.[6]

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[4] Ibid., pp. 11-12

[5] B.A. Goldman, "Relationship Between Scores on the Mooney Problem Check List and the California Test of Personality", The Journal of Educational Research, LXI (March, 1968), pp. 307-310.

[6] Leonard V. Gordon, An unpublished study, Department of Psychology, Ohio State University.

Another test of validity was done by Stoghill and Denton. They tested two groups: a remedial study class, and a mental hygiene class. Those in the study group marked more items pertaining to problems in studying than did the mental hygiene group. The latter group also marked significantly more problems pertaining to mental hygiene than did the study group.[7]

The problem of reliability is somewhat different for problem check lists than for tests which are typically consistent in their measurements. If a problem check list does what it is designed to do, one would expect the number of items, and the specific items checked to be somewhat different at each administration of the check list because of changing situations and experiences. This condition would have to mean that the recognized methods of estimating reliability, such as test - retest, would be of little value.

However, if the data are to be used for research or survey purposes there must be some assurance that they reflect concerns of the group which remain reasonably stable over a period of time. Gordon in 1950 provided some information regarding the stability and consistency of the Check List. The MPCL was administered twice to 116 college students. The researcher found that "the frequency with which each of the items was marked on the first administration was correlated with the frequency with which each of the items was marked on the second administration. A correlation coefficient varied from .90 to .98."[8]

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[7]Emily L. Stoghill, and Jack E. Denton, An unpublished study entitled "Differences in Responses of Selected College Groups to Items of the Mooney Problem Check List," Department of Psychology, Ohio State University, 1947.

[8]Leonard V. Gordon, An unpublished study, Department of Psychology, Ohio State University.

This suggests that the Mooney Problem Check List is very stable in its measurements, so considered a reliable instrument to indicate personal adjustment and for use in research purposes.

The Otis-Lennon Mental Ability Test

This test is designed to provide an assessment of general mental ability. According to the Manual for Administration, "emphasis is placed upon measuring the pupil's facility in reasoning and in dealing abstractly with verbal, symbolic, and figural test content sampling a broad range of cognitive abilities."[9] These abilities are related to academic success and prediction. They reflect the experiences that the pupil has had in dealing with abstract relationships among words, numbers, or other types of symbols.

From studies conducted in educational research, it seems that the Otis-Lennon Mental Ability Test measures what it purports to measure. A. E. Smith reports data expressed in correlation coefficients which indicate substantial relationships between the Otis-Lennon Test and other tests of mental ability. Compared with the Lorge Thorndike, School and College Ability Test, SAA Primary Mental Abilities, and other established tests, the correlations clustered between .85 and .93.[10] With correlation coefficients

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[9]Arthur S. Otis, and Roger T. Lennon, Manual for Administration of the Otis-Lennon Mental Ability Test, New York: Harcourt, Brace and World, Inc., 1967, p. 4.

[10]Arthur E. Smith, "Test Reviews", The Journal of Counseling Psychology, XVII (January, 1970), pp. 91-2

this high, the Otis-Lennon Mental Ability Test would seem to be valid in its measurements.

The reliability of this test may also be assessed by correlation coefficients. The reliability of the test was determined on the basis of the split-half method. It was found that for grades seven, eight, and nine, the reliability coefficient was .95. When the alternate-forms method was used the reliability coefficients for grades seven, eight, and nine were .91, .94, and .93 respectively.[11] These correlations suggest very strongly that the Otis-Lennon Mental Ability Test is very stable and consistent in its measurements.

Teacher-Made Tests

The instruments used to assess the achievement of students in the schools were teacher-made tests. These tests were preferred to standardized achievement tests since the investigator wanted to determine how well the students were performing in school during the school term, and not an estimate of the basic skills they had developed over the past school years. Considering this, the teacher-made tests for the mid-term examinations provided a more appropriate indication of the student's present academic achievement.

Considering the nature of teacher-made tests, the writer realizes that the degree of difficulty or ease of each test will vary with each school involved in the study. The validity and reliability of all these tests depended entirely on each teacher's skill, judgement, and honesty in compiling the tests. It would be pratically impossible to assess the reliability and validity of each test devised by each teacher in each school

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[11] Otis, op. cit., pp. 20-1.

through correlational or statistical methods. Furthermore, since teacher-made tests have been established as a dependable measurement of achievement for promotion or grading purposes, the writer feels that this measurement could also be used for research purposes. On the basis of this assumption, the achievement scores were compiled by computing the average mark earned by each student in the mid-term exams.

VI. ADMINISTRATION AND SCORING OF TESTS

The Mooney Problem Check List was administered on a group basis. All the students of a school who had been chosen for the samples were assembled in a vacant room in the school and then informed that they were chosen for a study in education. No information was given as to the nature of the study since it might affect the responses of the subjects. The Check Lists were then passed out and the instructions given. This method of administration and instruction was the same for all groups in all the schools. All the Check Lists were also administered by the writer and everything was done to ensure the students were comfortable and at ease during the testing itself.

In completing the Check Lists, the students were not required to sign their name. The code number of each student in the sample was typed on the bottom right hand corner of the first page. In distributing the Check Lists the writer was careful to give each student the correct coded form that corresponded with his or her code number.

The purpose of having subjects omit their name from the inventory was to provide more privacy in filling out the Check List. The writer felt that a questionnaire of a personal nature may affect the response of subjects if they were required to sign their names. Olsen, in his study, found that there was a high probability that more symptoms will be reported when names are

omitted from the Check List.[12] Therefore, revealing the identify of the student could probably discourage his or her response to some of the problems.

The Mooney Problem Check List was scored by hand which was only a simple process of counting the number of problems marked in each area and then totaling the areas. The raw score obtained from this Check List was an estimate of the degree of personal adjustment, where a lower score indicated better personal adjustment.

VII. ORGANIZATION OF THE ANALYSIS

The scores from the Otis-Lennon Mental Ability Test, school examinations, and the Mooney Problem Check List were first transferred to coding sheets and from there punched on I.B.M. cards. An example of the arrangement of this data is shown in Table III. The computer programme ANV10 was used to process the datawhich employed means, standard deviations, and t-tests of the difference between means of independent samples at the 0.05 level of significance. Program 28000 was also used to obtain Pearson product correlation coefficients at the 0.001 level of confidence. Chapter IV contains a detailed description of these procedures and the results obtained.

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[12] W. C. Olson, "The Waiver of Signatures in Personal Reports", The Journal of Applied Psychology, XX (1963), pp. 442-450.

TABLE III

TABULATION OF DATA FROM PERSONAL PROBLEMS, I.Q., AND ACHIEVEMENT SCORES

Pupil's Code Number	Physical Development Problems	School Problems	Home & Family Problems	Mony Work & Future Problems	Boy-Girl Problems	People Relations Problems	Self Centered Problems	Total Problems	I.Q. Score	Achievement Score
A_1-37 (7)B	3	7	3	2	2	9	10	36	108	85
A_1-40 (7)B	3	4	1	12	12	6	10	48	112	92

A - Above average intelligence

1 - Overachiever

37 - Student number

7 - Grade

B - Sex

CHAPTER IV

DESCRIPTIVE ANALYSIS

This chapter deals with a description of the number of personal problems as related to achievement, school, grade, sex, and intelligence. These findings will be expressed in means, standard deviations, ranges, correlation coefficients, and graphs. No inferences will be made from this data since Chapter V will discuss the testing of each hypothesis of the study using t-tests and correlations.

I. NUMBER OF PERSONAL PROBLEMS AND ACHIEVEMENT

This section, being the core and major purpose of the study, will be reported in detail. Considering first the three large achievement groups of thirty overachievers, thirty average achievers, and thirty underachievers, the results of the Mooney Problem Check List for the overachievers and the average achievers are shown in Table IV. The Table indicates that there is a considerable difference in the mean total for both groups. The average achievers show the mean number of problems as 39.50, whereas the over-achievers show 53.03. This reflects a difference of 13.53 with the average achiever expressing the fewer problems. A study of Table IV also shows that the average achievers not only have fewer problems for the total, but also for all the areas of adjustment. The areas with the greatest differences are 'Relations to People in General' and 'Self-Centered Concerns'. The area which reflects the greatest number of problems for both groups is the 'School' area.

TABLE IV

COMPARISON OF OVERACHIEVERS AND AVERAGE ACHIEVERS BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	OA	AA	OA	AA
1. Health & Physical Development	6.17	3.77	3.39	2.17
2. School	10.70	10.23	3.42	3.41
3. Home & Family	4.83	2.93	4.80	3.36
4. Money, Work, & Future	8.60	7.67	5.55	4.85
5. Boy-Girl Relations	5.23	3.57	4.08	3.84
6. Relations to People	7.80	4.80	5.80	3.48
7. Self-Centered Concerns	9.67	6.47	5.32	3.61
Mean Total Problems	53.03	39.50	25.15	18.03

It can also be seen from Table IV the scores range from 4.83 to 10.70 for the overachievers, and from 2.93 to 10.23 for the average achievers. This broader range for the latter group is caused by lower scores in two of the problem areas. The standard deviations give even more information pertaining to the distribution of scores for each group.

According to the data shown in Table V, the greatest discrepancy between the achievement groups is shown for the average achievers and the underachievers. The mean totals for these two groups are 39.50 and 57.47 respectively. This is a difference of 17.97 fewer personal

problems for the average achievers. Not only is this difference true for the total number of problems, but it can also be seen that in every area of adjustment the underachievers express more problems than do the average achievers. The greatest difference is again in the areas of 'Relations to People in General' and 'Self-Centered Concerns'. The area expressing the most problems for both groups is the 'School' area. Much the same pattern was indicated by the Table for the overachievers and average achievers.

As for the standard deviations and the range, it can be seen that the average achievers differ very little from the underachievers in their range of scores. The standard deviation, which gives a more accurate and reliable estimate of the distribution of scores, shows that the two achievement groups differ considerably in their spread of scores.

TABLE V

COMPARISON OF AVERAGE ACHIEVERS AND UNDERACHIEVERS BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	AA	UA	AA	UA
1. Health & Physical Development	3.77	6.47	2.17	4.39
2. School	10.23	13.07	3.41	5.20
3. Home & Family	2.93	5.57	3.36	5.28
4. Money, Work & Future	7.67	8.60	4.85	4.44
5. Boy-Girl Relations	3.57	5.20	3.84	3.95
6. Relations to People	4.80	8.40	3.48	5.82
7. Self-Centered Concerns	6.47	10.17	3.61	5.85
Mean Total Problems	39.50	57.47	18.03	29.71

Table VI gives a summary of the mean number of problems in each area and in the total for overachievers and underachievers. From a glance at the total problems it can be seen that there is little discrepancy between these two achievement groups. The former group expressed a mean total of 53.03 and the latter group expressed a mean total of 57.47 which gives only a 4.44 difference. The Table also indicates that underachievers experience more problems than overachievers in all of the adjustment areas, with the exception of 'Money, Work, and the Future'.

There is a considerable difference favouring the overachievers in the remaining six areas, with the greatest difference in the 'School' area. This same area also shows the most problems for both groups.

TABLE VI

COMPARISON OF OVERACHIEVERS AND UNDERACHIEVERS BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	OA	UA	OA	UA
1. Health & Physical Development	6.17	6.47	3.39	4.39
2. School	10.70	13.07	3.42	5.20
3. Home & Family	4.83	5.57	4.80	5.28
4. Money, Work, & Future	8.60	8.60	5.55	4.44
5. Boy-Girl Relations	5.23	5.20	4.08	3.95
6. Relations to People	7.80	8.40	5.80	5.82
7. Self-Centered Concerns	9.67	10.17	5.32	5.85
Mean Total Problems	53.03	57.47	25.15	29.71

The range of scores for the overachiever and underachiever groups differed markedly with a 5.87 and a 7.87 respectively. The standard deviations show little difference in the distribution of scores for the two groups of achievers.

Figure I has been constructed to illustrate the relation of the three achievement groups together. From this graph it is suggested that the underachievers generally have the most problems, followed by the over-achievers. The average achievers seem to express the fewest problems of all the groups.

