

**A STUDY OF GIFTED CHILDREN IN RELATION TO CREATIVITY, ADJUSTMENT  
AND ACADEMIC ACHIEVEMENT IN THE SECONDARY  
SCHOOLS OF SHILLONG**

*By*

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**A THESIS  
SUBMITTED IN FULFILMENT OF THE  
REQUIREMENT FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY**

To



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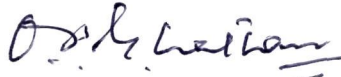
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C E R T I F I C A T E

This is to certify that the thesis entitled "A STUDY OF GIFTED CHILDREN IN RELATION TO CREATIVITY, ADJUSTMENT AND ACADEMIC ACHIEVEMENT IN THE SECONDARY SCHOOLS OF SHILLONG" submitted by Ms. Flourette G.Dkhar in fulfilment of the requirements for the degree of Doctor of Philosophy of North-Eastern Hill University, Shillong embodies the record of original research work carried out by her under my supervision. She has been duly registered and the thesis submitted is worthy of being considered for the award of the Ph.D degree.

This work has not been submitted for any other degree of any other university or institution.

Dated 30th May, 1995

  
(P.P.Gokulanathan)  
Supervisor

## A C K N O W L E D G E M E N T

To **Prof.P.P.Gokulanathan**, I take this opportunity to extend my most sincere gratitude to and deep appreciation for his willing cooperation and his wise and most patient guidance.

My gratitude also goes to all my teachers of the Education Department, N.E.H.U, Shillong, for their constant source of inspiration throughout the entire course of my work. I also include the **Principal, Mrs J.E.Shullai** of **Post Graduate Training College**, and to all my colleagues there for their help and cooperation.

A special word of gratitude also goes to **Headmasters, Headmistresses and students** of all schools which willingly participated and enabled me to avail of important data.

A special thanks goes to the **Director and Staff of the American Studies Research Centre, Hyderabad** and to all my friends there.

I gratefully take cognizance of the enthusiastic and faithful support service offered to me through ideas for the enrichment programmes by **T.Surjit Singh**.

To my parents, my uncles, my family members especially my sister **Bertha**, who have been a constant source of moral and spiritual strength - I give them my love.

To all these and those who have been behind me throughout the ups and downs of this great task - **May God Bless You**.

Last but not the least to my **Saviour, Jesus Christ** for enabling me

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(ii)

to complete the work. " I can do all things through Him who strengthens me" Philippians 4:13.

Ms. Flourette G.Dkhar

(iii)

## TABLE OF CONTENTS

	CONTENTS	PAGE NO.
	Acknowledgement	(ii) - (iii)
	List of Tables	(iv)- (vi)
	<b>CHAPTER -I: INTRODUCTION</b>	<b>1- 10</b>
1:01	CONTEXT OF STUDY	1-3
1:02	Exclusive Role of the School	3- 4
1:03	Giftedness and Creativity	4-5
1:04	Giftedness and Adjustment	5-6
1:05	Giftedness and Achievement	6
1:06	Need and Importance of the Study	6-8
1:07	Statement of the Problem	8
1:08	Definition of Terms	8-9
1:09	Scope of the Study	9
1:10	Objectives of the Study	9-10
1:11	Delimitations	10
	<b>Chapter II</b>	
	<b>REVIEW OF RELATED LITERATURE</b>	<b>11- 46</b>
2:01	Giftedness over the Centuries	11-14
2:02	Growing Interest in the Development of Gifted-Child Movement	14-19
2:03	Historical Look at the Definitions of Giftedness	20-23
2:04	Identification of Gifted-Children	23-27
2:05	Characteristics of Gifted-Children	27-39
2:06	Educational Programmes -Enrichment	39-41

2:07	Giftedness and Creativity	42-43
2:08	Giftedness and Adjustment	43-45
2:09	Giftedness and Achievement	45-46
<b>Chapter II I</b>		
<b>METHOD OF STUDY</b>		<b>47-65</b>
3:01	Nature of the Study	47
3:02	Population	47
3:03	Sample	48-49
3:04	TOOLS	49-63
3:04(i)	Culture Fair Intelligence Test Scale-III	49-54
3:04(ii)	Socio-Economic Status Scale	55-57
3:04(iii)	Non-Verbal Test of Creative Thinking	58-60
3:04(iv)	Adjustment Inventory for School Students	60-62
3:04(v)	Academic Achievement	62-63
3:04(vi)	Interview Schedule	63
3:05	Procedure of Data Collection	64-65
3:06	Analysis of Data	65
<b>Chapter IV</b>		
<b>ANALYSIS OF DATA</b>		<b>66-112</b>
4:01	The Level of Intelligence of Secondary School Students.	66-67
4:02	Distribution of level of IQ on the basis of Gender	67-68
4:03	Identification of Gifted-Children	68-69
4:04	Distribution of Gifted-Children on the basis of Gender.	69-70
4:05	Distribution of Gifted-Children on the basis of Socio-Economic Status.	70-71

4:06	Giftedness and Creativity	71-87
4:06(i)A	Creativity in Gifted Children	71-72
4:06(i)B	Creativity at Different Levels of Giftedness	72
4:06(ii)	Creativity at Different Levels of Giftedness on the basis of gender.	73-75
4:06(iii)	Creativity at Different Levels of Giftedness on the basis of S.E.S.	75-77
4:06(iv)	Originality and Elaboration at Different Levels of Giftedness	77-79
4:06(v)	Originality and Giftedness	79-83
4:06(v)A	Originality on the Basis of Gender	79-81
4:06(v)B	Originality on the Basis of S.E.S.	81-83
4:06(vi)	Elaboration and Giftedness	83-87
4:06(vi)A	Elaboration on the Basis of Gender	83-85
4:06(vi)B	Elaboration on the Basis of S.E.S.	85-87
4:07	Giftedness and Adjustment	88
4:07(i)	Adjustment in Gifted-Children	88-90
4:07(ii)	Adjustment Pattern of Children with Different Levels of Giftedness.	90-93
4:07(ii)A	Levels of Giftedness with Emotional Adjustment	90-91
4:07(ii)B	Social Adjustment at Different Levels of Giftedness	91-92
4:07(ii)C	Educational Adjustment with Different Levels of Giftedness.	92-93
4:07(iii)	Adjustment Pattern of Children with Different Levels of Giftedness on the Basis of Gender.	93-100

4:07(iii)A	Emotional Adjustment at Different Levels of Giftedness on the Basis of Gender.	94-96
4:07(iii)B	Social Adjustment at Different Levels of Giftedness on the Basis of Gender.	96-98
4:07(iii)C	Educational Adjustment at Different Levels of Giftedness on the Basis of Gender.	98-100
4:07(iv)A	Adjustment at Different Levels of Giftedness on the Basis of S.E.S.	100-106
4:07(iv)A	Emotional Adjustment at Different Levels of Giftedness on the Basis of S.E.S.	100-102
4:07(iv)B	Social Adjustment at Different Levels of Giftedness on the Basis of S.E.S.	102-104
4:07(iv)C	Educational Adjustment at Different Levels of Giftedness on the Basis of S.E.S.	104-106
4:08	Giftedness and Academic Achievement	107-112
4:08(i)	Gifted Students and Academic Achievement	107
4:08(ii)	Academic Achievement at Different Levels of Giftedness.	108
4:08(iii)	Academic Achievement at Different Levels of Giftedness on the Basis of Gender.	108-110
4:08(iv)	Academic Achievement at Different Levels of Giftedness on the Basis of S.E.S.	110-112

## **Chapter V**

### **ENRICHMENT PROGRAMME FOR GIFTED CHILDREN**

5:01	Introduction	113
5:02	Meaning	113

5:03	Horizontal and Vertical Enrichment	113-114
5:04	Academic Curriculum for the Gifted.	114-123
5:05	Perceptions of the Gifted with Regard to Existing School Programme.	123-125
5:06	Enrichment Programmes	125-137
5:06-A	Enrichment Programme on Heat	126-130
5:06-B	Enrichment Programme on Energy	130-137
<b>Chapter VI</b>		
<b>DISCUSSION OF FINDINGS</b>		<b>138-1521</b>
6:01	Giftedness and Creativity	138-141
6:02	Giftedness and Adjustment	142-147
6:03	Giftedness and Academic Achievement	148-149
6:04	Implications of Research Findings	149-152
<b>Chapter VII</b>		
<b>SUMMARY OF FINDINGS</b>		<b>153-160</b>
7:01	Identification of Gifted Children	153-154
7:02	Giftedness and Creativity	154-156
7:03	Giftedness and Adjustment	156-158
7:04	Giftedness and Academic Achievement	158-159
7:05	Perceptions of the Gifted with Regard to the Existing School Programme.	159-160
<b>BIBLIOGRAPHY</b>		<b>161-173</b>
<b>APPENDICES</b>		<b>174-208</b>
Appendix-A(Culture Fair Intelligence Test Scale 3)		174-189
Appendix-B. Socio-Economic Status Scale-(Urban)		190
Appendix-C. Non-Verbal Test of Creative Thinking		191-202

Appendix-D. Adjustment Inventory for School Students	203-207
Appendix-E. Interview Schedule	208

LIST OF TABLES

<u>TABLE</u>		<u>PAGE</u>
3:01	RELIABILITY OF THE CULTURE FAIR TEST:SCALE 3	51
3.02	VALIDITIES OF THE CULTURE FAIR TEST:SCALE 3	52
3.03	NORM TABLE	54
3:04	MODIFICATION IN INCOME LIMITS OF KUPPUSWAMY'S SCALE (1981)	56
3:05	MODIFIED SES TABLE	57
3.06	TEST-RETEST RELIABILITIES OF FACTOR SCORES AND THE TOTAL CREATIVITY SCORE	59
3:07	VALIDITY COEFFICIENTS FOR FACTOR SCORES AND THE TOTAL CREATIVITY SCORE AGAINST TEACHER RATINGS	60
3:08	RELIABILITY COEFFICIENTS OF THE INVENTORY	61
3:09	CORRELATION MATRIX OF THE THREE AREAS	61
4:01	LEVEL OF IQ OF SECONDARY SCHOOL STUDENTS	66
4:02	DISTRIBUTION OF IQ ON THE BASIS OF GENDER	68
4:03	DIFFERENT GROUPS OF GIFTED CHILDREN	69
4:04	BREAK UP ON THE BASIS OF GENDER	69
4:05	SOCIO-ECONOMIC STATUS OF GIFTED CHILDREN	70

4:06(i)A	MEAN SCORES OF CREATIVITY AMONG GIFTED CHILDREN AS A WHOLE AND ON THE BASIS OF GENDER	71
4:06(i)B	MEAN DIFFERENCES OF CREATIVITY AT DIFFERENT LEVELS OF GIFTEDNESS	72
4:06(ii)	CREATIVITY AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF GENDER	74
4:06(iii)	CREATIVITY AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF SOCIO-ECONOMIC STATUS	76
4:06(iv)	PERFORMANCES IN ORIGINALITY AND ELABORATION AT DIFFERENT LEVELS OF GIFTEDNESS	78
4:06(v)A	MEAN SCORES ON ORIGINALITY AT VARIOUS LEVELS OF GIFTEDNESS ON THE BASIS OF GENDER	80
4:06(v)B	PERFORMANCES ON ORIGINALITY AT DIFFERENT LEVELS ON THE BASIS OF SOCIO-ECONOMIC STATUS	82
4:06(vi)A	PERFORMANCES ON ELABORATION ON THE BASIS OF GENDER	84
4:06(vi)B	PERFORMANCES IN ELABORATION ON THE BASIS OF SOCIO-ECONOMIC STATUS	86
4:07(i)	ADJUSTMENT SCORES IN EMOTIONAL, SOCIAL AND EDUCATIONAL ASPECTS OF GIFTED CHILDREN ON THE BASIS OF GENDER	89
4:07(ii)A	EMOTIONAL ASPECT OF ADJUSTMENT AT THE THREE LEVELS OF GIFTEDNESS	91
4:07(ii)B	SOCIAL ASPECT OF ADJUSTMENT AT THE THREE LEVELS OF GIFTEDNESS	92
4:07(ii)C	EDUCATIONAL ADJUSTMENT AT THE THREE LEVELS OF GIFTEDNESS	93
4:07(iii)A	EMOTIONAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF GENDER	95