Since the investigation of the relationship between personal problems and achievement is the major purpose of the study, the three large achievement groups will be treated more thoroughly and in greater detail. The analysis will now consider each achievement group at each level of intelligence beginning with the students of above average ability. At this level the three achievement groups are composed of ten students in each group. Table VII shows the data for the overachievers and the average achievers in each of the problem areas and the total. It is obvious that for the students of above average intelligence, the over-achievers express more problems than do the average achievers in every area and the mean total. These differences are of a considerable size such as mean totals of 62.10 and 35.30 for overachievers and average achievers respectively. The two problem areas of 'Self-Centered Concerns' and 'Relations to People In General' also show a substantial discrepancy in the mean number of problems.

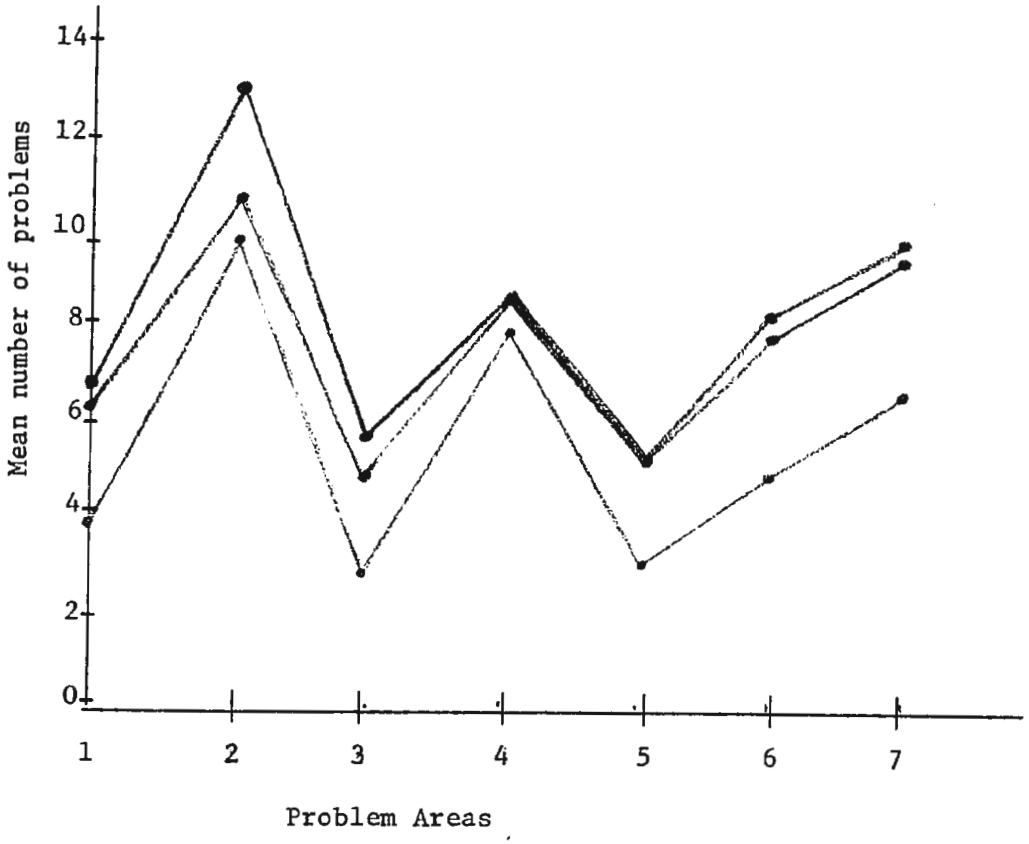


FIGURE I

COMPARISON OF OVERACHIEVERS, AVERAGE ACHIEVERS, AND UNDERACHIEVERS BY THE MEAN NUMBER OF PROBLEMS IN EACH OF THE PROBLEM AREAS

Overachievers ——●——

Average achievers ——●——

Underachievers ——●——

Table VIII presents a list of the mean number of problems of average achievers and underachievers of above average intelligence. These results are different from those of the previous two groups. The average achiever indicates fewer problems in six of the seven problem areas and the mean total. Only in the area of 'Money, Work, and the Future' do the average achievers express more problems than the underachievers. The means for the two groups are of considerable difference in the areas of 'Health and Physical Development', and 'Relations to People in General'. The differences in the remaining areas are not of a substantial size.

TABLE VII

COMPARISON OF OVERACHIEVERS AND AVERAGE ACHIEVERS OF ABOVE AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	OA	AA	OA	AA
1. Health and Physical Development	5.30	3.10	3.10	1.70
2. School	9.50	8.10	4.30	3.59
3. Home & Family	7.60	2.20	5.87	2.27
4. Money, Work & Future	9.80	7.00	6.24	4.90
5. Boy-Girl Relations	6.40	4.00	4.05	3.49
6. Relations to People	11.20	5.20	7.03	3.52
7. Self-Centered Concerns	12.20	5.50	4.40	2.87
Mean Total Problems	62.10	35.30	28.02	18.68

TABLE VIII

COMPARISON OF AVERAGE ACHIEVERS AND UNDERACHIEVERS OF ABOVE AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	AA	UA	AA	UA
1. Health & Physical Development	3.10	6.10	1.70	4.18
2. School	8.10	10.40	3.59	4.13
3. Home and Family	2.20	3.20	2.27	2.60
4. Money, Work, & Future	7.00	6.70	4.90	3.74
5. Boy-Girl Relations	4.00	4.70	3.49	3.61
6. Relations to People	5.20	9.10	3.52	5.82
7. Self-Centered Concerns	5.50	8.60	2.87	5.00
Mean Total Problems	35.30	48.80	18.68	24.76

The two final groups of above average intelligence to be considered are the overachievers and the underachievers. The data revealed in Table IX suggest that the underachievers experience more problems than the overachievers in five of the seven problem areas and the total. In the remaining two areas of 'Health and Physical Development', and 'School', the underachievers indicate more problems, but, the differences in these areas are not of a substantial size. The area with the greatest difference is in 'Home and Family Relations' where there is a 4.40 discrepancy.

TABLE IX

COMPARISON OF OVERACHIEVERS AND UNDERACHIEVERS OF ABOVE AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	OA	UA	OA	UA
1. Health and Physical Development	5.30	6.10	3.10	4.18
2. School	9.50	10.40	4.30	4.13
3. Home and Family	7.60	3.20	5.87	2.60
4. Money, Work, & Future	9.80	6.70	6.24	3.74
5. Boy-Girl Relations	6.40	4.70	4.05	3.61
6. Relations to People	11.20	9.10	7.03	5.82
7. Self-Centered Concerns	12.20	8.60	4.40	5.00
Mean Total Problems	62.10	48.80	28.02	24.76

The next three achievement groups to consider are those of average intelligence. Table X presents the data for the overachievers and average achievers. A study of the mean totals for the two groups shows that the overachievers express more personal problems than the average achievers, but the difference is only 3.80. This total information could be misleading since the overachievers do not have more problems in all the problem areas. In the areas of 'Home and Family Life', and 'Money, Work, and the Future',

TABLE X

COMPARISON OF OVERACHIEVERS AND AVERAGE ACHIEVERS OF AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	OA	AA	OA	AA
1. Health & Physical Development	6.60	3.10	3.69	1.81
2. School	11.30	10.50	3.32	2.25
3. Home & Family	2.60	4.20	2.84	4.62
4. Money, Work, & Future	7.50	8.60	5.30	4.84
5. Boy-Girl Relations	4.40	3.40	3.29	4.48
6. Relations to People	6.00	5.20	3.49	3.40
7. Self-Centered Concerns	8.10	7.70	5.37	3.87
Mean Total Problems	46.50	42.70	21.97	18.41

the average achievers experience more problems than the overachievers, although the differences are very small. The area with the greatest discrepancy is in 'Health and Physical Development' where there is a 3.50 difference. The area with the smallest discrepancy is in 'Self-Centered Concerns' where there is only a 0.40 difference. As compared with the students of above average intelligence, the same two groups are somewhat similar except that the more intelligent overachievers differ from the average achievers in every area of adjustment.

Table XI shows the data for the average achievers and underachievers of average intelligence. A glance at the scores indicates that the mean totals for the two groups differ substantially with a 10.70 discrepancy in favour of the average achievers. The same result can be seen for each of the problem areas except for 'Money, Work, and the Future' where underachievers express 0.20 fewer problems than the students in the average group. This same pattern was also observed for the average achievers and underachievers of above average intelligence.

TABLE XI

COMPARISON OF AVERAGE ACHIEVERS AND UNDERACHIEVERS OF AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	AA	UA	AA	UA
1. Health & Physical Development	3.10	5.70	1.81	3.58
2. School	10.50	12.60	2.25	4.50
3. Home & Family	4.20	5.60	4.62	4.63
4. Money, Work, & Future	8.60	8.40	4.84	3.53
5. Boy-Girl Relations	3.40	4.60	4.48	3.90
6. Relations to People	5.20	6.00	3.40	4.31
7. Self-Centered Concerns	7.70	10.50	3.87	5.25
Mean Total Problems	42.70	53.40	25.27	24.86

The two final groups of average intelligence to be considered are the overachievers and underachievers. Table XII shows the mean for each area and the mean total. The totals reflect that the overachievers experience fewer problems than their friends in the opposite group. From the Table it can also be seen that this is not only true for the total, but for five of the seven problem areas. In only one area, 'Health and Physical Development', did the overachievers exceed the underachievers. In the area of 'Relations to People in General', the two groups were

TABLE XII

COMPARISON OF OVERACHIEVERS AND UNDERACHIEVERS OF AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	OA	UA	AA	UA
1. Health & Physical Development	6.60	5.70	3.69	3.58
2. School	11.30	12.60	3.32	4.50
3. Home & Family	2.60	5.60	2.84	4.63
4. Money, Work, & Future	7.50	8.40	5.30	3.53
5. Boy-Girl Relations	4.40	4.60	3.29	3.90
6. Relations to People	6.00	6.00	3.49	4.31
7. Self-Centered Concerns	8.10	10.50	5.37	5.52
Mean Total Problems	46.50	53.40	21.97	24.86

identical in the number of problems. For the same two groups of above average intelligence, a very similar pattern was formed with overachievers expressing more problems than underachievers in five of the seven areas of adjustment.

The final achievement groups to be considered concern the students of below average intelligence. The overachievers and average achievers at this level of ability follow the established pattern formed by all the other groups of overachievers and average achievers. Table XIII indicates that at this level of intelligence, the students who are achieving above their estimated ability experience more problems than the students who are achieving at the level of which they are capable. This is also true for six of the seven problem areas. In the area of 'School' related concerns, the average achievers express the most problems. This arrangement is very similar for the same two groups at the other two levels of intelligence.

TABLE XIII

COMPARISON OF OVERACHIEVERS AND AVERAGE ACHIEVERS OF BELOW AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	OA	AA	OA	AA
1. Health & Physical Development	6.60	5.10	3.17	2.30
2. School	11.30	12.10	1.85	2.98
3. Home and Family	4.30	2.40	3.72	2.20
4. Money, Work, & Future	8.50	7.40	4.76	4.67
5. Boy-Girl Relations	4.90	3.30	4.53	3.44
6. Relations to People	6.20	4.00	4.71	3.38
7. Self-Centered Concerns	8.70	6.20	5.18	3.66
Mean Total Problems	50.50	40.50	22.33	16.09

Next looking at the average achiever and underachiever, Table XIV shows quite clearly that the average achievers have fewer problems in all the areas and in the total. From a glance at the mean totals it can be seen that there is a substantial difference of 29.70 between the two groups. The area which shows the greatest difference between the two groups is 'Relations to People in General' where there is a 6.10 discrepancy.

TABLE XIV

COMPARISON OF AVERAGE ACHIEVERS AND UNDERACHIEVERS OF BELOW AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	AA	UA	AA	UA
1. Health & Physical Development	5.10	7.60	2.30	5.04
2. School	12.10	16.20	2.98	5.17
3. Home & Family	2.40	7.90	2.20	6.66
4. Money, Work, & Future	7.40	10.70	4.67	4.96
5. Boy-Girl Relations	3.30	6.30	3.44	4.10
6. Relations to People	4.00	10.10	3.38	6.32
7. Self-Centered Concerns	6.20	11.40	3.66	6.56
Mean Total Problems	40.50	70.20	16.09	34.10

The two final groups of achievers to be considered are the over-achievers and the underachievers. The data of Table XV indicate that

the underachievers express more problems than their peers who are achieving above their potential, since, in each of the seven areas and the total they have more problems. Comparing these two groups at the three levels of intelligence, it is interesting to note that this is the only level where the overachievers have fewer problems than do the underachievers in all of the areas and in the total. The Table also points out that there is a considerable difference of 19.70 in the mean totals.

TABLE XV

COMPARISON OF OVERACHIEVERS AND UNDERACHIEVERS OF BELOW AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	OA	UA	OA	UA
1. Health & Physical Development	6.60	7.60	3.17	5.04
2. School	11.30	16.20	1.85	5.17
3. Home & Family	4.30	7.90	3.72	6.66
4. Money, Work, & Future	8.50	10.70	4.76	4.96
5. Boy-Girl Relations	4.90	6.30	4.53	4.10
6. Relations to People	6.20	10.10	4.71	6.32
7. Self-Centered Concerns	8.70	11.40	5.18	6.56
Mean Total Problems	50.50	70.20	22.33	34.10

II. NUMBER OF PROBLEMS RELATED TO SCHOOL

Table XVI presents the arrangement of data for the number of problems in each area for the three achievement groups in the total sample. The 'School' area reflects the greatest number of problems, followed by 'Relations to People in General'. The area where the fewest number of problems exists is in 'Home and Family Relations'. Comparing these observations to the results of each of the achievement groups, it was obvious from the data that a well defined pattern established school adjustment as the greatest problem area. As for the fewest problems, no particular pattern for any one area could be identified from the scores of the achievement groups.

TABLE XVI

MEAN NUMBER OF PROBLEMS IN EACH AREA FOR ALL STUDENT AT ALL LEVELS OF INTELLIGENCE

Problem Areas	MEANS
1. Health & Physical Development	5.47
2. School	11.33
3. Home and Family	4.44
4. Money, Work, and the Future	8.29
5. Boy-Girl Relations	4.66
6. Relations to People in General	7.00
7. Self-Centered Concerns	8.77

III. NUMBER OF PROBLEMS AND GRADES

Table XVII shows the statistics for the problem areas as related to grades seven and eight. The means of the problem areas for both grades indicate that there is no well established patterns as in the comparison of achievement groups. For the mean total there is very little discrepancy between grades seven and eight; grade seven students express only 0.53 more problems than the grade eight students. The grade seven pupils (15 boys and 15 girls) experience more problems in the area of 'Health and Physical Development'; 'Money, Work, and the Future'; and 'Boy-Girl Relations'. In the remaining four areas, the grade eight students express more problems, but none of the differences are very large.

TABLE XVII

COMPARISON OF GRADE SEVEN AND GRADE EIGHT STUDENTS BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS 7's	MEANS 8's	S.D.'s 7's	S.D.'s 8's
1. Health & Physical Development	6.45	5.26	3.68	3.18
2. School	10.94	11.38	4.21	4.47
3. Home & Family	4.39	5.18	4.43	4.76
4. Money, Work, & Future	8.71	7.82	5.28	4.98
5. Boy-Girl Relations	5.29	5.03	3.93	4.27
6. Relations to People	7.13	7.32	4.61	5.51
7. Self-Centered Concerns	8.81	9.21	5.15	5.46
Mean Total Problems	51.77	51.24	25.72	26.14

Table XVIII shows the data for the grade eight and nine students which indicate that the grade eights express more personal problems than the grade nines with mean totals of 51.24 and 46.48 respectively. In the specific areas of the Check List, it can be seen that the 12 boys and 13 girls in grade nine have more problems in only two areas: 'School', and 'Money, Work, and the Future'. In the remaining four areas investigated by the Check List, the 18 boys and 16 girls of grade eight indicate more problems than the grade nine students with the greatest discrepancies in 'Boy-Girl Relations', and 'Home and Family Problems'.

TABLE XVIII

COMPARISON OF GRADE EIGHT AND GRADE NINE STUDENTS BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	8's	9's	8's	9's
1. Health & Physical Development	5.26	4.60	3.18	3.87
2. School	11.38	11.76	4.47	4.06
3. Home & Family	5.18	3.64	4.76	4.67
4. Money, Work & Future	7.82	8.40	4.98	4.55
5. Boy-Girl Relations	5.03	3.48	4.27	3.47
6. Relations to People	7.32	6.36	5.51	6.05
7. Self-Centered Concerns	9.21	8.34	5.46	4.99
Mean Total Problems	51.24	46.48	26.14	25.12

The final grades compared on problems are grades seven and nine. Table XIX shows the results of the Mooney Problem Check List for these two grades. Comparing the mean totals for the two grades it can be seen that there is a considerable difference of 5.65 between the two grades. The mean totals for grades seven and nine are 51.77 and 46.12 respectively. This would indicate that grade nines are freer from problems than are the grade seven students. This difference is not only true for the mean total,

TABLE XIX

COMPARISON OF GRADE SEVEN AND GRADE NINE STUDENTS BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	7's	9's	7's	9's
1. Health & Physical Development	6.45	4.52	3.68	3.88
2. School	10.94	11.76	4.21	4.06
3. Home and Family	4.39	3.52	4.43	4.73
4. Money, Work, & Future	8.71	8.40	5.28	4.55
5. Boy-Girl Relations	5.29	3.40	3.93	3.52
6. Relations to People	7.13	6.40	4.61	6.02
7. Self-Centered Concerns	8.81	8.12	5.15	5.12
Mean Total Problems	51.77	46.12	25.72	25.45

but also for all the specific problem areas with the exception of one area: 'School'. For some reason the grade nine students experience more problems concerning school than do the grade seven students. In the remaining six areas, the grade sevens experience more problems than the grade nines with the greatest discrepancies in 'Boy-Girl Relations', and 'Health and Physical Development'.

Figure II shows the distribution of problems for each of the three grades in each of the problem areas. From the graph it can be seen that the grade seven students generally experience the most problems. Grade eight students seem to express fewer problems than the grade sevens, while the grade nines appear to be the best adjusted of the three grades.

IV. NUMBER OF PROBLEMS AND SEX

The distribution of problems for boys and girls as measured by the Mooney Problem Check List is shown in Table XX. A glance at the Table reveals that there is a considerable difference in the number of problems of boys and the number of problems of girls. The mean totals indicate 46.48 and 53.68 for boys and girls respectively, which give a 7.20 discrepancy. Not only do the girls exceed the boys in the mean total of personal problems, but they also exceed in all of the problem areas, with the exception of one namely: 'School'. In this area the boys express 1.01 more problems than the girls. In contrast, there is a considerable difference in the six areas where the girls experience more problems, with the exception of 'Boy-Girl Relations' where there is a very small discrepancy of 0.51.

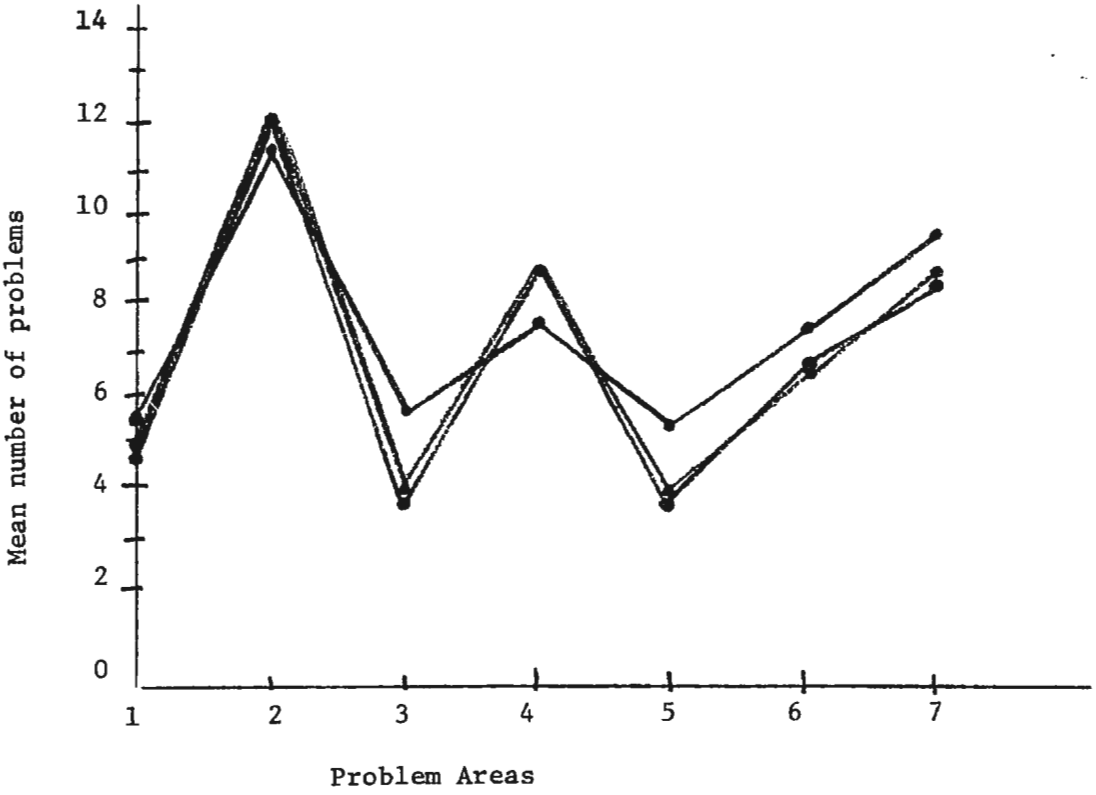


FIGURE II

COMPARISON OF GRADE SEVEN, EIGHT, AND NINE STUDENTS BY THE MEAN NUMBER OF PROBLEMS IN EACH OF THE PROBLEM AREAS

Grade 7

Grade 8

Grade 9

TABLE XX

COMPARISON OF BOYS AND GIRLS BY THE MEAN NUMBER OF PROBLEMS AND STANDARD DEVIATIONS IN EACH OF THE PROBLEM AREAS AND THE TOTAL

Problem Areas	MEANS		S.D.'s	
	B	G	B	G
1. Health & Physical Development	4.78	6.18	3.19	3.94
2. School	11.83	10.82	4.38	4.11
3. Home and Family	3.26	5.68	3.84	5.15
4. Money, Work, & Future	8.04	8.55	4.99	4.97
5. Boy-Girl Relations	4.35	5.00	3.62	4.41
6. Relations to People	5.93	8.11	4.05	6.31
7. Self-Centered Concerns	8.24	9.32	5.15	5.35
Mean Total Problems	46.48	53.68	22.67	28.47

To observe the similarities and differences of the two sexes, Figure III gives a picture of the relationship. It is suggested that the girls appear to be free from personal problems moreso than do the male students.