4:07(iii)B	SOCIAL ADJUSTMENT BETWEEN BOYS AND GIRLS AT DIFFERENT LEVELS OF GIFTEDNESS	97
4:07(iii)C	EDUCATIONAL ADJUSTMENT BETWEEN BOYS AND GIRLS AT DIFFERENT LEVELS OF GIFTEDNESS	99
4:07(iv)A	EMOTIONAL ADJUSTMENT ON THE BASIS OF SOCIO-ECONOMIC STATUS	101
4:07(iv)B	SOCIAL ADJUSTMENT ON THE BASIS OF SOCIO-ECONOMIC STATUS	103
4:07(iv)C	EDUCATIONAL ADJUSTMENT ON THE BASIS OF SOCIO-ECONOMIC STATUS	105
4:08(i)	ACADEMIC ACHIEVEMENT OF GIFTED CHILDREN AND ALSO PERFORMANCES ON THE BASIS OF GENDER	107
4:08(ii)	ACADEMIC ACHIEVEMENT AT DIFFERENT LEVELS OF GIFTEDNESS	108
4:08(iii)	DIFFERENCES IN ACADEMIC ACHIEVEMENT BETWEEN BOYS AND GIRLS AT DIFFERENT LEVELS OF GIFTEDNESS	109
4:08(iv)	ACADEMIC ACHIEVEMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF SOCIO-ECONOMIC STATUS	111
5:05	PERCENTAGE OF RESPONSES OF THE GIFTED CHILDREN WITH REGARD TO EXISTING SCHOOL PROGRAMMES	124

C H A P T E R I

I N T R O D U C T I O N

## CHAPTER I

### INTRODUCTION

#### 1:01 CONTEXT OF STUDY

Parents and educators alike are becoming more and more 'gifted conscious', and for very good reasons. Many gifted children and adolescents sit in their class room - their abilities unrecognised, their needs unmet. Some are bored patiently waiting for peers to learn skills and concepts that they had mastered two years earlier. Some find school intolerable, some feel pressured to hide their keen talents and skills from uninterested and unsympathetic peers. Some give up on school entirely, dropping out as soon as they are legally able (Davis and Rimm, 1989).

Other gifted students tolerate school but satisfy their intellectual, creative, or artistic needs outside of the formal system. The lucky ones have parents who will sponsor their dance or music lessons, chemistry kits and telescopes, art supplies, frequent trips to the library and home computers. The less fortunate ones make do as best they can, silently paying a price for a predicament that they may not understand, and that others choose to ignore. That price is lost academic growth, lost creative potential, and sometimes lost enthusiasm for educational success and eventual professional achievement (Davis and Rimm, 1989).

Some educators and many parents of non-gifted students are not swayed by the proposition that unrecognised and unsupported talent is wasted talent. A common reaction is, "Those kids will make it on their own", or "Give the extra help to kids who really need it" (Davis and Rimm, 1989 pp.1-2). The argument is that providing special services for highly able or talented is "elitist" - giving to the 'haves' and ignoring the 'have-nots' - and therefore, unfair and undemocratic.

However, a good argument can be made that gifted students have rights too, and that these rights are often ignored. Just as with other exceptional students, students with gifts and talents also deserve an education commensurate with their capabilities. It is unfair to them to ignore, or worse, to prevent the development of their special skills and abilities and to depress their educational aspirations and eventual career achievements. Our democratic system promises each person -regardless of racial, cultural or economic background and regardless of sex and handicapping condition - the opportunity to develop as an individual as far as that person's talents and motivation will permit. This guarantee seems to promise intrinsically that opportunities and training will be provided to help gifted and talented students realise their innate potential.

To those who argue that gifted students will "make it on their own", Davis and Rimm (1989, p.2) provide sensible replies that : (a) they should not be held back and required to succeed in spite of a frustrating educational system, and (b) some do not make it on their own. Nyquist (1973), for example, reported that a full 19 per cent of High School Drop outs are under-achievers, gifted/talented students who are unguided, uncounselled and unchallenged.

According to De Haan and Havighurst (1961), if potentialities/talents are to be systematically discovered, developed and utilised, society as a whole has certain general responsibilities. The democratic ideal of equal opportunity for all does not mean that all people should have identical opportunity. But it means that opportunity should commensurate with ability, that with high ability should go greater opportunity. It is not sufficient

however, simply to offer opportunity. Many gifted children will not accept it until they are shown these advantages. A democratic society should not have a laissez faire policy with respect to the gifted. It should actively seek them out, wherever they are, and attempt to stimulate them to take advantage of the educational opportunities that are available to them.

### 1:02 EXCLUSIVE ROLE OF THE SCHOOL

It is, therefore, the business of the school to recognise and develop the potentialities, whether or not parents take any responsibility. For it is the school, as the major community institution which should help gifted children. According to De Haan and Havighurst (1961) two indispensable programmes should be carried out in the school. First, simply the discovery of the potentialities, and then the enrichment of experiences and essential training needed for developing the potentialities.

It is not only the gifted students themselves who benefit from specific programmes that recognise and cultivate their talents. According to Davis and Rimm (1989), teachers involved with gifted students learn to stimulate creative, artistic and scientific thinking, and they learn to help students understand themselves, develop good self concepts and value educational and career accomplishments. In short, teachers of the gifted become better teachers, and their skills benefit 'regular' students as well.

Society also reaps a profit. Realistically, it is only today's gifted and talented students who will become tomorrow's political leaders, medical researchers, artists, writers, innovative engineers, and business entrepreneurs. Indeed, it is difficult to propose that this essential talent be left to fend for itself - if it can - instead of being valued, identified

and cultivated. Hallahan and Kauffman (1988) have therefore, rightly pointed out that giftedness is something which is to be fostered, not eliminated. Tomorrow's promise is in today's schools, and it must not be ignored.

A programme of education for the gifted does not necessarily mean that other children will receive less attention in the schools. A good programme for the gifted will do what good education does for all kinds of people. It will fit the individual, whatever his abilities, and help him make the most of them.

### 1:03 GIFTEDNESS AND CREATIVITY

For many, creativity suggests the ability to produce a great painting, an intricate piece of pottery or winning a nobel prize. While all of these products are the result of creativity, the term also has a broader connotation. According to Greenlaw and Mc. Intosh (1988), Creativity involves production versus reproduction; divergent versus convergent thinking. The creative person is able to produce original ideas with fluency, flexibility, association and elaboration. Such ideas are not limited to any particular field such as art. Creativity may be manifested in science, the dance, urban planning, song writing, leadership, photography, architecture and so on. No apparent limit exists for the places where creativity is needed or the ways in which it may be revealed.

Since the early 1960's a great deal of attention, as it relates to giftedness, has been paid to creativity. Although creativity is not restricted to gifted, they are the ones in whom it is most likely to be developed and the ones in whom it is most expedient that it be cultivated. Treffinger (1986, p. 18) says, "Creativity can and should continue to be involved in giftedness in any area". According to Torrance (1979, p.362), people who try to make clear distinction between creativity and intelligence are involved

in a futile task. He believes the two are "interacting variables and that trying to force clear distinctions would create false distinctions which do not exist in real life".

The above has therefore, lead modern definitions of giftedness to include creativity, which is different from, but integrally related to intelligence.

#### 1:04 GIFTEDNESS AND ADJUSTMENT

The term adjustment refers to a harmonious relationship between the person and the environment. According to Kundu and Tutoo (1985), the degree of harmony depends upon two things : (i) certain potentialities within a person; and (ii) character of the environment. A person is said to be adjusted when he is so related to reasonably adequate environment, that he is relatively happy, efficient, and has a degree of social feeling. In simple words, adjustment is an all inclusive term meaning relationship between an individual and his environment through which his needs are satisfied in accordance with social demands. The adjustment process is a universal sequence that can be identified in the behaviour of organisms from the lowest species up to man.

Intelligence as a concept has been understood in different ways by different psychologists and consequently there stands a wide variety of definitions and interpretations. In one of its definitions, an attempt was made by psychologists to link it with adjustment, for example, Wagnon (1937, p.401) defined it as, "the capacity to learn and adjust to relatively new and changing conditions". As per this definition, therefore, intelligence is the ability to make adjustment or to adapt to new situations, which implies that the more the intelligence, the greater is the adaptation of the individual with his environment and vice versa.

As seen from the above, intelligence plays an important role in determining the adjustment of the individual, then, it therefore leads us to conclude that there is a relationship between giftedness and adjustment.

#### 1:05 GIFTEDNESS AND ACHIEVEMENT

According to Pendarvis, Howley and Howley (1990) on almost any index of school performance, students with High IQ scores, tend as a group, to score above average. Their scores on academic achievement tests are as high as those of older students and adults. They are more likely than other students to earn high grades, complete college and win academic honours. As adults, they tend to do well in scholastic careers.

Though from the above, one may conclude that High IQ or giftedness relates with high academic achievement, mention should however be made that high IQ does not always ensure superior school performance, since "some high IQ children drop out of school, earn poor grades, achieve far below expectancy, or exhibit mediocre aptitude"(Pendarvis, Howley and Howley, 1990, p.149).

#### 1:06 NEED AND IMPORTANCE OF THE STUDY

(i) The need and importance of the study can be related to one of Pearl Buck Stories of Chinese life, where Wang the tiger says, "The thing to do when one kills a centipede is to crush its head and then its hundred legs are <sup>in</sup> confusion and they run hither and thither against each other and they are harmless"(Heck, 1953, p.374). Similarly, if we neglect the brilliant children of this nation, may we not find ourselves, to be a nation with a hundred well trained legs, but without a head, that would make ineffective the work of those legs.

(ii) The importance of such a study relates to the need of the society apart from the imperative arising out of a continuing revolution in the world of technology. India is faced with challenges whose urgency cannot be denied. Whether the country can face these internal as well as external challenges successfully will depend upon the quality of education given to gifted children.

(iii) According to <sup>the</sup> Challenge of Education (Government of India, 1986, Publication Number 1517), it has been noticed that the vast majority of students are not exposed to challenges which would develop their potential for creativity and innovation because the whole system of education is characterised by class work and examinations which emphasise rote learning and repetitive exercises.

To meet the above, gifted children should be exposed and provided with learning activities that would challenge them and expand and deepen their understanding.

(v) Very few studies have been conducted in our country in the area of gifted education. According to the Fourth Survey of Research in Education, till the year 1988, only 12 studies have been identified in this area.

Great emphasis has to be made on the fact that no survey as such had ever been conducted in Shillong, let alone the state of Meghalaya as a whole. Therefore, because of the absence of an accepted and standardized method of identifying gifted children who do occur in the population they remain dormant, and therefore not provided with an atmosphere within which they manifest and develop their potentialities. It thus follows that, Special Education for such children does not exist.

Who can we put the blame on? Surely, this is the joint responsibility of the State and University and they have to become more sensitive to the prevalence of gifted children in society and to plan to meet the special educational needs of gifted children, not only for the latter's gratification of personal drives but for the benefit of the State and society as a whole.

In the state of Meghalaya, the State Council of Educational Research and Training and some non-governmental organisations have tried to touch on this issue, but it is very much on the surface. They do recognise and encourage children of high academic performance in various schools and arrange to award them merit scholarships after successfully competing in a test. However, no special provisions are made to develop educational programme aimed to help widen the interests and abilities of the gifted.

#### 1:07 STATEMENT OF THE PROBLEM

Basing on the need and importance of the study, the present work has been carried out under the following title : "A Study of Gifted Students in relation to their Creativity, Adjustment and Academic Achievement in the Secondary Schools of Shillong".

#### 1:08 DEFINITION OF TERMS

In the study, gifted students are taken to mean children and adolescents who are identified at the Secondary level as possessing high intellectual ability.

Creativity is referred to as a functioning of divergent thinking where its primary traits of originality and elaboration are emphasised.

Adjustment is taken to mean the degree of capacity by which an individual tries to cope up with inner tension, needs, conflicts, frustration with particular reference to social, emotional and educational aspects.

By academic achievement is meant the performance of the students in the various subjects in the final school examination.

Enrichment is taken as providing learning activities that challenge the child and expand and deepen its understanding.

### 1:09 SCOPE OF THE STUDY

The first part of the study which dealt with the identification of gifted children, the study was confined to 1,400 secondary school students. For identifying the gifted children, mainly a Culture Fair Test (Cattell, 1961) which is a standardized one was given to them. Thus, the fluid ability, "gf" of the students was measured. In doing this the crystallized general ability "gc" of the students, which is culture bound was not taken into consideration (Cattell, 1968).