V. NUMBER OF PROBLEMS AND INTELLIGENCE

When the mean number of personal problems is compared at three different levels of intelligence the results are interesting and informative. A glance at Table XXI shows that as the degree of intelligence

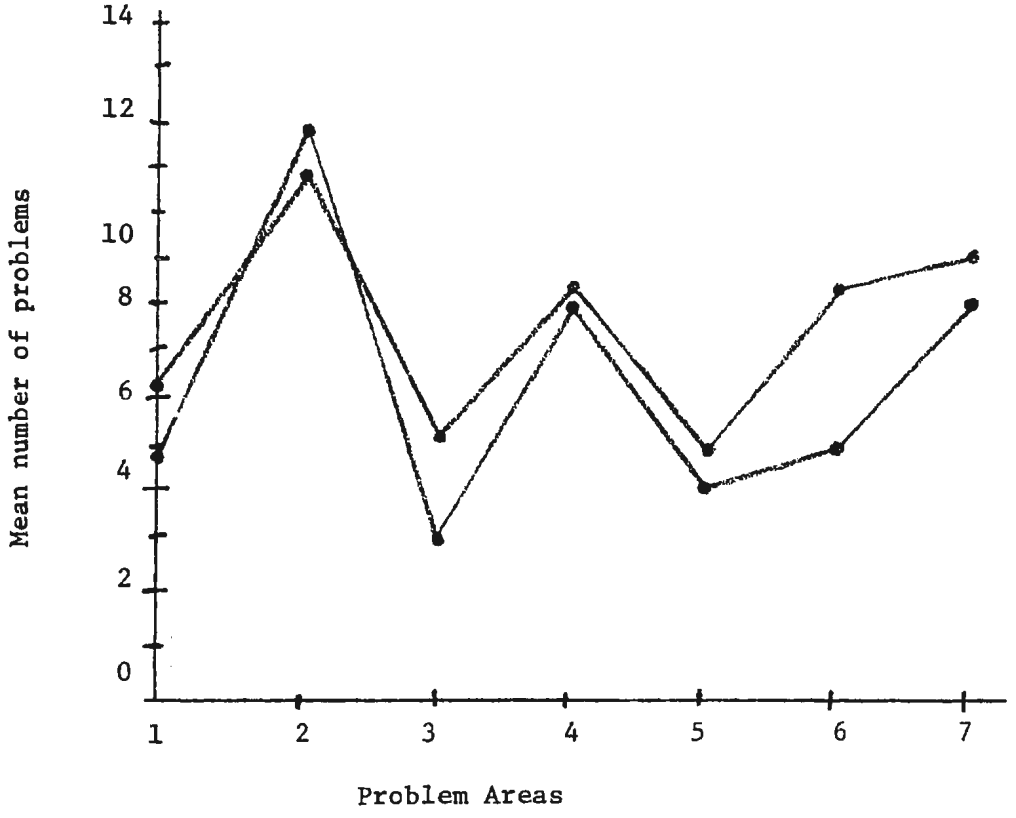


FIGURE III

COMPARISON OF THE BOYS AND GIRLS BY THE MEAN NUMBER OF PROBLEMS IN EACH OF THE PROBLEM AREAS

Boys ——●——

Girls ——●——

increases, the number of personal problems decreases in three of the seven areas. There appears to be little difference in the number of problems of those of average and above average intelligence, but the below average group shows quite an increase in the total number of problems. As for the specific areas, the students of below average intelligence experience more problems than those of average intelligence in all the areas except 'Self-Centered Concerns' where all three levels of intelligence are identical.

TABLE XXI

COMPARISON OF STUDENTS OF ABOVE AVERAGE, AVERAGE, AND BELOW AVERAGE INTELLIGENCE BY THE MEAN NUMBER OF PROBLEMS IN EACH PROBLEM AREA AND THE TOTAL

Problem Areas	Ab. Aver. Intelli.	Aver. Intell.	Bel. Aver. Intell.
1. Health & Physical Development	4.8	5.1	6.4
2. School	9.3	11.5	13.2
3. Home & Family	4.3	4.1	4.9
4. Money, Work & Future	7.8	8.2	8.9
5. Boy-Girl Relations	5.0	4.1	4.8
6. Relations to People	8.5	5.7	6.8
7. Self-Centered Concerns	8.8	8.8	8.8
Mean Total Problems	48.73	47.53	53.73

Looking at personal problems and intelligence in a different light, Table XXII presents a summary of correlations between intelligence and the

number of problems in each area. A glance at the coefficients reveals that they range from -0.39 in 'School' related problems to 0.11 in 'Relations to People in General'. All the coefficients are negatively correlated with the exception of one area: 'Relations to People in General.' The negative correlations indicate that as intelligence increases the number of problems decreases. In the single positive area the number of problems increases with an increase in intelligence. It is also interesting to notice that in the area of 'Boy-Girl Relations', the correlation is very close to a zero relationship, which would indicate that there is no relationship whatsoever.

TABLE XXII

PEARSON CORRELATION COEFFICIENTS FOR INTELLIGENCE WITH THE PROBLEM AREAS AND THE TOTAL

Problem Areas	Correlation of Intelligence with 7 Variables and Total
1. Health & Physical Development	- 0.23
2. School	- 0.39
3. Home & Family	- 0.09
4. Money, Work, & Future	- 0.15
5. Boy-Girl Relations	- 0.002
6. Relations to People	0.11
7. Self-Centered Concerns	- 0.03
Mean Total Problems	- 0.12

VI. SUMMARY

The descriptive analysis given in this chapter showed the distribution of problems for each of the groups employed in the study. Since the major purpose of the study was to compare groups of achievers, most of the analysis was centered around these groups. From the data it was found that the three large achievement groups expressed a different number of problems in each area and the total. The mean totals were 53.03, 39.50, and 57.47 for the overachievers, average achievers, and underachievers respectively. Within each level of intelligence, the smaller achievement groups followed the same pattern established by the large groups.

In the comparison of problems in the seven different areas it was found that the school area accumulated the most problems with a mean of 11.33. The area with the fewest problems was 'Boy-Girl Relations' with a mean of 4.44.

The distribution of problems for the grades showed means of 51.77, 51.24, and 46.48 for grades seven, eight, and nine respectively. No clear pattern was established between the different areas for the different grades other than an increase in the grade level corresponded with an increase in the number of 'School' problems.

Comparing boys and girls on the number of problems, the mean totals were 53.68 and 46.48 respectively. In only one area do the boys express more problems than the girls. This area is 'School' where there is a 1.01 discrepancy.

The distribution of problems with intelligence was seen in the mean

totals. The above average, average, and below average intelligence groups indicate mean totals of 48.73, 47.53, and 53.73 respectively. As for correlations of intelligence with the problem areas, it was found that six of the seven areas were negative relationships, and one of these coefficients closely approached a zero correlation. The correlation of intelligence with the total problems was - 0.12.

CHAPTER V

INFERENTIAL ANALYSIS

It is the purpose of this Chapter to test the hypotheses of the study that were presented in Chapter I. The first section involves the major hypotheses regarding personal problems and academic achievement. Each hypothesis in this section will first consider the total sample of groups, followed by an investigation of groups at each level of intelligence. The remaining sections, dealing with the sub-hypotheses of the study, test the prediction of a relationship between personal problems and the variables of school, grades, sex, and intelligence. For the test of significance, the 0.05 level will be used for the t-test, and the 0.001 level for correlations. It may be noted here that because of sample size in individual sections more significant findings can be expected to occur with the total sample.

I. PERSONAL PROBLEMS AND ACHIEVEMENT

Hypothesis I, a null hypothesis, predicted that there would be no significant difference between the number of personal problems of overachievers and average achievers, while the alternate hypothesis predicted that average achievers would have more personal problems than overachievers. Using a one-tailed t-test of the difference between means of independent samples, these two groups were tested as a total sample and at each level of intelligence.

Total Sample

From the data set forth in Table XXIII it can be seen that for the

total problems the null hypothesis should be rejected. The data suggest that at the 0.01 level of confidence the overachievers and average achievers differ significantly in the total number of problems. Considering the nature of the alternate hypothesis, this statement must also be rejected. A possible alternative result that could be accepted is that average achievers have significantly fewer problems than overachievers. This is not only true for the total number of problems, but also for five of the seven problem areas. There is no significant difference between overachievers and average achievers and their number of problems in the areas of 'School' and 'Money, Work and the Future'.

TABLE XXIII

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR OVERACHIEVERS AND AVERAGE ACHIEVERS IN THE TOTAL SAMPLE

Problem Areas	MEANS OA	MEANS AA	t	Level of Significance
1. Health & Physical Development	6.17	3.77	3.213	0.001**
2. School	10.70	10.23	0.520	0.604
3. Home and Family	4.83	2.93	1.746	0.043*
4. Money, Work, and the Future	8.60	7.67	0.682	0.249
5. Boy-Girl Relations	5.23	3.57	1.601	0.057*
6. Relations to People in General	7.80	4.80	2.388	0.01*
7. Self-Centered Concerns	9.67	6.47	2.680	0.004*
Total Problems	53.03	39.50	2.355	0.010*

* - 0.05 level of significance
** - 0.001 level of significance

Above Average Intelligence

For the overachievers and average achievers of above average intelligence similar results can be reported. As seen in Table XXIV, the average achievers appear to have significantly fewer problems for the total and four of the problem areas than do the overachievers. Again the differences were not significant for the areas of 'School' and 'Money, Work, and the Future'. An additional area which showed no significant difference for the two groups was 'Boy-Girl Relations'.

TABLE XXIV

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR OVERACHIEVERS AND AVERAGE ACHIEVERS OF ABOVE AVERAGE INTELLIGENCE

Problem Areas	MEANS OA	MEANS AA	t	Level of Significance
1. Health and Physical Development	5.30	3.10	1.867	0.039*
2. School	9.50	8.10	0.750	0.231
3. Home and Family	7.60	2.20	2.574	0.009*
4. Money, Work, and the Future	9.80	7.00	1.059	0.151
5. Boy-Girl Relations	6.40	4.00	1.345	0.097
6. Relations to People in General	11.20	5.20	2.291	0.017*
7. Self-Centered Concerns	12.20	5.50	3.825	0.006**
Total Problems	62.10	35.30	2.388	0.014*

Average Intelligence

At this level of intelligence the results for the two groups are quite different as compared with the previous groups. The data from Table XXV indicate that the overachievers and the average achievers of average intelligence show no difference in the total number of personal problems. The difference that does exist between the two groups is statistically non-significant and need not be considered important. As for the problem areas, the two groups express relatively the same number of problems in six of the seven areas. In 'Health and Physical Development' alone, the overachievers have significantly more problems than do average achievers.

TABLE XXV

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR OVERACHIEVERS AND AVERAGE ACHIEVERS OF AVERAGE INTELLIGENCE

	Problem Areas	MEANS OA	MEANS AA	t	Level of Significance
1.	Health and Physical Development	6.60	3.10	2.552	0.010*
2.	School	11.30	10.50	0.599	0.278
3.	Home and Family	2.60	4.20	0.885	0.193
4.	Money, Work, and the Future	7.50	8.60	0.460	0.325
5.	Boy-Girl Relations	4.40	3.40	0.540	0.297
6.	Relations to People in General	6.00	5.20	0.492	0.314
7.	Self-Centered Concerns	8.10	7.70	0.181	0.429
	Total Problems	46.50	42.70	0.398	0.347

Below Average Intelligence

The statistical results of the Mooney Problem Check List for the final groups of overachievers and average achievers can be seen in Table XXVI. The arrangement of problems follows much the same pattern as that established by the students of average intelligence. In reference to the levels of significance as shown in the Table, it can be seen that overachievers and average achievers do not differ significantly in the number of problems for the total nor for any of the problem areas. The average achievers have fewer problems than the overachievers, but the difference is not great enough to be of any significance.

TABLE XXVI

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR OVERACHIEVERS AND AVERAGE ACHIEVERS OF BELOW AVERAGE INTELLIGENCE

Problem Areas	MEANS OA	MEANS AA	t	Level of Significance
1. Health and Physical Development	6.60	5.10	1.149	0.132
2. School	11.30	12.10	0.684	0.251
3. Home and Family	4.30	2.40	1.320	0.101
4. Money, Work, and the Future	8.50	7.40	0.495	0.313
5. Boy-Girl Relations	4.90	3.30	0.845	0.204
6. Relations to People	6.20	4.00	1.139	0.134
7. Self-Centered Concerns	8.70	6.20	1.183	0.126
Total Problems	50.50	40.50	1.090	0.145

The next combination of groups to be considered is that of average achievers and underachievers. Hypothesis II predicted there would be no difference in the number of problems of average achievers and underachievers. The alternate form of this hypothesis predicted the underachievers would express more personal problems than average achievers. Continuing to use a t-test of the difference between means for independent samples, these two groups were tested in the same manner and order as were the two previous groups.

Total Sample

From the data set forth in Table XXVII, it is indicated from the total number of problems that the null hypothesis should be rejected. It can be seen that the achievement groups differ significantly in number of problems, so the prediction made by the null hypothesis cannot be accepted. However, the prediction made by the alternate hypothesis should be accepted since the underachievers have a significantly greater number of problems than do the average achievers. Further reference to the Table shows that the average achievers not only have fewer problems than do the underachievers in the total, but also in six of the seven problem areas. In one area alone, 'Money, Work, and the Future', the underachievers have fewer problems than the average achievers, but the difference is not of any significance.

Above Average Intelligence

Comparing the average achievers and the underachievers of above average intelligence, it can be seen from Table XXVIII that the arrange-

TABLE XXVII

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR AVERAGE ACHIEVERS AND UNDERACHIEVERS OF THE TOTAL SAMPLE

	Problem Areas	MEANS AA	MEANS UA	t	Level of Significance
1.	Health and Physical Development	3.77	6.47	2.970	0.002*
2.	School	10.23	13.07	2.452	0.008*
3.	Home and Family	2.93	5.57	2.268	0.013*
4.	Money, Work, and the Future	7.67	8.60	0.764	0.223
5.	Boy-Girl Relations	3.57	5.20	1.595	0.058*
6.	Relations to People	4.80	8.40	2.860	0.002*
7.	Self-Centered Concerns	6.47	10.17	2.899	0.002*
	Total Problems	39.50	57.47	2.784	0.003*

ment of data is quite different from that of the two previous groups. For the total number of problems, the underachievers experience more than the average achievers, but the difference is not large enough to be of any great significance. It can be stated therefore that no difference exists between these two groups in this study concerning the number of problems. This insignificant difference is also applicable to five of the seven problem areas. The two areas in which the average achievers indicate fewer problems than do the underachievers are 'Health and Physical Development' and 'Boy-Girl Relations'.

TABLE XXVIII

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR AVERAGE ACHIEVERS AND UNDERACHIEVERS OF ABOVE AVERAGE INTELLIGENCE

Problem Areas	MEANS AA	MEANS UA	t	Level of Significance
1. Health and Physical Development	3.10	6.10	1.994	0.030*
2. School	8.10	10.40	1.261	0.111
3. Home and Family	2.20	3.20	0.869	0.198
4. Money, Work, and the Future	7.00	6.70	0.146	0.442
5. Boy-Girl Relations	4.00	4.70	0.418	0.340
6. Relations to People	5.20	9.10	1.720	0.051*
7. Self-Centered Concerns	5.50	8.60	1.612	0.062
Total Problems	35.30	48.80	1.306	0.104

Average Intelligence

Table XXIX sets forth the data for average achievers and underachievers of average intelligence. A very similar pattern can be seen at this level of intelligence as that seen at the previous level. The null hypothesis should be retained for the two groups since there is no significant difference in the number of problems of average achievers and underachievers. A small difference does exist between the two groups, but not great enough to be confident that it is a true difference. Each of the seven problem areas share the same result, with the exception of one,

namely: 'Health and Physical Development'. This suggests that underachievers have significantly more problems related to health and development than do average achievers at the average level of intelligence.

TABLE XXIX

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR AVERAGE ACHIEVERS AND UNDERACHIEVERS OF AVERAGE INTELLIGENCE

Problem Areas	MEANS AA	MEANS UA	t	Level of Significance
1. Health and Physical Development	3.10	5.70	1.944	0.033*
2. School	10.50	12.60	1.253	0.113
3. Home and Family	4.20	5.60	0.642	0.264
4. Money, Work, and the Future	8.60	8.40	0.100	0.460
5. Boy-Girl Relations	3.40	4.60	0.606	0.275
6. Relations to People	5.20	6.00	0.437	0.333
7. Self-Centered Concerns	7.70	10.50	1.246	0.114
Total Problems	42.70	53.40	1.038	0.156

Below Average Intelligence

At this level of intelligence the data are very similar to that of the total sample. For the total problems, the difference between the two groups is great enough to be significant at the 0.01 level of confidence;

the underachievers express significantly more problems than the average achievers for the total. In the seven problem areas similar results can be observed from Table XXX. Underachievers have significantly more problems in five of the seven problem areas. The areas of 'Health and Physical Development' and 'Money, Work, and the Future' showed no significant differences in the number of problems for average achievers and underachievers.

The final hypothesis relating achievement to number of problems concerns overachievers and underachievers. The null hypothesis predicted there would be no difference in the number of problems of

TABLE XXX

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR AVERAGE ACHIEVERS AND UNDERACHIEVERS OF BELOW AVERAGE INTELLIGENCE

	Problem Areas	MEANS AA	MEANS UA	t	Level of Significance
1.	Health and Physical Development	5.10	7.60	1.353	0.096
2.	School	12.10	16.20	2.060	0.027*
3.	Home and Family	2.40	7.90	2.354	0.015*
4.	Money, Work, and the Future	7.40	10.70	1.453	0.081
5.	Boy-Girl Relations	3.30	6.30	1.682	0.054*
6.	Relations to People	4.00	10.10	2.555	0.009*
7.	Self-Centered Concerns	6.20	11.40	2.077	0.026*
	Total Problems	40.50	70.20	2.363	0.014

overachievers and underachievers, while the alternate form of this hypothesis predicted that the underachievers would express more problems than overachievers. Approaching the problem with the same statistical test, the two groups were analyzed for the total sample and the three levels of intelligence.

Total Sample

Table XXXI presents the data for the general group of overachievers and underachievers sampling all levels of intelligence. The data suggest that there is a difference in the total number of problems of overachievers and underachievers, but this difference is not great enough to be of any significance. Considering this, the null hypothesis stating that the two groups do not differ in number of problems should be retained and accepted. As for the problem areas, the only area with a significance difference concerns 'School' where the underachievers indicate significantly more problems than do the overachievers. In this area alone, the null hypothesis should be rejected and the alternate one accepted.

Above Average Intelligence

At this level of intelligence the results for overachievers and underachievers are very similar to the total sample. Referring to Table XXXII it can be seen that for the total number of problems there is a difference between the two groups, but the difference is not significant. Hence, the discrepancy should be ignored and the null

TABLE XXXI

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR OVERACHIEVERS AND UNDERACHIEVERS OF THE TOTAL SAMPLE

Problem Areas	MEANS OA	MEANS UA	t	Level of Significance
1. Health and Physical Development	6.17	6.47	0.291	0.385
2. School	10.70	13.07	2.048	0.022*
3. Home and Family	4.83	5.57	0.553	0.291
4. Money, Work, and the Future	8.60	8.60	0.0	0.291
5. Boy-Girl Relations	5.23	5.20	0.032	0.487
6. Relations to People	7.80	8.40	0.393	0.347
7. Self-Centered Concerns	9.67	10.17	0.341	0.367
Total Problems	53.03	57.47	0.613	0.271

hypothesis that the overachievers and underachievers do not differ in the number of problems should be retained. The same result can be seen for each of the problem areas, with the exception of 'Home and Family' where the difference is significant. This difference indicates that underachievers experience more problems pertaining to the home and family than do overachievers.

TABLE XXXII

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR OVERACHIEVERS AND UNDERACHIEVERS OF ABOVE AVERAGE INTELLIGENCE

Problem Areas	MEANS OA	MEANS UA	t	Level of Significance
1. Health and Physical Development	5.30	6.10	0.461	0.325
2. School	9.50	10.40	0.453	0.327
3. Home and Family	7.60	3.20	2.056	0.027*
4. Money, Work, and the Future	9.80	6.70	1.278	0.108
5. Boy-Girl Relations	6.40	4.70	0.940	0.179
6. Relations to People	11.20	9.10	0.690	0.249
7. Self-Centered Concerns	12.20	8.60	1.621	0.061
Total Problems	62.10	48.80	1.067	0.149

Average Intelligence

The two achievement groups at the average level of intelligence show identical results as the same two groups of above average intelligence. The data contained in Table XXXIII indicate that for the total number of problems there is a difference between overachievers and underachievers, but the discrepancy is of no significance so it cannot be considered a true difference. The null hypothesis is again retained and the alternate hypothesis rejected. The same results are found in the problem areas. None of the differences are significant except in 'Home and Family' problems where the overachievers express

fewer concerns than do the underachievers.

Below Average Intelligence

The overachievers and underachievers at the lowest level of intelligence followed the same pattern as did the groups in the two previous levels of ability. Table XXXIV shows that there is no significant difference in the total number of problems of overachievers and underachievers, so the null hypothesis is again retained, and the alternate hypothesis rejected. Six of the seven problem areas also show no significant difference for the two groups, except in the 'School' area where the underachievers express more problems than do the overachievers.

TABLE XXXIII

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR OVERACHIEVERS AND UNDERACHIEVERS OF AVERAGE INTELLIGENCE

Problem Areas	MEANS OA	MEANS UA	t	Level of Significance
1. Health and Physical Development	6.60	5.70	0.525	0.302
2. School	11.30	12.60	0.698	0.247
3. Home and Family	2.60	5.60	1.658	0.057*
4. Money, Work, and the Future	7.50	8.40	0.424	0.338
5. Boy-Girl Relations	4.40	4.60	0.117	0.453
6. Relations to People	6.00	6.00	0.0	0.453
7. Self-Centered Concerns	8.10	10.50	0.935	0.181
Total Problems	46.50	53.40	0.624	0.270

TABLE XXXIV

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR OVERACHIEVERS AND UNDERACHIEVERS OF BELOW AVERAGE INTELLIGENCE

Problem Areas	MEANS OA	MEANS UA	t	Level of Significance
1. Health and Physical Development	6.60	7.60	0.504	0.310
2. School	11.30	16.20	2.676	0.007*
3. Home and Family	4.30	7.90	1.417	0.086
4. Money, Work, and the Future	8.50	10.70	0.960	0.174
5. Boy-Girl Relations	4.90	6.30	0.688	0.250
6. Relations to People	6.20	10.10	1.485	0.077
7. Self-Centered Concerns	8.70	11.40	0.969	0.172
Total Problems	50.50	70.20	1.450	0.082

II. PERSONAL PROBLEMS AND SCHOOL

Hypothesis IV predicted that there would be no difference in the number of problems related to the 'School' area and the number of problems related to any of the other six areas. The alternate form of this hypothesis was a prediction that the number of problems related to the 'School' area would be greater than the number of problems in any other area of investigation. Table XXXV contains a summary of the statistics

TABLE XXXV

MEANS, T's, AND LEVEL OF SIGNIFICANCE OF EACH OF THE PROBLEM AREAS AS TESTED AGAINST THE 'SCHOOL' AREA

Problem Areas	Means	t	Levels of Significance
1. Health and Physical Development	5.41	9.9153	0.001**
2. School	11.33	------	------
3. Home and Family	4.44	10.4393	0.001**
4. Money, Work, and the Future	8.29	4.4057	0.001**
5. Boy-Girl Relations	4.66	10.7580	0.001**
6. Relations to People in General	7.00	6.0138	0.001**
7. Self-Centered Concerns	8.77	3.6056	0.001**

tabulated for this hypothesis. A study of the results indicates that the number of problems related to 'School' is significantly greater at the 0.001 level of confidence than the number of problems in any other area of investigation. This suggests that many of the students' problems are related to and associated with the school. Hence, the prediction made by the null hypothesis in the study should be rejected and the alternative hypothesis that students have more problems related to 'School' than they do for any other area of concern should be retained.