After the gifted children were identified, the study was then confined only to the gifted group comprising of 390 students where all above average students and above were taken to form the group. To study about their Creativity, Adjustment and Academic Achievement, a Non-Verbal test of creative thinking, an Adjustment Inventory which emphasised on the Emotional, Social and Educational aspects and the annual marks of the students in the various subjects respectively were used.

Lastly, the study involved the development of an enrichment programme, where it was planned that it would meet the needs of only the Very Superior and Superior groups of children.

### 1:10 OBJECTIVES OF THE STUDY

The objectives of the study were the following:

- (i) To identify gifted students from the High Schools of Shillong.
- (ii) To assess the Creativity of gifted students.

(iii) To find out the differences in creativity among students at different levels of giftedness.

(iv) To find out the level of adjustment of gifted students.

(v) To find out the differences in adjustment among students with different levels of giftedness.

(vi) To assess the level of academic achievement of gifted students.

(vii) To find out the differences in academic development among students at different levels of giftedness.

(viii) To suggest outlines for the development of an enrichment programme for the gifted students.

### 1:11 DELIMITATIONS

The following are the main delimitations:

(i) Hypotheses were not framed for the study.

(ii) The sample was confined mainly to the urban Secondary/High Schools of Shillong.

(iii) In relation to giftedness the study is delimited only to the intellectually gifted children (i.e all children with Above Average Intelligence and above).

(iv) With reference to intelligence and creativity, though Verbal tests are there, yet in the study only non-verbal tests were used.

(v) Though the enrichment programme was planned and developed for the Very Superior and Superior groups, it has not been tried out on them.

CHAPTER II  
REVIEW OF RELATED LITERATURE

## CHAPTER II

### REVIEW OF RELATED LITERATURE

#### 2:01 GIFTEDNESS OVER THE CENTURIES

A capsule survey of the history of efforts to cultivate the abilities of gifted and talented children around the world might include the following:

In ancient Sparta, military skills were so exclusively valued that all boys beginning at age seven received schooling and training in the arts of combat and warfare. Giftedness was defined in terms of fighting skills and leadership. According to Meyer (1965), the process of selecting candidates for military education took place at birth - babies with physical defects or who were otherwise of questionable value were rejected.

In Athens, upper-class free Greeks sent their boys (not girls) to private schools that taught reading, writing, arithmetic, history, literature, the arts, and physical fitness (Warmington, 1961). Higher education also was restricted to the upper crust. Sophists (professional teachers) were hired to teach young men mathematics, logic, rhetoric, politics, grammar, general culture and "disputation". Apparently, only Plato's Academy charged no fees and selected both young men and women based on intelligence and physical stamina, not social position (Davis and Rimm, 1989).

Across the Adriatic Sea, Roman education emphasized architecture, engineering, law and administration. With more liberal attitudes, both boys and girls attended first level (elementary) schools and some girls attended second level (grammar) schools, but higher education was not permitted for females (Davis and Rimm, 1989). According to Good (1960), Rome valued mother and family, and some gifted women emerged who greatly affected Roman society, for example, Cornelia, Roman matron and famous mother of statesman Gaius and Tiberius Gracchus.

The Renaissance period in Europe (1300-1700) produced remarkable art, architecture, and literature. Strong and wealthy governments rewarded their creatively gifted with wealth and honour. Such aesthetically able persons as Michel Angelo, da Vinci, Boccacio, Bernini and Dante were sought out and supported well (Davis and Rimm, 1989).

Moving back to a thousand years, early China, beginning with the Tang Dynasty in A.D 618, placed high value on gifted children and youth. For example, child prodigies were sent to the imperial court where their gifts were recognized and cultivated. According to Tsuin-Chen(1961), China historically anticipated four principles of modern gifted (talented education). First, they embraced a multiple - talent concept of giftedness. They valued literary ability, leadership, imagination, and originality, and such intellectual and perceptual abilities as reading speed, memory capacity, reasoning and perceptual sensitivity. A second interesting notion was their recognition of (a) apparently precocious youth who grow up to be average adults, (b) seemingly average youth whose gifts emerge later, and (c) true child prodigies whose gifts and talents are apparent throughout their lives. Third, the early Chinese recognized that abilities of even the most gifted children would not fully develop without special training. Support was considered especially important because of the belief that these children were weak and unhealthy and would not live long. Finally, a fourth notion, attributed to Confucius about 500 B.C. was his nail on the head belief that while education should be available to children of all social classes, they should be educated differently according to their abilities.

In Japan, during the Tokugawa Society period (1604-1868), schools of each clan tracked children of Japanese Samurai differently than children of commoners (Anderson, 1975). Children of Samurai nobility received training in Confucian classics, martial arts, history, composition, calligraphy, moral values and etiquette. Poor village children were taught value of loyalty, obedience, humility, and diligence. However, a few individual scholars established private academies for the intellectually gifted, including children of both Samurai and Commoners.

In India, during the period from 320 A.D. to 480 A.D. which is known as the 'Golden Age', unprecedented achievements were made in the fields of Science, Art, Architecture, religion and literature.

Many great poets, dramatists, grammarians and scholars lived during that period. The chief among them were Kalidasa, Vashakhadatta, Shudraka, Harisena, Bharavi, Bhasa, Dandin, Panini, Patanjali and Amar Singh. In the field of medicine, Vagubhatta was the most distinguished physician. The greatest mathematicians and astronomers were Aryabhatta, Varahamihira and Brahmagupta. As in the fields of science and literature, so in the field of art, Gupta period reached a high level of excellence. Remarkable progress was made in painting, metallurgy and music. The Vishnu temple at Deogarh and the paintings at the Ajanta and Bagh caves are the specimen of Gupta architecture and the paintings respectively. The Iron Pillar at Delhi reveals the metallurgical skill of the Gupta artists.

The Gupta period was able to reach a high level of excellence because all the Gupta emperors patronised art, architecture, literature and science. People with outstanding talents and scholars were sought out by the kings and rulers. To encourage them, liberal grants were given for their education.

Further, higher education was imparted in such Universities as Nalanda, Taxila, Vikramashila and Vallabhi. They were the abode of famous teachers who specialised in medicine, surgery, astronomy, astrology, painting, sculpture, archery, etc. They attracted many students from the country and in the case of Nalanda University, even Chinese scholars like Hieun Tsang and I-Tsing studied in the University. For the progress and contributions made by such people, kings, rulers and even merchants and traders were interested that the universities were maintained mainly by the funds donated by them(Kundra, 1992).

In early America, concerns for the education of gifted and talented children was not great. According to Newland (1976) some educated youth were accommodated in the sense that attending secondary school and college was based both on academic achievement and the ability to pay the fees.

With compulsory attendance laws, schooling became available to all, but few provisions existed for gifted children. As note worthy exceptions, some schools in Elizabeth, New Jersey, began tracking gifted and slow learners in 1866; St. Louis initiated tracking in 1871. Special classes for gifted children were initiated at Los Angeles and Cincinnati in 1916; Urbana, Illinois, in 1919, and Manhattan and Cleveland in 1922.

## 2:02 GROWING INTEREST IN THE DEVELOPMENT OF GIFTED CHILD MOVEMENT

Recent history underlying and influencing today's strong interest in the gifted and talented is not a long one. The following are the main contributions:

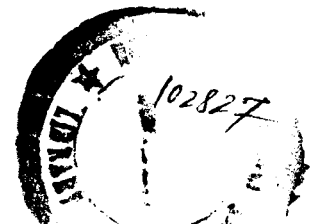
A. HEREDITARY GENIUS : FRANCIS GALTON

The English Scientist, Francis Galton (1822-1911), is credited with the earliest significant research and writing devoted to intelligence (or genius) and intelligence testing. Galton believed that intelligence was related to the keenness of one's senses, for example, vision, audition, smell, touch and reaction time. His efforts to measure intelligence, therefore, involved such tests as those of visual and auditory acuity, tactile sensitivity, and reaction time. Galton further concluded that one's intelligence is highly determined by heredity. This hereditary basis of intelligence seemed to be confirmed by his observations as reported in his most famous book, Hereditary Genius (Davis and Rimm, 1989).

Galton's emphasis on high heritability of intelligence is today shared by some psychologists. Gage and Berliner (1984), for example, drawing upon Jensen's (1969) twin studies, estimated that intelligence is 80 percent inherited and 20 percent due to environment.

B. ROOTS OF MODERN INTELLIGENCE TESTS : ALFRED BINET

Modern intelligence tests have their roots in France in the 1890's (Davis and Rimm, 1989). Alfred Binet, aided by T. Simon, was hired by government officials in Paris to devise a test to identify which children would not benefit from regular classes and therefore, would be placed in special classes to receive special training. To be able to do this, he developed a number of simple tests meant for measuring the intelligence of the children of each age level and applied these to them. Binet was also successful in standardizing the tests.



C. LEWIS TERMAN : THE STANDFORD BINET TEST, HIS GIFTED CHILDREN STUDIES

Stanford psychologist Lewis Terman made two historically significant contributions to gifted children. First, Terman supervised the modification and Americanization of the Binet Simon Tests, and the Stanford-Binet Intelligence Scale. The test was revised in 1937, 1960 and again in 1986.

Terman's second contribution was his identification and long study of 1,500 gifted children - 800 boys and 700 girls. These people were, and still are, the most studied group of gifted individuals in the world (Davis and Rimm, 1989).

D. LETA HOLLINGWORTH : "NURTURANT MOTHER" OF GIFTED EDUCATION

According to Stanley (1978), Galton was the grandfather of the gifted-child movement, Binet the mid wife, Terman the father, and Columbia University's Leta Hollingworth the nurturant mother. Her pioneering contributions to gifted education consisted of personal efforts supporting gifted education and gifted students in the New York City Area until her death in 1939 and the publication of two books, Gifted Children: Their Nature and Nurture and Children Above 180 IQ Stanford Binet: Origin and Development.

E. SPUTNIK

The America's last significant historical event to predate the 1970's resurgence of interest in gifted education is the launching in 1957 of the Russian Satellite Sputnik. The launching of the Sputnik was a glaring and shocking technological defeat since Russia's scientific minds had outperformed the Americans (Tannenbaum, 1979).

Tannenbaum (1979) referred to the aftermath of Sputnik as a total talent mobilization. As such academic course work was telescoped (condensed) for bright students, college courses were offered in high school; foreign languages were taught in elementary schools. Public and private funds were earmarked for training in science and technology. Acceleration and ability grouping were used, and efforts were made to identify gifted and talented minority students. New maths and science curricula were developed, most notably the School Mathematics Study Groups (SMSG) maths, Physical Science Study Committee (PSSC) physics, and Biological Science Curriculum Study (BSCS) biology. In High School, there was a new awareness of and concern for high scholastic standard and career mindedness. The bright and talented students were expected to take the tough courses, to fulfill their potential, and submit their developed abilities for service to the nation.

Unfortunately, both the scare of the Sputnik and the keen interest in educating gifted and talented students were off in about five years. The awareness and concern was rekindled in the mid 1970's. Many teachers and administrators nationwide and across Canada are becoming committed to gifted education. Researchers and materials writers are developing tests, publishing articles in new journals, and writing new materials for teaching creativity, thinking skills, computing, maths, science and writing. The movement is not uniquely North American. The July/Aug. 1985, and July/Aug. 1987, issues of Gifted Child Today focussed on "Gifted Education around the world", with articles describing Gifted/Talented activities in mainland China, Hongkong, Manila, South Africa, Egypt, Saudi Arabia, India, Australia, Mexico, Dominican Republic, Guam, Brazil, Russia

and Australia(Davis and Rimm, 1989)

#### F. SITUATION IN INDIA

India, as a democratic country, came into existence on August 15, 1947. At that time, equal opportunity for all became a goal. Educators endeavoured to adapt school programmes to the ability of the average child in keeping with the slogan, "the greatest good for the greatest number". In the process the gifted children, who are the country's greatest resource have been neglected.

According to Khan (1967) gifted pupils in the schools in India are probably more neglected than any other type of pupils. Much of the teacher's time is spent in dealing with the slow and average child. The gifted are assumed to be qualified and are thus left to themselves. Further, the basic difficulty in providing programmes for the gifted child lies in public attitude rather than professional practice.