III. PERSONAL PROBLEMS AND GRADES

Grades Seven and Eight

Hypothesis V predicted there would be no difference in the number of problems of grade seven and eight students, while the alternate hypothesis made the prediction that grade eight students would have more problems than their peers in grade seven. Employing the t-test for independent samples, the resulting data are shown in Table XXXVI. The statistics for the level of significance show that neither one of the areas is significant at the 0.01 level of confidence. This result also

TABLE XXXVI

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR GRADES SEVEN AND EIGHT

Problem Areas	MEANS 7	MEANS 8		Level of Significance
1. Health and Physical Development	6.45	5.26	1.372	0.087
2. School	10.94	11.38	0.408	0.342
3. Home and Family	4.39	5.18	0.680	0.249
4. Money, Work, and the Future	8.71	7.82	0.685	0.247
5. Boy-Girl Relations	5.29	5.03	0.252	0.401
6. Relations to People in General	7.13	7.32	0.151	0.440
7. Self-Centered Concerns	8.81	9.21	0.298	0.383
Total Problems	51.77	51.24	0.082	0.467

applies to the total number of problems. Taking these findings into consideration, the null hypothesis should be retained and the alternate hypothesis that any difference exists between the number of personal problems for the two grades should be rejected.

Grades Eight and Nine

The prediction of hypothesis V was that grade eight students and grade nine students would not differ significantly in the number of problems. The alternate hypothesis suggested that the grade nines would express more problems than the students in grade eight. Table XXXVII presents the data for these hypotheses. Looking over the figures it is obvious that the results support the null hypothesis since the differences are not great enough to be significant at the 0.05 level of confidence. This condition holds for the total problems and every area of adjustment. There-

TABLE XXXVII

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR GRADE EIGHT AND GRADE NINE STUDENTS

	Problem Areas	MEANS 8	MEANS 9	t	Level of Significance
1.	Health and Physical Development	5.26	4.60	0.711	0.240
2.	School	11.38	11.76	0.328	0.372
3.	Home and Family	5.18	3.64	1.213	0.114
4.	Money, Work, and the Future	7.82	8.40	0.448	0.327
5.	Boy-Girl Relations	5.03	3.48	1.463	0.074
6.	Relations to People	7.32	6.36	0.626	0.266
7.	Self-Centered Concerns	9.21	8.24	0.684	0.248
	Total Problems	51.24	46.48	0.690	0.246

fore, the alternate hypothesis is rejected and the null hypothesis that there is no difference between the number of problems of grade eight and grade nine students retained.

Grade Seven and Nine

In the final two grades investigated, the null hypothesis predicted that there would be no difference between the number of problems of students in grades seven and nine. This prediction was followed by an alternate hypothesis which suggested that grade nine students would have more problems than their younger friends in the lower grade. The data for these two groups are set out in Table XXXVIII below. Looking at the total number of problems it can be seen that the difference shown is not of any major significance so the null hypothesis

Table XXXVIII

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR GRADE SEVEN AND GRADE NINE STUDENTS

Problem Areas	MEANS 7	9	t	Level of Significance
1. Health and Physical Development	6.45	4.52	1.872	0.033*
2. School	10.94	11.76	0.727	0.235
3. Home and Family	4.39	3.52	0.694	0.245
4. Money, Work, and the Future	8.71	8.40	0.228	0.410
5. Boy-Girl Relations	5.29	3.40	1.840	0.035*
6. Relations to People in General	7.13	6.40	0.504	0.308
7. Self-Centered Concerns	8.81	8.12	0.488	0.313
Total Problems	51.77	46.12	0.807	0.211

is again retained; grade nine students have no more problems than do grade seven students. Based on this evidence, the alternate hypothesis must be rejected.

As for the problem areas, the same results are applicable except for 'Health and Physical Development' and 'Boy-Girl Relations'. In these two areas the grades differ significantly, with the students of grade seven expressing more problems than the students in grade nine. This arrangement for these two areas suggests that the null hypothesis and the alternate hypothesis both should be rejected, since the direction predicted by the alternate statement was the opposite of what really happened. It could be accepted that the grade seven students express significantly more problems than do the grade nine students for these two specific problem areas.

IV. PERSONAL PROBLEMS AND SEX

Hypothesis VIII predicted that there would be no difference in the number of personal problems of boys and girls, while an alternate form of this hypothesis suggested that boys would have more problems than girls. Still using the t-test for independent samples, the data were tabulated and are shown in Table XXXIX. The total number of problems indicates that there is no significant difference in the number of personal problems for both sexes. The null hypothesis should be retained indicating that no difference exists between the two groups of students. A more specific look at the problem areas points out that

three of the seven areas reflect a difference that is significant. In the areas of 'Health and Physical Development', 'Home and Family' and 'Relations to People in General', girls expressed more problem areas than boys. Considering the nature of the results for these three areas, the null and alternate hypotheses should both be rejected and the remaining alternative conclusion be accepted.

TABLE XXXIX

MEANS, T's, AND LEVELS OF SIGNIFICANCE FOR BOYS AND GIRLS

Problem Areas	MEANS B	MEANS G	t	Level of Significance
1. Health and Physical Development	4.78	6.18	1.835	0.034*
2. School	11.83	10.82	1.112	0.134
3. Home and Family	3.26	5.68	2.508	0.006*
4. Money, Work, and the Future	8.04	8.55	0.473	0.318
5. Boy-Girl Relations	4.35	5.00	0.760	0.224
6. Relations to People in General	5.93	8.11	1.937	0.027*
7. Self-Centered Concerns	8.24	9.32	0.964	0.168
Total Problems	46.48	53.68	1.316	0.095

V. PERSONAL PROBLEMS AND INTELLIGENCE

Hypothesis IX predicted that there would be no correlation between

intelligence and the number of personal problems, while an alternate hypothesis suggested that there would be a correlation in a negative direction, that is, as intelligence increases the number of problems decrease. Table XL contains the results of the tabulation of Pearson correlation coefficients for each of the areas and the total. These coefficients are tested for significance at the 0.001 level of confidence, since the 0.05 level requires a very low correlation for significance.

TABLE XL

CORRELATION OF INTELLIGENCE WITH EACH OF THE PROBLEM AREAS AND THE TOTAL, AND THE LEVELS OF SIGNIFICANCE

Problem Areas	Correlation Coefficients	Level of Significance
1. Health and Physical Development	-0.23	0.016*
2. School	-0.40	0.001**
3. Home and Family	-0.09	0.197
4. Money, Work, and the Future	-0.15	0.073
5. Boy-Girl Relations	-0.002	0.49
6. Relations to People	0.11	0.14
7. Self-Centered Concerns	-0.03	0.38
Total Problems	-0.12	0.121

With reference to Table XL it can be seen that for the total number of problems the correlation is negative, but too low a coefficient to be significant. On the basis of this correlation the prediction made by the null hypothesis should be retained and accepted. The alternate hypothesis that the relationship would be significantly negative should be rejected. Returning to Table IX, it is obvious that for six of the seven problem areas the relationships are negative, but for only one of these is there a significantly correlation. This significant area is 'School', which would suggest that as intelligence increases the number of school problems decreases. For this area alone the null hypothesis should be rejected and the alternate one that a negative relationship exists between intelligence and number of problems concerning school accepted.

VI. SUMMARY

Sampling students from the schools on the Trinity South shore, it was found that overachievers have significantly more problems than average achievers. However, further investigation into the three levels of intelligence indicated that this significant difference was only applicable to the students of above average intelligence. There was no statistically significant difference in the number of problems of overachievers and average achievers of average and below average intelligence.

The total sample of average achievers and underachievers in-

dicated a statistical significant difference in the number of problem for the two groups, with the underachievers expressing more problems. Again, this result could be misleading since an investigation into the three levels of intelligence reflected that this difference was true only for the students of below average intelligence. The average achievers and underachievers of average and above average intelligence showed no statistically significant difference in the number of personal problems.

Comparing overachievers and underachievers it was found that there was no statistically significant difference in the number of problems for these two groups. This result was consistent for the total sample and the three levels of intelligence .

An investigation into the number of problems in each area of adjustment found that student participants of the Trinity South shore have significantly more problems in the 'School' area than they do in any other problem area.

Research into personal problems and grades reflected that there was no statistically significant difference in the number of problems of students in grade seven and eight, grade eight and nine, and grade seven and nine.

Comparing the number of problems of boys and girls in the sample, it was found that there was no statistically significant differences between the sexes. In the specific problem areas, girls expressed significantly more problems in three of the seven areas.

An investigation into the relationship between personal problems and intelligence reflected that there was no relationship between the two variables. A negative correlation was obtained, but of no statistical significance.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

The Problem

The major purpose of this study was to investigate whether any relationship exists between academic achievement and personal adjustment of selected students in Trinity Bay, Newfoundland. Minor purposes were to determine if there were any relationship between personal problems and the variables of school, grade, sex and intelligence. Nine hypotheses were formed to investigate these relationships. The major hypotheses I, II, and III, stated in the null form, predicted that there would be no difference between overachievers, average achievers, and underachievers and the number of personal problems for each group. An alternate form of these hypotheses made the prediction that underachievers would have more personal problems than average achievers, and overachievers would have fewer than average achievers. The minor hypotheses of the study made four predictions:

(a) Students would have more problems related to school than to any other area of investigation.

(b) Students in higher grades would express more problems than students in the lower grades.

(c) Boys would have a greater number of personal problems than girls.

(d) An increase in intelligence would be related to a decrease in the number of personal problems.

Experimental Design

In deciding which area in Newfoundland to be used for the study, it was preferred that all the schools involved be without guidance services. This limited the area of selection to a rural district which would meet this requirement and at the same time be representative of the rural population to allow random samples. The schools on the Trinity South shore under the juridiction of the Avalon North Integrated School Board met the conditions required for the study.

The junior high school population was chosen for the study because of the dearth of information at this level of education and because students at this level have very descriptive problems pertaining to adjustment. After incomplete information had been eliminated, the total population of junior high school students was 455 students. From this population a random sample of ninety students was selected randomly, of which there were thirty overachievers, thirty average achievers, and thirty underachievers.

Instrumentation

The instruments used in the study consisted of two standardized tests and teacher-made tests. The Otis-Lennon Quick Scoring Mental Ability Test, Form K, was used to measure the level of intelligence of each student in the population. Intelligence quotients were used as the measure

of ability. The Mooney Problem Check List, Junior High School Form, gave an indication of the number of problems of each student in seven areas of adjustment. The raw scores were used in this analysis. As an assessment of achievement, the results of the mid-term examinations of teacher-made tests were employed in the study. The percentage earned by each pupil in each subject was tabulated to give the achievement score.

The administration of I.Q. test had already been conducted by Board supervisors except for five classes which were tested during a visit to the schools in April. The Problem Check List was administered to the sample of students by the investigator during May.

Statistical Analysis

The data to be analyzed were taken from the inventory and test, coded, punched on computer cards, and processed by computer. The t-test of the difference between means for independent samples was used to test the significance of the difference between achievement groups, areas of adjustment, grades, and sex. Pearson product moment correlations were used to test the relationship between intelligence and problems.

II. CONCLUSIONS

From the results of this investigation a number of conclusions have been drawn.

Conclusion I

Generally, overachievers were found to have more personal problems than average achievers, but a closer look into the levels of intelligence

revealed that this condition exists only for the students of above average intelligence in this study. No significant difference was found between overachievers and average achievers of average and below average intelligence.

Conclusion II

Average achievers were found to have fewer problems than underachievers, but only for the students participating in the study who were below average intelligence. No significant difference in the number of problems was found between average achievers and underachievers of above average and average intelligence.

Conclusion III

From the research it was found that overachievers and underachievers did not differ significantly in the number of personal problems. This condition existed for each of the three levels of intelligence.

The three above conclusions, pertaining to achievement related to ability and the number of problems, substantiate the findings of several studies as reported in the review of literature. Research conducted by Frankel, Anderson and Spencer, Jolly, and Coombs and Davies indicated that achievement and problems are not related, which are very similar to the results in this study. It is interesting to note that the studies by Frankel and Jolly employed the Mooney Problem Check List to assess the degree of adjustment; the same instrument used in this study.

Conclusion IV

The study revealed that students have more problems concerning 'School' than any other area of adjustment as measured by the Mooney Problem Check List. This finding supports the results of studies done by Frankel, Durr and Schmatz, Teigland, and Jolly. Through previous studies

and this study, the 'School' area is indicated as the most troublesome area for students.