Even in the field of research, very few studies have been conducted in the field of gifted children. According to Buch (1991) research in education of the gifted in our country is a recent phenomena. The first study

appeared only in the second half of the sixties, while educational research activity started only in 1980, and till the year 1988, only twelve studies have been identified in this area. The reason, may be, as mentioned earlier that in the past years, the basic educational need was improvement of the qualitative range of educational provisions to meet the demands of universalisation of education. As such, special areas received attention only after achieving a certain level of general educational development.

In the year 1995, we however, see an initiative and a bright step into this field. According to Menon (1995) a joint programme by Bharatiya Vidya Bhavan (BVB) and Anna University is taking the first step towards spotting and nurturing excellence among students who have exceptional ability in Physics, Chemistry, Mathematics, Biology and Computer Science according to the assessment made by schools. The method involves putting the students through a daily schedule of yoga, lectures and project work. A faculty drawn from Anna University, IIT(Madras) and the Institute of Mathematical Sciences (Madras) exposed the high-schoolers to ideas beyond their school curriculum raising basic questions about the way they had always learnt science. The response was enthusiastic. This programme appears to have promise and may form an annual feature in the years to come.

### 2:03 HISTORICAL LOOK AT THE DEFINITIONS ON GIFTEDNESS

Over the years, numerous conceptions and countless definitions of giftedness have been proclaimed. Most can be analysed on a continuum that ranges from "conservative" to "liberal" depending on the degree of restrictiveness used to determine eligibility for special privileges and programmes.

According to Greenlaw and McIntosh (1988), the definitions of giftedness in the late 1800's and 1900's were conservative. They dealt only with intelligence, especially as measured by IQ (Intelligence Quotient) tests. For example, Terman's 1921 definition of giftedness put it as the top 1 percent level in general intellectual ability. Before World War II, only the top 1-2 percent were considered gifted, but after 1940, the definition of gifted was expanded to include the top 10-15 percent. By the late 1950's the terms gifted and high IQ had become synonymous. But according to Getzels and Jackson (1958), despite its longevity, the IQ score need not inevitably have been the definer of giftedness. They say that use of the IQ score was historical happenstance, since early inquiries used the class room as their context and so developed an attendant concern with academic progress.

Soon after the beginning of Terman studies, some people began to call for broader definitions of giftedness than those limited to IQ scores. Witty (1971, p.2) expanded his definition in the 1930's to include "any child whose performance in a worthwhile type of endeavour is consistently or repeatedly remarkable". He proposed this expanded definition because he felt that the intelligence tests did not successfully identify

those students with a high potential for creative expression. He believed that it was evident that intelligence tests did not elicit any kind of imaginative, original, or unique response. Witty, believed that ignoring the creative students would be an injustice to them and to society.

According to Greenlaw and McIntosh (1988) consideration of a person's IQ score has remained in nearly every definition of giftedness, since it was first conceived in the early 1920's up through the mid 1980's. Although an exact score demarcation may not always be referred to, it sometimes is alluded to, as in Hollingworth's definition (1926,p.31) "Gifted children are those identified by mental tests as very superior to the average".

Experts continued to fight for expanded definitions. For example, De Haan and Havinghurst (1961, p.15) said any child would be considered gifted, "who is superior in some ability that can make him an outstanding contributor to the welfare of, and quality of living in society". This seems to have been the first time that making some sort of contribution to society was included in a definition for determining giftedness. Hollingworth (1926, p.297) though, already believed that gifted youngsters would grow up to be gifted adults and would make great contributions. She said, "Individuals of surpassing intelligence create national wealth, determine the state of industry, advance science, and make general culture possible". She appeared to think that identifying and providing for gifted students were social obligations.

Fliegler and Bish (1959) reviewed the literature on the gifted from 1953 to 1959. Their definition of the term gifted encompassed children

who possesses superior intellectual potential as well as a functional ability to perform in the top 15-20 percent, talents in such specific areas as science and mathematics, or unusual creative ability. This definition was the first to mention potential. All previous definitions used some outward sign of "remarkableness" or a measurable trait to prove that a person was gifted. The idea of including potential in the definitions has continued, especially as educators realize that a significant number of persons capable of making contributions to the nation are excluded by other definitions.

According to Sumption and Luecking (1960), two definitions, both from the early 1960s, seem to focus on "thinking" abilities - in a creative, abstract, problem-solving mode. Since definitions do indeed reflect the times, it is apparent that these came out of a period when the nation was realizing its needs for thinkers and problem solvers. Thus, Sumption and Luecking (1960, p.6) defined the gifted as possessing the "potential to perform tasks requiring a comparatively high degree of intellectual abstraction or creative imagination or both".

One of the most recent definitions and one that has gained favour in a number of areas, was developed by Renzulli (1978), creator of the Enrichment Triad Model. According to him, "Giftedness consists of an interaction among three basic clusters of human traits - these clusters being above average general abilities, high levels of task commitment, and high levels of creativity. Gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. Children who manifest

or are capable of developing an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional services". (1978, p.184)

If we examine Renzulli's definition, we find that it is broader in one sense than some previous ones, but narrow in another sense. It is broader in that it includes many general performance areas and an endless number of specific performance areas. Its narrowness comes from the requirement that the gifted possess all three of the traits that Renzulli says characterize a gifted person. As a result, the nonachieving gifted student would be excluded. Creativity alone does not make a gifted person, says Renzulli, above - average ability alone does not make a gifted person; task commitment alone does not make a gifted person; neither do any two of the above in combination. All three must interact.

#### 2:04 IDENTIFICATION OF GIFTED CHILDREN

A review of the literature related with the identification of gifted children show the following:

According to Khatena (1982) Lewis Terman, in order to locate 1,000 subjects of IQ 140 or higher from school children in California, followed a two step procedure for the identification of gifted children in kindergarten and Primary grades and a three step procedure for children in grades III to VIII. Terman made use of the following procedures:

(a) Teacher's nominations

(b) Stanford Binet Test (1960) for kindergarten and Primary children,

(c) A Group Intelligence Test, and

(d) Terman concept Mastery Test (for children in grades III to VIII)

Terman, in 1916, set the lower limit for the gifted persons at 110. In the year 1937, only children having IQ of at least 120 were judged to be superior. Some years later, children with IQ 125 or above in the "major classes" of Cleveland, Ohio, were classed as superior (Khan, 1967).

In another study which dealt with survey on Gifted Children, conducted by Tannor (1966) the following were the screening techniques used to search out the superior students in fifty American cities with a population over 2,50,000:-

(a) Teacher's nominations

(b) Achievement Tests

(c) Group Intelligence Tests

(d) Individual Intelligence Tests

(e) Maturity or Psychological Tests

(f) Aptitude and non-academic Tests

In the well known study of Getzels and Jackson (1962) as reported by Khatena (1982), to study the relationship between creativity and intelligence, the sample, included children who were in the top 20 p.c on the Intelligence tests scores as derived from Henmon - Nelson Tests of Mental Ability, Standford - Binet and the Wechsler- Intelligence Scale for children (1949).

Srivastava and Budhari(1990) in studying creativity with different levels of intelligence made use of P.M. Mehrotra's Test of Group Intelligence to assess the intelligence level of the subjects.

Gnanambal, (1982) in her study of identifying the gifted children made use of Group Intelligence Tests - AH2 and AH3 by Hem, Watts and Simmonds and Socio-Economic Scale, 1981 (Urban-Kuppuswamy).

In a study of Adjustment of Mentally Gifted and Retarded Children by Singh (1982), Joshi's General Mental Ability Test was used for measuring the intelligence of the students.

To study the relationship among Creative Thinking, Intelligence and School achievement, Acharyulu (1978) made use of the Culture Fair Intelligence Test, Scale 2 (1960) to measure intelligence.

Babu (1977) in his study, dealing with the Personality Factors of High-Intelligence-High Creative Thinkers and High-Intelligence-Low Creative Thinkers, used two tests of Intelligence - one verbal and the other non-verbal to get a sample of High-Intelligence subjects.

In studying the Gifted Adolescents, Walia (1973) made use of two intelligence tests - (i) Jalota's Group Test of General Mental ability in Hindi, (1972) and (ii) Singh's Group Test of General Mental Ability.

Joshi(1974), in his study of Creativity and some Personality traits of the Intellectually Gifted High Secondary Students, utilized Desai-Bhatt Group Test of Intelligence. Children with IQ 120 and above were termed as gifted children.

In the study of Creativity as related to Intelligence, Academic Achievement and Security - Insecurity, by Basu (1983) Intelligence was measured by using Standard Progressive Matrices prepared by J.C.Ravens (1958).

In another study by Sampat (1984), intellectually gifted children were identified by using:

- (i) Teacher's ratings
- (ii) Ahuja's Group Test of Intelligence
- (iii) Desai and Bhatt Group Test and
- (iv) Standard Progressive Matrices

Children who scored above the 90th percentile and more were selected for the sample.

Singh (1983), in order to study the mentally superior children, in relation to Need Patterns, Achievement and Adjustment utilized the Mixed Type Group Intelligence by P.N.Mehrotra and the Scale by Kuppuswamy to identify the mentally superior children.

To know the Adjustment Differences of High Intelligent and Low Intelligent Adolescent students, Jalota's Group General Mental Ability Test and Paryag Mehta's Samanaya Budhi Parikshan were administered to the 365 Secondary School students. Children who had an IQ of 100 and above were considered as High Intelligent students. This study was conducted by Agarwal and Gupta(1984).

From the above, it may be concluded that when it comes to identifying or selecting gifted children, most research scholars rely on Standardized Intelligence Tests. Though, a mention should be made that Intelligence tests do not measure all the intellectual abilities of the child, yet the IQ has been depended upon from time to time. According to Kirk (1970)

the IQ however, does tap a wide variety of abilities and for a child to obtain a high IQ he has to show either considerable ability in many areas or tremendous ability in more limited areas. Secondly, besides Intelligence Tests, there are no other measuring devices which would be able to measure the child's intellectual abilities. Thus Intelligence Tests are being used to identify the gifted children.

Regarding the cut off point, there has been a wide divergence in determining it. Till the present day, teachers, educators, scholars have not come to a conclusion as to which point should be the cut off point. This is because researchers use various cut off points along the distribution of scores for various purposes and in different studies. This is also seen in the studies mentioned above.

In this study, however, all children with Above Average Intelligence are taken to constitute the group of gifted children. Thus, the cut off point has been taken as 110 as was done by Terman in 1916 to identify the gifted children(Khan,1969). Further, the different levels of giftedness are based on the lines of the table given by Terman and Merrill to illustrate the relationship between IQ and degree of brightness(Terman and Merrill, 1937):

## 2:05 CHARACTERISTICS OF GIFTED CHILDREN

### INTELLECTUAL CHARACTERISTICS

The intellectual characteristics of the gifted are those traits that highly able students exhibit as they use their intellect, i.e their power for knowing and their capacity for rational or intelligent thought.

The acquisition and application of knowledge is an ability that is markedly superior in gifted children.

Gifted students are distinguished in acquiring and applying knowledge because of their intellectual advancement and their super normal capacity for knowledge. Their ability to learn is enhanced by an extra ordinary memory and quickness to see relationships. The combination of these traits along with varied intellectual interests, almost insatiable curiosity, and a penchant for independent learning presents a marvellous challenge for parents, teachers, librarians and all who come in contact with gifted children (Greenlaw and McIntosh, 1988). Baker (1949) said that the gifted have a 'surplus' of mental age beyond their chronological age, by the age of six, gifted children have a mental age of at least one year beyond their chronological age.

One of the most conspicuous indications of intellectual advancement is gifted children's early and accurate use of a large vocabulary. Goodenough (1956) suggests that some young gifted children play with words the way average children play with toys. Thus, many gifted students are intrigued by word games and books that deal with words. Much more than average children, the gifted read atlases, encyclopedias, and dictionaries. Observation of gifted students reveal that they are more interested in reference books in their early youth than most people ever are.

Another early indication of exceptional intelligence is the proficient use of linguistic structure. They often speak in phrases and whole sentences earlier than average children, and they are also able to reproduce stories at an early age.