Conclusion V

It was found that for grade seven, eight, and nine students, there were no differences in the total number of problems for each of these grades. The students of one grade had no more personal problems than students of any other grade. This finding is in agreement with the findings of Datta, Schaefer, and Davies, but, Pierce and Bowman have found that students of higher grades are better adjusted.

Conclusion VI

An investigation into the relationship of sex and number of personal problems revealed that there was no statistical significant difference in the mean number of problems of boys and the mean number of problems of girls. One sex does not appear to be any better adjusted than the other. In reference to the review of literature, these findings support the conclusions of Teigland and Purkey, but are contrary to the findings of Pierce and Bowman.

Conclusion VII

It was found there was no statistical significant relationship between intelligence and personal problems. The number of problems neither increased nor decreased with an increase in intelligence, except in the 'School' area where an increase in intelligence was related to a decrease in the number of problems. This conclusion does not support any of the findings reported in the review of literature. Research by Brennon, Purkey, Flaherty, and

Datta all indicated that intelligence and adjustment are related.

III. IMPLICATIONS

The implications of the above conclusions for guidance and counseling in the schools suggest that, generally, the number of personal problems is not related to academic achievement. Except in the two cases indicated in the conclusions, the students with fewer problems do not perform any better academically than students with a greater number of problems. This would suggest to the guidance counselor that if students in the school are achieving below their ability it would be for some reason other than personal problems. The likelihood that poor academic performance is related to many personal problems is indicated to be very limited. This would suggest to the counselor that greater success would be made with underachievers if some other factor were considered in relationship to poor performance.

Regarding the minor section of the study, the conclusions imply that the guidance counselor should made himself aware of the school-related problems of the students since this is indicated as the area of deepest concern. The conclusions of this study also suggested that there was no significant difference in the number of problems of either particular grade, sex, or level of intelligence. This finding implies that guidance services should be evenly distributed among all the students in the school.

IV. RECOMMENDATIONS

Regarding further research in achievement and personal problems, the following recommendations are offered:

1. A detailed study of each of the seven adjustment areas on the Mooney Problem Check List, as related to underachievement.

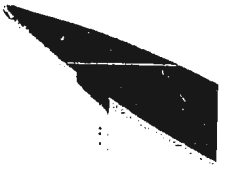
2. A thorough investigation into specific school problems and levels of achievement, since in this study the 'School' area showed more problems than did any other area.

3. A survey of student problems at the elementary and high school settings so that comparisons can be made at the three levels of education.

4. A study comparing students of above average intelligence and below average intelligence on school related problems, since the number of these problems has been observed to increase with lower intelligence.

5. A similar study conducted in an urban area where formal guidance services are available.

6. A survey of the relationship of personal problems to various school variables, such as study habits or extra-curricular activities.



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APPENDICES

APPENDIX A

LIST OF THE SCHOOLS AND COMMUNITIES INVOLVED IN THE STUDY

Schools	Communities
Woodland Junior High, Dildo. Grades 7 & 8	Blaketown
	Old Shop
Ridgewood Junior High, Green's Harbour. Grades 7, 8, & 9.	South Dildo
	Dildo
Heart's Delight Elementary, Heart's Delight. Grades 7 & 8.	New Harbour
	Hopeall
St. Mary's Elementary, Heart's Content. Grades 7 & 8.	Green's Harbour
	Whiteway
Holy Trinity Regional High, Heart's Content Grade 9.	Cavendish
	Islington
Winterton Elementary, Winterton Grades 7 & 8.	Heart's Delight
	Heart's Desire
	Heart's Content
	New Perlican
	Turk's Cove
	Winterton

APPENDIX B

NORMS FOR THE I.Q. SCORES OF THE POPULATION, AND THE PERCENTILES FOR THE THREE LEVELS OF INTELLIGENCE

I.Q. Scores	Frequency	Cumulative Frequency	Percentile
63	1	1	
64	3	4	
65	1	5	
66	2	7	
67	2	9	
68	0	9	
69	1	10	
70	2	12	
71	1	13	
72	3	16	
73	1	17	
74	3	20	
75	3	23	
76	7	30	
77	5	35	
78	4	39	
79	7	46	
80	8	54	
81	9	63	
82	11	74	
83	9	83	
84	11	94	
85	14	108	
86	11	119	
87	9	128	25th Percentile - cut-off point for below avera and average intelligence.
88	15	143	
89	17	160	
90	9	169	
91	16	185	
92	19	204	

I.Q. Scores	Frequency	Cumulative Frequency	Percentile
93	17	221	
94	27	248	
95	12	260	
96	16	276	
97	13	289	
98	12	301	
99	16	317	
100	15	332	
101	11	343	
102	12	355	75th Percentile - cut-off point for average and above average intelligence
103	12	367	
104	16	383	
105	8	391	
106	5	396	
107	8	404	
108	6	410	
109	8	418	
110	4	422	
111	6	428	
112	2	430	
113	3	433	
114	2	435	
115	4	439	
116	5	444	
117	2	446	
118	2	448	
119	1	449	
120	1	450	
121	2	452	
122	0	452	
123	1	453	
124	0	453	
125	0	453	
126	1	454	
127	0	454	
128	0	454	
129	0	454	
130	1	455	

APPENDIX C

THE I.Q., ACTUAL ACHIEVEMENT SCORE, PREDICTED ACHIEVEMENT SCORE, AND GROUPING OF EACH STUDENT IN THE POPULATION

Students	I.Q.(X_1)	Actual Achievement Score (Y_1)	Predicted Achievement Score (Y_1)	Group
1	76	38	39	C_3^2
2	99	50	65	B_2^3
3	73	38	36	C_2^2
4	103	70	69	A_1^2
5	81	54	45	C^1
6	82	65	46	C_1^1
7	87	65	52	B_1^2
8	67	31	29	C_2^2
9	80	45	44	C_3^2
10	81	35	45	C^3
11	109	70	76	A_2^2
12	82	50	46	C_3^2
13	71	23	34	C_2^3
14	91	52	56	B_1^2
15	79	52	43	C^1
16	84	50	48	C_1^2
17	63	34	25	C_1^1
18	77	55	40	C_1^1
19	64	46	26	C_1^1
20	93	70	58	B^1
21	102	60	68	A^3

*A - Above Average Intelligence

B - Average Intelligence

C - Below Average Intelligence

1 - Overachiever

2 - Average Achiever

3 - Underachiever

Example: C_2 - Average Achiever of Below Average Intelligence

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
22	88	55	53	B_2^2
23	86	51	50	C_2^2
24	85	51	49	C_2^2
25	86	59	50	C^1
26	100	69	66	B_2^2
27	88	52	53	B_2^2
28	103	47	69	A_3^2
29	93	57	58	B_2^2
30	89	46	54	B^3
31	85	49	49	C_2^2
32	89	50	54	B_2^1
33	79	52	43	C_1^1
34	99	79	65	B_1^1
35	96	82	61	B^1
36	104	78	70	A_1^1
37	108	85	75	A_2^2
38	92	60	57	B_2^2
39	86	49	50	C_1^2
40	112	92	79	A^1
41	101	52	67	B_2^3
42	106	72	73	A_2^2
43	101	65	67	B_2^2
44	91	60	56	B_2^2
45	102	67	68	A^2
46	105	58	72	A_3^3
47	96	53	61	B_2^2
48	98	62	64	B_2^2
49	80	42	44	C_1^1
50	92	69	57	B^1
51	109	77	76	A_3^2
52	110	60	77	A_2^2
53	89	55	54	B_1^1
54	103	84	69	A_3^3
55	90	56	55	B^3
56	91	61	56	B_2^2
57	101	69	67	B_2^2
58	119	87	87	A_2^2
59	107	74	74	A^2

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
60	93	76	58	B^1
61	87	73	52	B^1
62	95	61	60	B^2
63	94	49	59	B^3
64	105	80	72	A^1
65	107	86	74	A^1
66	92	60	57	B^2
67	108	75	75	A^2
68	107	70	74	A^2
69	104	70	70	A^2
70	113	75	80	A^2
71	93	85	58	B^1
72	109	80	76	A^2
73	95	70	60	B^1
74	115	70	83	A^3
75	102	60	68	A^3
76	98	65	64	B^2
77	95	65	60	B^2
78	104	80	70	A^1
79	92	75	57	B^1
80	110	70	77	A^2
81	99	70	65	B^2
82	120	80	88	A^3
83	104	65	70	A^2
84	104	60	70	A^1
85	89	80	54	B^1
86	109	80	76	A^2
87	91	55	56	B^2
88	99	70	65	B^2
89	104	65	70	A^2
90	100	70	66	B^2
91	93	47	58	B^3
92	88	62	53	B^1
93	93	58	58	B^2
94	77	53	40	B^1
95	88	64	53	C^1
96	89	60	54	B^2
97	93	70	58	B^1

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
98	97	53	63	B^3
99	80	56	44	C_1
100	83	55	47	C^1
101	97	49	63	B^3
102	99	60	65	B_2
103	93	59	58	B_2
104	103	55	69	A_3
105	98	56	64	B^3
106	88	45	53	B^3
107	85	50	49	C_2
108	92	60	57	B_2
109	83	59	47	C_1
110	96	67	61	B^2
111	80	33	44	C_3^3
112	94	42	59	B_3^3
113	95	50	60	B_3^3
114	72	45	35	C_2^1
115	87	45	52	B^2
116	86	60	50	C_3^1
117	78	23	42	C_3^3
118	83	25	47	C_3^3
119	87	25	52	B_2^3
120	86	51	50	C^2
121	88	50	53	B_2^2
122	97	56	63	B_2^3
123	99	57	65	B_3^3
124	116	64	84	A_1^3
125	81	58	45	C^1
126	92	49	57	B_2^3
127	81	50	45	C_2^2
128	89	53	54	B_2^2
129	99	67	65	B_2^2
130	80	50	44	C^2
131	106	67	73	A_2^2
132	90	57	55	B_2^2
133	78	45	42	C_2^2
134	88	56	53	B_2^2
135	98	66	64	A^2

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
136	83	44	58	C^3_1
137	84	62	48	C^1_1
138	92	67	57	B^1_1
139	76	47	39	C^1_1
140	72	48	35	C^1
141	104	71	70	A^2_2
142	94	60	59	B^2_2
143	84	48	48	C^2_2
144	85	48	49	C^2_3
145	94	51	59	B^3
146	67	48	29	C^1_3
147	103	59	69	A^2_2
148	95	54	60	B^2_1
149	86	55	50	C^1_1
150	88	48	53	B^1
151	79	54	43	C^1_3
152	101	56	67	B^2_2
153	107	71	74	A^2_1
154	91	70	56	B^1_1
155	74	49	37	C^1
156	96	56	61	B^2_2
157	95	62	60	B^2_2
158	108	71	75	A^2_3
159	126	77	95	A^2_2
160	93	59	58	B^2
161	99	55	65	B^3_3
162	91	41	56	B^1_1
163	84	62	48	C^2_2
164	105	69	72	A^2_3
165	96	53	61	B^3
166	81	52	45	C^2_2
167	98	61	64	B^2_1
168	92	78	57	B^1_2
169	105	68	72	A^2_2
170	103	70	69	A^2
171	107	76	74	A^2_3
172	109	67	76	A^3_3
173	96	45	61	B^3

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
174	130	84	99	A_2^3
175	92	62	57	B^2
176	92	60	57	B^2
177	88	51	53	B^2
178	91	64	56	B_1^1
179	99	72	65	B^2
180	103	57	69	A^3
181	94	55	59	B^2
182	98	43	64	B_3^3
183	94	40	59	B_3^3
184	110	57	77	A_3^3
185	116	83	84	A^2
186	94	49	59	B_3^3
187	96	41	61	B_3^3
188	98	52	64	B_2^3
189	86	52	50	C^2
190	100	43	66	B^3
191	111	67	78	A_2^3
192	97	61	63	B^2
193	90	61	55	B_2^2
194	100	54	66	B_3^3
195	95	50	60	B^3
196	103	69	69	A_3^2
197	106	57	73	A_2^3
198	93	63	58	B^2
199	101	73	67	B^2
200	94	65	59	B^2
201	111	73	78	A_2^2
202	109	78	76	A_3^3
203	97	52	63	B^2
204	96	54	61	B^2
205	91	53	56	B^2
206	82	39	46	C_3^2
207	100	40	66	B_2^3
208	98	60	64	B^2
209	123	88	92	A^2
210	104	77	70	A_3^3
211	107	58	74	A^3