Gifted students are not endowed with a totally different intellect, but they seem able to use it in a different way. For example, able and average children pass through the same sequence of Piagetian stages, but it appears that gifted students may enter the stage earlier and progress through them more rapidly than do average children. Webb(1974) compared gifted children's intelligence with skilled use of tools. Although not possessing different tools, the gifted may figuratively have a larger tool shed : a superior intellectual capacity. Because of their extraordinary ability to assimilate (to take into their mind and thoroughly comprehend), the gifted are able to absorb large amounts of material in a fraction of the time required by average students. Then, making use of their accurate memory, the highly able develop a broad knowledge in many different areas. Gifted student's range of learning is wider and deeper than average student, and it is often apparent that the gifted know about things of which other children are unaware.

This depth and breadth of knowledge are the result of and are fed by highly capable children's superior assimilation, marked retention, and varied intellectual interests. Whereas an average child may be interested in motor cycles, tether ball and dogs, a gifted counterpart may be interested in those three areas in addition to the saxophone, photography, political scandals and designing and solving intricate logic problems.

Gifted children's wide range of interests stem from their great desire for learning, and, in their quest for knowledge, a continuous discovery of new areas to explore. Their curiosity sometimes seems insatiable, but the questions they ask are not meant for pretentious display nor to

annoy (as is sometimes believed) but rather as a means of finding out. When gifted children ask questions, their primary purpose is to obtain answers about the reasons behind an occurrence, the motivation behind an action, or the purpose for completing a task. Their questions may at times seem like defiance because of a perceived challenge to the status quo or the authority figure present (e.g. "why are we doing this assignment?") but in fact the queries represent independent thinking and a need for explanation. Sometimes the gifted seem to have a striving for knowledge that is almost subconscious (Greenlaw & McIntosh, 1988).

Besides satisfying their intellectual curiosity by asking questions, gifted children read and observe a great deal. Many but by no means all, gifted children read early. They read more history, biography, science, informational books, poetry, drama and folk tales than their average age mates. This wide reading allows them to begin to satisfy their craving for information.

Often, bright children will choose to study some subject that is difficult for them, both for knowledge it will afford and for the challenge. Academically motivated, able children find the challenge and accomplishment of a difficult task rewarding in itself - much more so than many little tasks.

Gifted students do well and often like to pursue topics independently. Such initiative is indicative of the distinctive thinking they will do later within their chosen vocation. They will feel compelled to say or do things distinctively. Since they may have interests that go beyond what any available person (teacher, parent, neighbour) can directly help

them with, they often work alone.

The gifted can work alone for long periods without frequent checks by others. Their sustained attention span is a by-product of their mental endurance, and during these periods, they are able to accomplish greater units of work than would an average person within the same constraints. The gifted child has a superior ability to focus on a task and tenacity of purpose rarely seen in the average child.

In speaking of the young gifted child, Hildreth (1938, p.301) declared, "His mental energy is comparable with an electric filament that glows continuously without exhausting itself. He hungers for problems, asks for more or invents new problems when the supply gives out". This hunger does not come in spurts but is rather a continuous, graving hunger that cannot really have the edge taken off it. There is a flow, a relatedness in the efforts and attention of the superior mind. "Relatedness" and "relationship" are key words to organise and relate their experiences. Gifted children are less likely to see things as discrete and isolated, but rather are quick to see relationships and to observe and associate similarities. This ability helps able children to readily absorb concepts and then organise them and apply them efficiently.

Such rapid absorption and efficient organisation of concepts allow gifted students to generalise readily. They look for and easily grasp the principles that underlie their learning and are quick to see the applications of these principles (as in mathematics), thus preferring to delve into the why behind a concept rather than the what.

Because of the way gifted children learn, they do better in some

subjects than others. They tend to do well in reading, mathematics, language, science and the arts. Their written and oral communication skills are quite effective. Their ability to utilize rather complex associative methods often gives them a flair for science and maths. They do less well in history and spelling because, as usually taught, the latter two depend on rote memory than on understanding principles and concepts. Often, the gifted student's poorest grade will come in hand writing because of the repetition involved, which the gifted child finds less than stimulating. Over all, gifted students have above average grades and perform significantly better than their average age mates (Greenlaw and Mc.Intosh, 1988).

#### PERSONALITY CHARACTERISTICS

According to Webster's New Collegiate Dictionary, Personality has been defined as "the complex of characteristics that distinguishes an individual; the totality of an individual's behaviour and emotional tendencies". Describing the personality characteristics of a group of individual seems like a tall order, because every individual has a very distinct personality. However, it is possible to attribute certain characteristics to the gifted as a group; the characteristics that many of them share give them a degree of commonality.

#### SELF CONCEPT

An adult's self concept is derived from many factors, including home, peers, work and hobbies. A child also develops a self concept based on several factors, but family and school dominate the list.

According to Greenlaw and McIntosh (1988), children's self concepts are not based on a single perception but rather on a compendium of perceptions, which concern their ability to succeed in academic subjects in

addition to other areas. In general, gifted students' self concepts are closely tied with their academic learning. Since they usually do well academically, it follows that most gifted students have positive self concepts.

Students who are gifted but have not had their giftedness recognized or have had it consistently denied will probably not have a good self concept. Likewise, students who are very capable in most areas but fall short in a few may have less than a positive self image. Those students who are both gifted and handicapped often fall into this latter group, particularly if they are learning disabled. They are intelligent and sensitive enough to realise that their gifts are being fettered by their learning disabilities. They may experience extreme frustration, whether they work in a "regular" classroom, performing at an average level because their giftedness allows them to compensate for their learning disabilities, or in a learning - disability resource room, where many of the activities are remedial and/or repetitive.

There is a misconception however, about the gifted and that is since their work is good and their self concept is fairly high, they do not need any encouragement. They however do, since even the high achieving gifted students tend to under-estimate themselves(Torrance, 1966). They not only need encouragement to "keep up the good work" but also motivation to do more, to strive beyond what they have already accomplished.

#### EMOTIONAL CHARACTERISTICS

A common misconception is that persons of superior intellect are often on the borderline of mental instability. But in fact, giftedness is neither a shield from nor a loadstone to emotional problems. Numerous

researches(Gallagher, 1975; Monks and Ferguson, 1983) have found the gifted to be emotionally stable, both as children and as adults.

Accordance to Greenlaw and McIntosh (1988), the idea that the gifted are emotionally unstable may stem from observations of the "psuedo-gifted" children of average intelligence whose parents have pushed them so that they are trying to achieve beyond their capability. In fact, the percentage of maladjusted gifted children is less than the percentage of maladjusted children in the total population. Adjustment problems among the gifted tend to result from adult misunderstanding, under achievement, unfulfilled social, personal and status drives,and poor self concept. According to Barbe and Renzulli (1975), in fact, the gifted are a group of individuals who are especially advantaged in confronting and mastering the challenges of life in every sphere. Perhaps their superior minds enable them to recognise and analyse their problems of adjustment and then find the best way of coping with them. In any case, the emotional profile of gifted children is stable, not neurotic. They possess many characteristics of the self-actualized person.

In fact, gifted children tend to be more cheerful and happy than the norm for their age-group. They also display a sense of humour that is both quick and sophisticated. The highly intelligent child's remarkable sense of humour is rarely used at the expense of someone else. Their sensitivity promotes hightened empathy for their fellows. Their sensitivity may be the governor behind the higher level of physical and emotional self control exhibited by the gifted. When compared to their age mates, the gifted are more likely to control aggression and are less likely to

display anger or tease others, especially those younger than themselves. It seems that the gifted engage in fewer anti social behaviour than the norm.

The behaviour of highly capable is usually more dependable, responsible and conscientious than that of average children. As a group, they are more trustworthy and more likely to resist the temptation to cheat than a group of non-gifted children.

The gifted have less need for approval from authority figures. They have a stronger sense of who they are and are more self-sufficient than the average. Autonomy and independence are nearly always attributed to the gifted. In parents' rating of children's independence, gifted scored higher than average children (Monks and Ferguson, 1983).

To be less conforming requires the superior ego strength possessed by the gifted. But the highly able child is determined and persistent, possessing strong will power. As a result, gifted students are often characterised as individualists.

#### SOCIABILITY CHARACTERISTICS

Picture a heterogeneous classroom and look around to find the gifted child. Is it the child who is obviously an isolate, almost totally ignored by others? Or is the child being teased and taunted by other children? Almost without exception, for the moderately gifted child (IQ 130-160), the answer to both the questions is no. On the whole gifted children tend to be very sociable. Researcher such as Silverstein, (1962), found that bright children are popular with all intellectual groups.

Coming to the question, who are the gifted children's friends - this depends on, among other things, the degree of a child's giftedness.

When gifted children are segregated, they tend to choose each other for friends, whether the segregation is complete or just for the part of the day. Otherwise, gifted students tend to prefer and choose playmates older than themselves, for obvious reasons. If a gifted child has an MA (Mental Age) of ten and CA (Chronological Age) of six, then playing with other six-year-olds may not be much fun. A younger gifted child may thus have a problem finding playmates, for example, most ten year olds are <sup>not</sup> going to want to play with a six year old of any MA.

Another problem for young gifted children is the way they want to play. The gifted often know more games of intellectual skill (eg. bridge, chess) for which they have trouble finding opponents, and may have less of an affinity for seemingly aimless sensori-motor games (Greenlaw and McIntosh, 1988).

The social status of the gifted does not seem to fluctuate, depending on certain age and environmental factors. Researchers such as Austin and Draper (1981), Gallagher, (1975) have reported that at the secondary level, the social status of gifted children seem to show a relative decrease. This comes at a time when the need for peer acceptance is <sup>at</sup> its peak, but peer-group conformity is sometimes a problem for the gifted youth.

Gifted children seem to develop early an understanding of the social setting in which they live and the way in which they fit in it. In other words, their social cognition is precocious. Gifted children seem able intuitively to recognise the dynamics of group behaviour, often quite early. They identify the social status of others and themselves better

than average students do. They are capable of great empathy and insight into a situation. Superior children, as a group, tend to develop and cultivate comparatively unselfish and social points of view, usually at an early age. Superior social cognition helps children cope with their differences, which are often the result of nonconformity(Baker, 1949).

#### MORAL AND ETHICAL CHARACTERISTICS

On the whole, gifted children tend to be advanced for their ages in ethical and moral sensitivity. In fact, a gifted child of nine may have the moral development of a fourteen year old (Santayana, 1947). More than average persons, they tend to be keenly aware of the sad state of the world and feel compelled to do something about it. They are also concerned with religion and issues of right and wrong, good and evil, justice and injustice much earlier than other youth.

Very bright young children may ask parents or teachers to answer questions that have been puzzling philosophers for thousands of years. When unable to get an acceptable answer, these gifted children may ponder over the issue and continue to seek an answer from various sources (books, religious figures, grand parents). Frequently the answers that these children eventually find are original and unconventional. They are however, the result of systematic logic that is reflective of high moral reasoning.

Sometimes it is asked, why are the gifted capable of precocious and sophisticated moral and ethical reasoning? Perhaps according to Sisk (1982, p.221), "intellectual functioning which allows them to have superior memories, capacities for learning, and powers of assimilation, .... also allows them a superior moral reasoning capability". However, high IQ

does not guarantee a high level of moral reasoning, but according to Greenlaw and McIntosh (1988) both developmentalists and social learning theorists agree that certain levels of intelligence are necessary for high moral reasoning.

Although the gifted are provided with both the seeds and the fertile ground for becoming the ethical leaders and problem solvers of the future, proper cultivation is necessary. Parents and teachers should strive to connect intellectual experiences with the consciences of gifted children.

#### FAMILY CHARACTERISTICS

Is there a particular family configuration, a particular ethnic group or socio-economic clan that predisposes a youngster to be gifted? The answer is No. So why talk about the family characteristics of a gifted person? According to Greenlaw and McIntosh (1988), many studies of gifted persons' backgrounds have been conducted. The studies have involved questionnaires, interviews, surveys, observations and evaluation of biographies. The research studies have produced so much information that it is possible to paint a picture of a 'typical' gifted child's family. However, more than any other generalisation concerning the gifted child, the family picture depicts only favourable conditions or tendencies. Absence of such conditions does not preclude the possibility of a gifted child and their presence does not guarantee a gifted child, nor should the composite be used in any way to identify gifted children.

It has been found out however, that families of above-average income often also have above-average education. Children in such families are

raised in an atmosphere that values education and encourages academic achievement. So a gifted child's interest in archaeology is more likely to be encouraged by educated parents than by parents with a grade school education.

With regards to the likelihood that a gifted child is the first born or only child, a few studies i.e Benbow and Stanley (1980); Cicirelli (1967) have refuted the idea that birth order makes a difference but many still support it. Example, Cox (1977)' Pulvino and Lupton(1978).

Thus, knowledge of the parent's occupation or the socio-economic condition of the home of the child is a very precarious index of the child's intelligence.

#### PHYSICAL CHARACTERISTICS

According to Greenlaw and McIntosh (1988) gifted children come in all sizes, shapes and colours. Though they tend to be superior than the average children in terms of physical development, according to Barbe (1955), the superiority is not so marked as their mental superiority.

#### 2:06 EDUCATIONAL PROGRAMMES-ENRICHMENT

According to the National Education Association (1961), the various techniques employed in providing programmes for gifted pupils are classified broadly into three types - Acceleration, Ability Grouping and Enrichment. A discussion of the research done in the field of enrichment is as follows:

As a result of concern for the emotional and social development of gifted children, in the late 1920's and early 1930's educators began to advocate enrichment without special grouping as the desirable modification of school experiences for the gifted child. The predominant feeling,

according to Passow(1953 p.3), "was that the healthiest school environment for the child would be created if he remained with his age peers, regardless of the disparity in the learning ability".

Enrichment in the regular programme continued throughout the 1930's and 1940's, but educators could not describe the programme adequately nor could they support their opinions with experimental evidence. Passow (1958) ascribes it to the difficulty in designing research in this area.

A follow up study of enrichment pupils who entered Junior High School, University City, Missouri, was made by Dunlop (1955). Age, previous school attendance, section assigned in Junior High School, and the number and kind of extra curricular activities chosen were substantially the same for both groups of children. The findings indicated that enrichment programme helped to motivate a substantially greater number of the most able pupils to make more effective use of their abilities.

In the 1960's a seminar for the able rural youth in Lewis County, New York invited twenty five juniors and seniors from six rural high schools. The children had a week for enrichment in literature, music, art and drama. Evaluation shows that seminar members seem to have grown in self-expression and in critical thinking (Goldberg, 1960).

A special programme for the talented youth was set up at the Iowa State Teachers College for eight weeks in the summer of 1960. The experimental group and the control group consisted of sixty students each. The over all results of evaluation indicated that the experimental group showed various degrees of superiority over the control group in scholastic achievement, in needs, and problems, and in social and emotional maturity, but there was no appreciable difference between the groups in interests (Hampton, 1960).

Some of the curriculum models which help provide a theoretical framework within which specific enrichment activities may be planned are:

- (1) The Enrichment Triad Model (Renzulli, 1977)
- (2) The Revolving Door Identification Model (Renzulli, Reis, and Smith, 1981).
- (3) Multiple Menu Model (Renzulli, 1988)
- (4) Pyramid Project (Cox, Daniel, and Boston, 1985)
- (5) Feldhusen's Three-Stage Enrichment Model (Feldhusen and Kolloff, 1978, 1981)
- (6) The Guilford/Meeker Structure of Intellect Model (Guilford, 1967, 1977, Meeker, 1969; Meeker and Meeker, 1986)
- (7) Treffinger's (1975) model for increasing self-directedness
- (8) The Autonomous Learner Model (Betts, 1985.)
- (9) The William's (1970) model for developing "thinking and feeling processes"
- (10) The Taylor (1978) Multiple-Talent Totem Pole Model
- (11) Bloom's Cognitive Taxonomy (Greenlaw and McIntosh, 1988)

Some of the models like Renzulli's Enrichment Triad Model, Bloom's Cognitive Taxomy and William's Teaching Strategies for Thinking and Feeling are being mentioned in Chapter V.

It can be concluded that many people who disapproved of ability grouping have seized upon enrichment as a worthy substitute. Enrichment programmes present a wide variety of creative activities for the gifted. The above studies show that participants in these programmes have made greater scholastic achievement and critical thinking gains than their controls.

## 2:07 GIFTEDNESS AND CREATIVITY

From the identified studies pertaining to Giftedness and Creativity, it can be noted that different creativity tests has been put into use for various purposes and in various studies. Some of the tests made use of are:

(i) Standardized Creativity Test, in Malayalam (patterned after Gilford's Test of Creative Thinking) which was made use by Babu (1977) to make a comparative study of the Personality factors of High-Intelligent - High Creative Thinkers and High - Intelligent -Low Creative Thinkers in Secondary Schools.

(ii) Torrance Test of Creative Thinking was used by Acharyulu (1978) and Gnanambal (1982). The former used the test to study the relationship among Creative Thinking, Intelligence and School Achievement, and the latter used it to identify Gifted Children.

(iii) Creativity Test designed by N.S.Chauhan and G.Tiwari was used by Bhadauria (1980) and Babu (1983) to make a comparative study of Creativity, Self Concept and meaning of Success among gifted and other science students and Creativity as related to Intelligence, Academic Achievement and Security -Insecurity respectively.

(iv) To study the needs in relation to Verbal Creativity, Budhari (1990) utilized Baquer Medhi's Test of Verbal Creative Thinking.

The findings are as follows:

(i) The relationship between Intelligence and Creativity was found out as low positive significant in all types of Creativity Scores.(Joshi,

1974)

(ii) The gifted students showed significantly greater creative potential than the non-gifted science students on verbal and literary problems and that over all creativity mean score of the gifted students was significantly higher than that of the non-gifted students(Bhadauria, 1980)

(iii) There was positive correlation between Intelligence and Creativity, according to Gnanambal(1982)

(iv) According to Basu(1983), the correlation and level of significance between Intelligence and Creativity were .90 and .01 respectively.

With regard to the gender factor, Acharyulu (1978) found out that there was no sex difference in Intelligence and Creativity, especially in figural creativity.

With reference to the relationship between Intelligence and Verbal Creative Thinking and Intelligence and Non-Verbal(figural) Creative Thinking, the average correlation, according to Acharyulu (1978), between Intelligence and Verbal TTCT(Torrance Test of Creative Thinking) was .21, it was not only significant but was also higher than that between Intelligence and figural TTCT (Torrance Test of Creative Thinking) which was .01.

#### 2:08 GIFTEDNESS AND ADJUSTMENT

Singh (1982) in his study on Adjustment of Mentally Gifted and Retarded Children found out that (i) There was a difference in general adjustment ability of Mentally Gifted, Average and Retarded Children, (ii) Different Adjustment situations had different effect on the three groups of students and their reaction were also different.

The above leads us <sup>to</sup> look into the adjustment pattern of gifted children.

In the study conducted by Pandit(1973) which deal with Adjustment Problems of Gifted Children, the following three conclusions were derived which was based on a Problem check list.

(i) From the differences in the Mean, the gifted group had comparatively less problems than the non-gifted. Thus, the adjustment of the gifted was superior to that of the non-gifted.

The above finding was also supported by Bhadauria (1980) Gnanambal (1982) and also by Agarwal and Gupta (1984). Bhadauria (1980) found out that gifted students scored significantly higher on Adjustive and Spontaneous Flexibility than the non-gifted students. Gnanambal (1982) emphasising on social qualities concluded that gifted students were found to be superior to the non-gifted students. Agarwal and Gupta (1984) in their study concluded that High-Intelligent adolescents were comparatively better adjusted than their low intelligent peers.

(ii) Among the group of gifted, gifted girls had comparatively less problems than gifted boys. The differences in their over all adjustment as well as area wise adjustment were statistically significant except in social adjustment. It was, therefore, concluded that girls were less problematic than boys.

With reference to the second finding of Pandit (1973), Singh (1983), using the Adjustment Inventory for School Students - developed by Sinha and Singh(1984), it was found that superior girls had superior adjustment in social and sexual attitude.

Both Pandit (1973) and Singh (1983) found out that girls were better adjusted than boys, but Walia (1973) found out that gifted males were better adjusted as compared to the gifted females. Further, according to Joshi (1974), giftedness was contributing to emotional maturity in

(iii) In the area wise analysis, it was found out that was one in which they had more problems. As such, their social adjustment was inferior. In family adjustment, however, they were on a par with the non-gifted, since the differences, were not statistically different.

Though in the above finding, Pandit (1973) found out that it was in the social adjustment that gifted children had more problems, yet Urmi (1984) found out that the gifted children were socially well adjusted and well balanced.

According to Agarwal and Gupta (1984), Intelligence contributed to the adjustment of an adolescent in health, society, school and emotional areas, but its contribution in the area of home was found to be insignificant.

#### 2:09 GIFTEDNESS AND ACHIEVEMENT

Very few studies have been identified relating to giftedness and achievement. The tool used in most of the studies was the total marks of the student's performance as obtained from school records. The findings are as follows:

(i) The achievement scores of the gifted students were significantly higher than that of the non-gifted students (Bhadauria, 1980).

(ii) There was a positive relationship between Intelligence and achievement for the superior group, according to Singh (1983).

(iii) In Urmi's (1984) study, gifted children were found to be high achievers at school examination. Further, they were profusely interested in reading on various subjects in both dimensions of width and depth.

(iv) According to Basu(1983), the correlation and level of significance between Intelligence and Achievement was .92 and .01 respectively.

(v) Acharjulu(1980) however, found that it was not only intelligence which was contributing to the achievement, but both intelligence and creativity contributed to the high achievement of gifted students.

### CONCLUSION

From the studies gathered, it has been apparent that not enough studies have so far been conducted on the gifted children in India. Because of this, and the emphasis being put on the necessity of identifying and developing talent among children, this study hopes to contribute to it. It is also hoped that it would arouse interest and motivate, that it may lead the numerous studies at micro and macro level that may follow, especially in the North-Eastern part of the country.

CHAPTER III  
METHOD OF STUDY

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METHOD OF STUDY

3:01 NATURE OF THE STUDY

The present study is intended to fulfill the following purposes:

(i) To point out the prevalence of gifted children in Shillong.

(ii) To provide an understanding about gifted children in terms of Creativity, Adjustment and Academic Achievement.

(iii) To guide the planning and formulation of an enrichment programme for such children.

Since data collection had to be done by administering testing tools to a large number of High School students in normal classroom situation, the approach adopted in the present research was normative study.

3:02 POPULATION

The population comprised of all children between the age group of 13 to 16 years studying mainly in Classes IX and X in the High Schools of Shillong.

The reason as to why the study was confined only to High School students within the age group of 13 to 16 years is mainly for the following reasons:

(i) At this stage, the intellectual development of children is more or less stabilised.

(ii) By now being in their adolescence stage and this also being a study on adjustment, it is a matter of interest to observe how they cope with adjustment with emphasis on the emotional, educational and social aspects.

### 3:03 SAMPLE

In this study, stratified Random Sampling method was used. The socio-economic status of respondents, management type of schools covered, medium of instruction followed in the schools, and the gender factor were taken into consideration.

The children studying in the High Schools of Shillong belong to all classes of the society, and inspite of the tribal domination, the educational system provides for the education of non-tribals in a significant way. Therefore, the schools taken for the study included a representative sample of children from all shades of caste and class groups.

In all 29 High Schools were selected for the study. These were made up of:

- 2 - Government Schools
- 3 - Grant-in-Aid or Adhoc Schools
- 16 - Schools under the Deficit system and
- 8 - Unaided schools.

In Shillong, the medium of instruction at the High School level is English. However, to give representation to the language background of the children, 21 schools in the sample were using English as the medium of instruction throughout the entire school stage, while children from 8 schools have had either Khasi, Hindi, Assamese or Bengali as the medium of instruction till Class VI.

In terms of gender factor, the researcher tried to take a representative sample of boy/girl respondents. The final sample had 711 girls and 689 boys.

The initial sample consisted of 1,400 students. From this sample, 390 children were identified as gifted on the basis of their performance in the Intelligence Test. The gifted sample <sup>had</sup> 209 boys and 181 girls.

### 3:04 TOOLS

The following tools were used in this study:

- (i) Culture Fair Intelligence Test Scale III - Cattell (1961).
- (ii) Socio-Economic Status Scale - Kuppuswamy (1981) adapted to the present condition.
- (iii) Non-Verbal Test of Creative Thinking - Baquer Medhi (1985) (Edition)
- (iv) Adjustment Inventory for School Students - Sinha and Singh (1984).
- (v) The total marks obtained in the annual examination prescribed by the Meghalaya Board of School Education and or the Indian Council of School Education.
- (vi) Interview Schedule prepared by the researcher.

### 3:04 (1) CULTURE FAIR INTELLIGENCE TEST-SCALE III

The Culture Fair Intelligence Test was chosen, since the group to which it was administered comprised of children belonging to different language and cultural background.