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
212	108	57	75	A^3
213	115	76	83	A^2
214	111	64	76	A^3
215	99	62	65	B^2
216	109	68	76	A^3
217	117	67	85	A^3
218	109	64	76	A^3
219	100	51	66	B^3
220	83	43	47	C^2
221	101	64	67	B^2
222	100	57	66	B^3
223	100	75	66	B^1
224	114	81	82	A^2
225	102	72	68	A^2
226	103	52	69	A^3
227	99	75	65	B^2
228	121	87	89	A^2
229	104	71	70	A^3
230	115	63	83	A^3
231	89	32	54	B^3
232	91	41	56	B^3
233	87	32	52	B^3
234	89	39	54	B^3
235	93	31	58	B^3
236	80	50	44	C^2
237	93	53	58	B^2
238	95	46	60	B^3
239	92	58	57	B^2
240	84	46	48	C^2
241	83	40	47	C^2
242	92	50	57	B^2
243	98	61	64	B^2
244	89	49	54	B^2
245	90	60	55	B^2
246	91	70	56	B^1
247	94	43	59	B^3
248	86	57	50	C^2
249	85	42	49	C^2

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
250	89	46	54	B_2^3
251	92	58	57	B_2^2
252	84	44	48	C_2^2
253	96	66	61	B_1^2
254	69	41	32	C_2^1
255	82	49	46	C^2
256	80	52	44	C_3^1
257	93	50	58	B_3^3
258	85	37	49	C_3^3
259	100	58	66	B_2^2
260	94	55	59	B^2
261	92	54	57	B_1^2
262	84	64	48	C_2^2
263	86	44	50	C_3^3
264	84	37	48	C_2^2
265	74	34	37	C^2
266	70	17	33	C_1^3
267	101	76	67	B_1^1
268	81	92	45	C_2^2
269	76	38	39	C_3^3
270	75	25	38	C^3
271	76	60	39	C_1^1
272	66	59	28	C_2^2
273	102	65	68	A_2^2
274	93	58	58	B_3^3
275	94	29	59	B^3
276	79	32	43	C_3^3
277	64	10	26	C_2^2
278	72	35	35	C_1^1
279	77	50	40	C_1^1
280	76	57	39	C^1
281	77	30	40	C_2^3
282	91	55	56	B_1^1
283	78	52	42	C_2^2
284	97	67	63	B_2^2
285	66	27	28	C_2^2
286	94	66	59	B^2

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
287	85	45	49	C^2_3
288	90	43	55	B^3_2
289	77	35	40	C^2_3
290	89	34	54	B^3
291	99	71	65	B^2_2
292	85	45	49	C^2_2
293	75	59	38	C^1_2
294	101	70	67	B^2_2
295	116	87	84	A^2
296	75	45	38	B^2_1
297	70	53	33	C^1_2
298	96	56	61	B^2_1
299	65	55	27	C^1_2
300	95	56	60	B^2
301	76	21	39	C^3_3
302	78	31	42	C^2_2
303	88	59	53	B^1_1
304	96	71	61	B^2_2
305	112	77	79	A^2
306	92	50	57	B^2_2
307	94	66	59	B^2_2
308	97	56	63	B^1_1
309	91	64	56	B^3_3
310	74	24	37	C^3
311	82	35	47	C^3_2
312	89	47	54	B^2_2
313	89	59	54	B^2_2
314	99	72	65	B^2_2
315	76	43	39	C^2
316	118	87	86	A^2_1
317	94	68	59	B^2_2
318	102	73	68	A^2_2
319	97	60	63	B^2_2
320	104	66	70	A^2
321	94	59	59	B^2_2
322	96	55	61	B^1_1
323	107	92	74	A^1

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
324	104	84	70	A_3^1
325	94	44	59	B_2^3
326	97	61	63	B_3^2
327	105	62	72	A_2^3
328	88	57	53	B_1^2
329	111	87	78	A_2^1
330	100	72	66	B^2
331	64	64	26	C_1^1
332	87	61	52	B_1^1
333	96	72	61	B_2^1
334	113	80	80	A_2^2
335	79	50	43	C^2
336	95	79	60	B_1^1
337	89	67	54	B_2^1
338	100	61	66	B_1^2
339	86	69	50	C^1
340	90	68	55	B^1
341	100	74	66	B_1^1
342	94	69	59	B_2^1
343	94	52	59	B_1^2
344	86	60	50	C_2^1
345	81	49	45	C^2
346	89	59	54	B_2^2
347	81	47	45	C_2^2
348	85	61	49	C_1^2
349	87	50	52	B_2^2
350	97	68	63	B^2
351	107	72	74	A_2^2
352	91	54	56	B_1^2
353	82	54	46	C_2^1
354	85	51	49	C_2^2
355	85	55	49	C^2
356	99	78	65	B_2^1
357	101	71	67	B_2^2
358	92	60	57	B_2^2
359	85	56	49	C_2^2
360	108	71	75	A^2
361	90	53	55	B_2^2
362	99	70	65	B^2

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
363	101	72	67	B_1^2
364	79	61	43	C_1^1
365	111	87	78	A^1
366	100	64	66	B_3^2
367	104	57	70	A_1^3
368	98	76	64	B_1^1
369	104	81	70	A_1^1
370	101	76	67	B^1
371	94	78	59	B_2^1
372	102	73	68	A_2^2
373	116	88	84	A_3^3
374	103	54	69	A_1^1
375	106	85	73	A^1
376	105	75	72	A_2^2
377	99	69	65	B_2^2
378	110	70	77	A_1^1
379	103	77	69	A_1^1
380	115	91	83	A^1
381	114	93	82	A_2^1
382	118	90	86	A_2^2
383	90	60	55	B_2^2
384	113	85	80	A_1^1
385	113	90	80	A^1
386	102	62	68	A_1^2
387	84	58	48	C_1^1
388	93	68	58	B_3^1
389	102	59	68	A_2^3
390	89	48	54	B^2
391	94	51	59	B_2^3
392	95	57	60	B_3^2
393	97	46	63	B_3^3
394	97	53	63	B_3^3
395	91	42	56	B^3
396	105	72	72	A_2^2
397	85	43	49	C_3^3
398	106	59	73	A_3^3
399	98	48	64	B_1^1
400	84	57	48	C^1

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
401	94	59	59	B_2^2
402	85	54	49	C_2^2
403	81	54	45	C_2^1
404	93	56	58	B_2^2
405	79	56	43	C^1
406	103	33	69	A_3^3
407	94	39	59	B_3^3
408	100	59	66	B_3^2
409	91	48	56	B_3^3
410	82	42	46	C^2
411	92	62	57	B_3^2
412	102	53	68	A_3^3
413	84	43	48	C_2^2
414	82	52	46	C_2^2
415	83	39	47	C^3
416	88	48	53	B_3^2
417	82	36	46	C_3^3
418	98	47	64	B_3^3
419	94	61	59	B_2^2
420	96	56	61	B^2
421	92	52	57	B_2^2
422	88	57	53	B_2^2
423	105	69	72	A_2^2
424	87	45	52	B_2^2
425	92	49	57	B^3
426	102	66	68	A_2^2
427	104	67	70	A_2^2
428	88	60	53	B_2^2
429	90	53	55	B_2^2
430	94	47	59	B^3
431	97	44	63	B_2^3
432	111	77	78	A_3^2
433	89	46	54	B_2^3
434	95	67	60	B_2^2
435	108	71	75	A^2
436	88	42	53	B_1^3
437	102	79	68	A_1^1
438	96	71	61	B^1

Students	I.Q.	Actual Achievement Score	Predicted Achievement Score	Group
439	104	77	70	A_2^1
440	116	84	84	A^2
441	104	73	70	A_2^2
442	94	60	59	B^2
443	100	51	66	B_2^3
444	87	50	52	B^2
445	121	90	89	A^2
446	83	43	47	C_1^2
447	82	55	46	C_2^1
448	93	56	58	B_1^2
449	94	70	59	B^2
450	91	55	56	
451	117	90	85	A_1^2
452	80	72	44	C_2^1
453	104	76	70	A_1^2
454	82	54	46	C^3
455	83	39	47	

APPENDIX D

LIST OF STUDENTS IN THE SAMPLE SHOWING THEIR CODE NUMBERS AND THEIR SCORE ON THE MOONEY PROBLEM CHECK LIST

Students*	Score on the Check List
A_1 - 37 (7)B	36
A_1 - 40 (7)B	48
A_1 - 65 (7)G	80
A_1 - 78 (8)G	57
A_1 - 323(8)G	65
A_1 - 324 (8)G	58
A_1 - 329 (8)G	75
A_1 - 365 (9)B	75
A_1 - 369 (9)G	119
A_1 - 437 (8)G	7
A_2 - 11 (7)B	27
A_2 - 72 (8)B	60
A_2 - 131 (7)B	37
A_2 - 171 (8)B	47
A_2 - 229 (9)G	14
A_2 - 318 (8)G	73
A_2 - 334 (7)B	29
A_2 - 360 (8)B	18
A_2 - 372 (9)B	34
A_2 - 439 (8)G	14
A_3 - 21 (7)B	50
A_3 - 52 (7)B	45
A_3 - 74 (8)B	25

* A - Above Average Intelligence
B - Average Intelligence
C - Below Average Intelligence

1 - Overachiever 7,8,9 -Grad
2 - Average Achiever B,G -Sex
3 - Underachiever

Students	Score on the Check List (Z)
A_3 - 147(7)G	33
A_3 - 191(9)G	118
A_3 - 197(9)G	40
A_3 - 216(9)B	54
A_3 - 230(9)G	42
A_3 - 389(9)B	30
A_3 - 406(9)G	51
B_1 - 34(7)B	29
B_1 - 60(7)G	82
B_1 - 138(7)G	23
B_1 - 168(8)B	37
B_1 - 309(8)B	80
B_1 - 337(7)G	40
B_1 - 340(7)G	75
B_1 - 342(7)G	37
B_1 - 438(8)B	37
B_1 - 449(8)G	25
B_2 - 103(8)B	24
B_2 - 179(9)B	47
B_2 - 87(8)G	83
B_2 - 205(9)G	34
B_2 - 245(9)G	65
B_2 - 260(7)G	41
B_2 - 313(8)G	21
B_2 - 377(9)B	37
B_2 - 404(9)G	49
B_2 - 408(9)G	26
B_3 - 63(7)G	66
B_3 - 98(8)B	44
B_3 - 106(8)G	61
B_3 - 113(8)B	65
B_3 - 182(9)G	15
B_3 - 187(9)G	35
B_3 - 235(9)B	49
	110

Students	Scores on the Check List
B_3 - 395(9)B	28
B_3 - 433(7)G	61
C_1 - 5(7)G	45
C_1 - 17(7)B	42
C_1 - 18(7)B	21
C_1 - 99(8)B	55
C_1 - 100(8)B	27
C_1 - 114(8)G	88
C_1 - 137(7)G	63
C_1 - 146(7)G	29
C_1 - 283(7)B	88
C_1 - 353(7)G	47
C_2 - 16(7)B	44
C_2 - 166(8)B	49
C_2 - 220(9)B	37
C_2 - 252(9)G	46
C_2 - 335(7)B	78
C_2 - 354(8)G	34
C_2 - 355(8)G	20
C_2 - 410(9)B	46
C_2 - 413(9)B	18
C_2 - 446(8)B	33
C_3 - 13(7)B	50
C_3 - 111(8)B	60
C_3 - 117(8)B	45
C_3 - 258(7)B	23
C_3 - 270(7)G	99
C_3 - 281(7)B	137
C_3 - 301(8)B	103
C_3 - 302(8)B	46
C_3 - 311(8)G	95
C_3 - 415(9)B	44