PURPOSE: The Culture Fair Intelligence Tests measure individual intelligence in a manner designed to reduce as much as possible the influence of verbal fluency, cultural climate and educational level. The test is non-verbal and requires the examinees to perceive relationships in shapes and figures.

FORMAT: Scale III consists of two forms A and B. The reason for existence is mainly one of administrative convenience. The two-form Test design permits some extra benefits, such as brief rest period between forms to reduce fatigue and test - taking morale. (A copy each of Forms A and B is given in Appendix A).

DESCRIPTION: The test consists of four sub-tests.

In the first sub-test the individual is presented with an incomplete, progressive series. The task is to select, from among the choices provided, the answer which best continues the series. In this sub-test there are 13 number of items, with an allotted time of 3 mins.

In the Classification sub-test, which is the second one, the individual must correctly identify two figures which are in some way different from three others. There are 14 number of items, with an allotted time of 4 mins.

In the Matrices sub-test, which consists of 13 items and with an allotted time of 3 mins, the task is to correctly complete the design or matrix presented at the left of each row.

In the final sub-test, Condition or Topology, the individual has to select, from the five choices provided, the one which duplicates the conditions given in the far left box. The number of items is 10 with a time limit of 2 1/2 mins.

Thus the total number of items in each form is 50, and the time allotted is 12 1/2 mins.

RELIABILITY AND VALIDITY OF THE TEST SCALE

The reliability and validity of the test scale are shown in the following tables as given in the test manual (1973, pp.10-11).

Table 3:01

Reliability of the Culture Fair Test, Scale 3

Method of Evaluation	Average Reliabilities Across Samples Full Test(A+B)	Description of Sample
Consistency over items	0.85	1477(males and females (High School and College Students)
Consistency over Parts	0.82	402 males and females (High School Students)
Consistency over Time	0.82	1323 males and females (High School and College Students)

Contd...

Table 3:02

Validities of the Culture Fair Test : Scale 3

Method of Evaluation	Average Validities Across samples Full Test (A+B)	Description of Sample
Concept Validity	.92	702 male and female students
Concrete Validity	.69	673 males and females (students and young adults)

ADMINISTRATION

The test was administered in accordance with the preliminary and verbatim instructions provided in the Test Manual (1973).

SCORING

A scoring key was used for scoring where the directions for using the key are given.

NORM TABLE:

In order to transform the raw scores into interpretable standard scores, norm tables are being provided in the test manual.

However, in this case, the norm table provided was not used as the IQ distribution thus obtained was showing a marked departure from normal curve. Hence, it was decided to prepare local norms, since the sample used

was large and representative of Secondary School population. This was done by generating a distribution of test scores obtained from samples drawn at random from the parent sample of 1,400 cases. A distribution of sample means was prepared and it approximated the normal curve. The Means and S.D. of this distribution were found to be 28.51 and 5.04 respectively. The raw score value corresponding to the Mean of the normalised distribution was assigned an IQ value of 100. Then the IQ values for other raw scores on either sides of Mean of the normalised distribution were given in terms of standard deviation value taken as 5 after ignoring the decimal value. Thus, the IQ corresponding to raw score 28.51 was taken as 100 and that of 33.51 was given as IQ of 105. The IQ values corresponding to the entire range of raw scores (3-63) obtained by the total sample of students were found and shown in the following norm table.

Table 3:03  
NORM TABLE

Raw	Score									
2.51	3.51	4.51	5.51	6.51	7.51	8.51	9.51	10.51	11.51	12.51
IQ										
74	75	76	77	78	79	80	81	82	83	84
Raw	Score									
13.51	14.51	15.51	16.51	17.51	18.51	19.51	20.51	21.51	22.51	23.51
IQ										
85	86	87	88	89	90	91	92	93	94	95
Raw	Score									
24.51	25.51	26.51	27.51	28.51	29.51	30.51	31.51	32.51	33.51	34.51
IQ										
96	97	98	99	100	101	102	103	104	105	106
Raw	Score									
35.51	36.51	37.51	38.51	39.51	40.51	41.51	42.51	43.51	44.51	45.51
IQ										
107	108	109	110	111	112	113	114	115	116	117
Raw	Score									
46.51	47.51	48.51	49.51	50.51	51.51	52.51	53.51	54.51	55.51	56.51
IQ										
118	119	120	121	122	123	124	125	126	127	128
Raw	Score									
57.51	58.51	59.51	60.51	61.51	62.51	63.51				
IQ										
129	130	131	132	133	134	135				

3:04 (ii) SOCIO-ECONOMIC STATUS SCALE

The Socio-Economic Status Scale developed by Kuppuswamy (1981) consists of three aspects - Education, Occupation and Income. Within each aspect there are seven items. The educational and occupational aspects used in the scale did not require any change, the Income aspect of the same, required continuous modification to take note of cost of living index which is reflected in changing patterns of salary structure of people working in state and other establishments. As such the Income limits indicated in the original scale have been modified taking into consideration the pay structure implemented in the state of Meghalaya following the recommendations of the Second Pay Commission which came into force on 1.1.1987 (Meghalaya Revision of Pay Rules, 1988). The modification is shown in the following Table.

Contd.....

Table 3:04

Table showing modification in Income limits of Kuppuswamy's Scale (1981)

Kuppuswamy's Income limits(1981 scale)	Corresponding values used in the present study.	Weightage
Above Rs.1,000/- p.m	Above Rs. 4,200/-	12
Between Rs.750-Rs.999/-	Between Rs.3,500 - Rs.4,199/-	10
Between Rs.500-Rs.749/-	Between Rs.2,800 - Rs.3,400/-	6
Between Rs.300-Rs.499/-	Between Rs.2,200 - Rs.2,799/-	4
Between Rs.101-Rs.299/-	Between Rs.1,600 - Rs.2,199/-	3
Between Rs.51-Rs.100/-	Between Rs. 1,000 - Rs.1,599/-	2
Below Rs.50/-	Below Rs. 1,000/-	1

The scale is very simple to use and the students have to put a tick mark against any of the seven items in each of the three aspects corresponding, to Education, Occupation and Income level of the parents. (The Scale is shown in Appendix-B).

Scoring was made according to the weightages that are given in the parantheses for all three aspects, including the changes made in the income ranges as mentioned earlier.

In Kuppuswamy's scale (1981) respondents can be grouped into 5 socio-economic status classes - I,II,III,IV,V, according to the total score obtained by the respondents on the basis of Educational, Occupational and Income status of the parents. In the present study, the respondents have been grouped into 3 Socio-Economic Classes - High, Middle and Low. This was done by retaining the range of total score 26-29 for High S.E.S. class, combining the range of scores from 11-25 for Middle S.E.S. class and combining the lowest two categories with range of scores from Below 5 <sup>to</sup> 10 for Low S.E.S. class. This is shown in Table 3:05.

Table 3:05

Modified S.E.S. Table

Total Score	S.E.S. Class
26 - 29	I High S.E.S. Class
16 - 25 11 - 15	II Middle S.E.S. Class
5 - 10 Below 5	III Low S.E.S. Class

### 3:04 (iii) NON-VERBAL TEST OF CREATIVE THINKING

Since Non-Verbal test of Intelligence was used, a Non-Verbal Test of Creative Thinking was chosen for the study.

In the Non-Verbal Test of Creative Thinking, the primary traits of Originality and Elaboration of divergent thinking are emphasised. It is intended to measure the individual's ability to deal with figural content in a creative manner. Three types of activity are used for this purpose - Picture construction, Picture completion and Triangles and Ellipses.

#### Picture Construction Activity:

This activity presents the subject with two simple geometrical figures, a semi-circle and a rhomb. The subject is required to construct an elaborate picture using each figure as an integral part. The subject is allowed to turn the page to use the figure in any way he likes for making the picture. Originality is emphasised by the instruction that the subject should try to make as novel a picture as possible, such that no one else will be able to produce. Elaboration is emphasised by the instruction that the subject may add as many details as he thinks necessary in order to make the picture tell as complete and as interesting a story as possible. Ten minutes are allowed for the two tasks.

#### Incomplete Figures Activity:

This activity consists of 10 line drawings which could be made into meaningful pictures of different objects. The subject is asked to make a picture which no one else in the group will be able to think of. Each item

is scored for elaboration and originality. The subject is given 15 mins. for the ten items.

Triangles and Ellipses Activity:

In this activity the subject is provided with 7 triangles and 7 ellipses. He is required to construct different meaningful pictures based on the two given stimuli, and to make multiple associations to single stimuli. The time allotted for this activity is 10 mins. (A copy of the test is shown in Appendix\_C ).

Reliability and Validity:

The reliabilities and validities of the test as given in the test manual (1985, pp.11,12) are as follows:

Table 3:06

Table Showing Test-Retest Reliabilities of Factor Scores and the total creativity score (N=50)

Elaboration	Originality	Total Creativity Score
.932	.947	.946

As will be seen, the reliabilities of factor scores and also the total creativity score are considerably high, ranging from .932 to .947. The inter-score reliabilities using 34 test scripts were found to be .981, .980 and .917 for elaboration, originality and total creativity scores respectively.

Table 3:07

Table showing Validity coefficients for Factor Scores and the Total Creativity Score against Teacher Ratings (No.50)

Elaboration	Originality	Total Creativity Score
.346	.329	.385

Significant beyond .01 level

Administration: The test was administered as per instruction given in the test manual (1985).

Scoring: Scoring was carried out by following the instructions provided in the test manual (1985).

Interpretation of Scores:After converting the raw scores into 'T' Scores, interpretation was based by following the instruction given in the test manual (1985).

### 3:04(iv) ADJUSTMENT INVENTORY FOR SCHOOL STUDENTS

The Adjustment Inventory for School Students developed by Sinha and Singh (1984) seeks to segregate well adjusted Secondary School Students from poorly adjusted students in three areas of adjustment, Emotional, Social and Educational. The items under the emotional aspect stress mainly on fear, anger, anxiety and jealousy. The Social aspect relates mainly with relationships in the school - with peers, other students and teachers. The educational aspect relates mainly with learning that takes place in the classroom - method of teaching, teacher's attitudes and examinations. Altogether there

are 60 items - 20 items in each area. The answers are to be given in 'Yes' or 'No' format. (A copy of the test is shown in Appendix D). The inventory is designed to be as aid for school students of age group 14-18 years whose problems pertain to any of the three areas included in the tool.

Reliability and Validity:

The reliability and validity of the tool as given in the test manual (1984) are shown in the following tables.

Table 3:08

Table showing Reliability coefficients of the Inventory:

Method Used	Emotional	Social	Educational	Total
1. Split - Half	0.94	0.93	0.96	0.95
2. Test - Retest	0.96	0.90	0.93	0.93
3. K.R.Formula-20	0.92	0.92	0.96	0.94

Validity: Item analysis validity coefficients were determined for each item by biserial correlation. The correlation matrix is presented in Table 3:09.

Table showing Correlation Matrix of the three areas:

Areas	I	II	III
I. Emotional	-	.20	.19
II. Social	.20	-	.24
III. Educational	.19	.24	-

Administration: The test was administered as per instructions given in the test manual (1984).

Scoring: The inventory can be scored by hand only. According to the Test Manual (1984) for any answer indicative of Adjustment, zero is given, otherwise a score of one is awarded. Table 8 of the Test Manual (1984) (page 8) shows the key response indicative of lack of adjustment. Scoring was therefore, done accordingly.

Interpretation: Interpretation of the test was done in accordance with the test manual (1984) which is as follows:

Emotional Adjustment: High Scores indicate unstable emotion. Students with low scores tend to be emotionally stable.

Social Adjustment: Individuals scoring high are submissive and retiring. Low scores indicate aggressive behaviour.

Educational Adjustment: Individuals scoring high are poorly adjusted with their curricular and co-curricular programmes. Persons with low scores are interested in school programme.

### **3:04 (v) ACADEMIC ACHIEVEMENT**

For finding out the Academic Achievement of the students, the measure used was the performance of the students in the form of aggregate percentage of marks obtained in the various subjects in final school examination,

procured from the school office of the respective schools.

### 3:04 (vi) INTERVIEW SCHEDULE

When it was found out by the Adjustment Inventory Test that the Very Superior and Superior groups were poorly adjusted with the programmes offered in the school, a need arose to know about their perceptions, feelings and attitudes of the existing school programme. Thus, an interview schedule was developed by the researcher for the purpose. The interview schedule was planned in order to be able to elicit their responses with regard to the existing school curriculum mainly on subjects and activities offered in the school, areas of interests, kinds of activities which they would prefer to get involved with, methods of teaching and facilities available in school. (The Interview Schedule is given in Appendix E).

The interview schedule was conducted on all Very Superior children, since the number of such children was small but in case of the Superior group, it was confined only to a random sample of 75 p.c of the group, since the number involved was large.

The responses obtained were then analysed. On the basis of the responses, an enrichment programme catering to the needs of the gifted was developed. The content of the programme was formulated with the help of a well versed science teacher. It was then given for approval to experts in the scientific field. However, it was not tried out in practice on the gifted children. The enrichment programme is based on the needs, desires and aspirations of the gifted children, and while planning for it, the three essential components of an enrichment programme which emphasise on higher level thinking, teaching strategies and products (outcome) are being incorporated in it. (Greenlaw and Mc Intosh, 1988).

### 3:05 PROCEDURE OF DATA COLLECTION

The first step involved in data collection was in contacting the various schools. With due permission granted from the Heads of the different schools, the tests were administered to the students. Though the teachers of the school rendered their help, yet all tests used for the study were administered by the researcher herself.

The Culture Fair Intelligence Test was administered to 1,400 students. As mentioned in Section 3:04 (i) since the test comprises of two sub scales, a uniform gap of one day was given between the scales. The Socio-Economic Status Test immediately proceeded either after Form A or Form B of the Culture Fair Intelligence Test was given. The tests were scored and interpreted as mentioned in the above sections respectively.

The Culture Fair Intelligence Test was administered in order to be able to identify gifted children. As mentioned in the previous chapter, the cut off point has been taken as 110. Gifted children were further sub-divided into three groups - Very Superior with 9 children, Superior with 84 children and Above Average children with 297 children. (This is dealt more elaborately in Chapter IV which relates with the analysis of data).

After a period of two months the Non-Verbal Test of Creativity and the Adjustment Inventory Test were administered to all children where the gifted children had been identified. These tests were also scored in accordance with the provision in the test manuals respectively.

The Academic Achievement of the 390 students was based on final examination marks procured from the respective school offices.

The interview schedule which relates with the development of an Enrichment Programme was then conducted only on Very Superior and Superior Children.

### 3:06 ANALYSIS OF DATA

Descriptive statistics like Mean, Standard Deviation and Percentages were used in order to know the pattern of distribution of scores on the variables like Intelligence, Creativity, Adjustment and Academic Achievement of the respondents considered as a whole and group-wise. Wherever, group differences had to be found in respect of the different variables, the t-test was used and the Mean differences tested for significance.

CHAPTER IV  
ANALYSIS OF DATA

CHAPTER IV

ANALYSIS OF DATA

This chapter deals with analysis of data pertaining to the identification of gifted children. The analysis first shows the level of Intelligence of Secondary School students in Shillong, with the distribution of gifted children shown according to gender and SES status of the children. It also covers analysis of levels of Creativity, Adjustment, and Academic Achievement of children with different levels of giftedness.

4:01 THE LEVEL OF INTELLIGENCE OF SECONDARY SCHOOL STUDENTS

As mentioned in Chapter III, a Culture Fair Intelligence Test, Scale III (1961) was administered to a group of 1400 students - 711 girls and 689 boys studying in the Secondary Schools of Shillong. The IQ level of the students is shown in Table 4:01 using the classification given by Terman and Merrill (1937). The table illustrates the range of IQ scores corresponding to different levels of brightness.

Table 4:01

TABLE SHOWING THE LEVEL OF IQ OF SECONDARY SCHOOL STUDENTS

TYPES	IQ	NUMBER OF STUDENTS	PERCENTAGE
Very Superior	130-139	9	.64
Superior	120-129	84	6
Above Average	110-119	297	21.22
Average	90-109	840	60
Below Average	80-89	161	11.5
Dull or Borderline	70-79	9	.64

The distribution shows that 60 p.c of the students have Average Intelligence corresponding to IQ 90-109. This is followed by over 21 p.c in the Above Average category. Children with Superior Intelligence constitute 6 p.c., and in the Very Superior group only .64 p.c cases could be found. Further, children with Below Average Intelligence form 11.5 p.c and only .64 p.c of the children show Borderline Intelligence. This distribution is somewhat similar to the distribution given by Terman and Merrill, with the exception that there are more students in Above Average category. This may be due to the fact that the Intelligence Test was administered on High School students who form a somewhat selected group within the child population of that age group.

#### 4:02 DISTRIBUTION OF LEVEL OF IQ ON THE BASIS OF GENDER

The distribution of level of IQ on the basis of gender is shown in the following table.

Contd...

TABLE 4:02

TABLE SHOWING DISTRIBUTION OF IQ ON THE BASIS OF GENDER

TYPES	IQ	STUDENTS		TOTAL
		BOYS	GIRLS	
Very Superior	130-139	6	3	9
Superior	120-129	46	38	84
Above Average	110-119	157	140	297
Average	90-109	387	453	840
Below Average	80-89	91	70	161
Dull/Borderline	70-79	2	7	9
TOTAL		689	711	1,400

The table shows that proportionately more boys seem to have a slightly higher level of IQ when compared with the girls.

4:03 IDENTIFICATION OF GIFTED CHILDREN

Coming to the identification of gifted children, the cut off point in the IQ distribution chosen in the present study is 110.(As mentioned in Chapter II). On this basis the different groups of gifted children fall as shown in the distribution shown in Table 4:03.

TABLE 4:03

TABLE SHOWING THE DIFFERENT GROUPS OF GIFTED CHILDREN

TYPES	IQ	NUMBER OF STUDENTS
Very Superior	130-139	9
Superior	120-129	84
Above Average	110-119	297
TOTAL		390

Thus, in this study all children with Above Average Intelligence were taken to form the group of gifted children.

4:04 DISTRIBUTION OF GIFTED CHILDREN ON THE BASIS OF GENDER

The break up of the group of gifted children on the basis of gender is shown in Table 4:04.

TABLE 4:04

TABLE SHOWING BREAK UP ON THE BASIS OF GENDER

	VERY SUPERIOR	SUPERIOR	ABOVE AVERAGE	TOTAL
BOYS	6	46	157	209
GIRLS	3	38	140	181
TOTAL	9	84	297	390

The above table shows that in the group of gifted children, proportionately more boys were found as compared to girls at all three levels of giftedness.

4:05 DISTRIBUTION OF GIFTED CHILDREN ON THE BASIS OF SOCIO-ECONOMIC STATUS

The socio-economic status of the group of gifted children is shown in the following Table.

TABLE 4:05

TABLE SHOWING SOCIO-ECONOMIC STATUS OF GIFTED CHILDREN

LEVELS OF GIFTEDNESS	SOCIO-ECONOMIC STATUS			TOTAL
	HIGH SES GROUP	MIDDLE SES GROUP	LOW SES GROUP	
Very Superior	6	3	-	9
Superior	3	65	16	84
Above Average	-	220	77	297
TOTAL	9	288	93	390

The table shows that the Very Superior Group of Children are confined to High and Middle SES groups. In the Superior Group, the children fall into all three SES groups and all the Above Average children had either Middle and Low Socio-Economic Status.

#### 4.06 GIFTEDNESS AND CREATIVITY

The following analysis shows the Creativity of gifted children on the basis of their performance in the Non-Verbal Test of Creative Thinking. As mentioned in Chapter III, the Non-Verbal Test of Creative Thinking emphasises on two dimensions of Creativity-Originality and Elaboration.

#### 4:06 (i) A-CREATIVITY IN GIFTED CHILDREN

Section 4:06 (i) A shows the Mean scores of Creativity of the entire group of gifted children and the performances on the basis of gender. This is shown in the following table.

Table 4:06 (i) A

Table showing Mean scores of Creativity among gifted children as a whole and on the basis of gender.

	Mean	SD	N	Mean Difference between	t	P
Gifted Group	98.905	15.493	390			
Boys	103.311	15.262	209	Boys and Girls	6.343	.01
Girls	93.790	14.391	181			

The table shows that there are significant differences in the performance between boys and girls at .01 level. Boys show higher creativity scores than that of girls.

4:06(i) B. CREATIVITY AT DIFFERENT LEVELS OF GIFTEDNESS

Section 4:06(i) B of the analysis shows the Mean scores on creativity among the different levels of giftedness with the scores of Originality and Elaboration combined. This is shown in Table 4:06(i)B

Table 4:06(i)B

Table showing Mean Differences of Creativity at different levels of giftedness.

	Levels of Giftedness	N	Mean	SD	Mean Differences between	t	P
1.	V.Superior	9	130	12.609	1 and 2	6.179	.01
2.	Superior	84	103	10.937	2 and 3	4.703	.01
3.	Above Average	297	96	15.329	1 and 3	7.914	.01

With reference to the above Table it is found that the Mean differences among all levels of giftedness are significant at .01 level. It is, therefore, concluded that IQ and Creativity are closely related to one another.

4:06(ii) CREATIVITY AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF  
GENDER

In section 4:06(ii) the analysis deals with Creativity at different levels of giftedness on the basis of gender. This is shown in the following table.

Contd...

Table 4:06(ii)

Table showing Creativity at different levels of giftedness on the basis of gender

Levels of giftedness	Boys			Girls			Mean Difference between	t	P
	Mean	SD	N	Mean	SD	N			
1. V.Superior	135.835	8.495	6	113.667	8.5	3	Boys and Girls	3.689	.01
2. Superior	105.543	11.522	46	101.527	9.895	38	Boys and Girls	1.718	N.S
3. Above average	101.606	13.948	157	91.358	14.377	140	Boys and Girls	6.219	.01
							Boys 1 and 2	7.844	.01
							Boys 2 and 3	1.938	N.S
							Boys 1 and 3	9.398	.01
							Girls 1 and 2	2.351	.05
							Girls 2 and 3	5.051	.01
							Girls 1 and 3	4.413	.01

The above table shows that there are marked differences in performances between boys and girls at the Very Superior and Above Average levels, hence the mean differences are found to be significant at .01 level. However, at the Superior level of giftedness there are no marked differences in the performances between boys and girls since the mean differences are not found to be significant. Boys however, show higher creativity scores than that of girls.

Coming to the performances of boys between Very Superior and Superior group, there is a marked difference which is significant at .01 level. Between Superior and Above Average, there is no significant difference between Very Superior and Above Average the difference in performance is significant at .01 level.

With regard to the performances of the girls the differences in performance between Very Superior and Superior is significant at .05 level, and between Superior and Above Average and between <sup>Very</sup> Superior and Above Average is significant at .01 level.

4:06(iii) CREATIVITY AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF S.E.S

Section 4:06(iii) deals with the performances on the basis of Socio-Economic Status with the scores of Originality and Elaboration combined. This is shown in the following table.

Table 4: Ub(111)

Table showing Creativity at different levels on the basis of socio-economic status

Levels of giftedness	SOCIO-ECONOMIC STATUS									Mean Difference between	t	P
	High-I Mean	SD	N	Middle-II Mean	SD	N	low -III Mean	SD	N			
1. V. Superior	136.5	9.689	6	115	2.449	3				I & III	5.142	.01
2. Superior	109	4.898	3	103.8	11.294	65	100.75	9.763	220	I & II	1.648	N.S
										II & III	1.971	.05
										I & III	2.841	.01
3. Above Average				100.695	14.837	16	85.441	9.797	77	II & III	4.063	.01
										High SES	5.656	.01
										1 & 2		
										Middle SES		
										1 & 2	5.627	.01
										2 & 3	.807	N.S
										1 & 3	3.713	.01
										Low SES		
										2 & 3	11.872	.01

The table shows the following on the basis of Socio-Economic Status.

(i) The Very Superior group-differences in performance between High and Middle groups are significant at .01 level.

(ii) At the Superior Group the differences in performance between High and Middle group is not significant, between Middle and Low Group it is significant at .05 level and between High and Low groups, it is significant at .01 level.

(iii) In the Above Average group, the differences in performance are significant at .01 level between the Middle and Low groups.

(iv) Within the High S.E.S group, the differences in performance are significant at .01 level.

(v) With regards to the Middle S.E.S group, the differences between Very Superior and Superior and between Very Superior and Above Average is significant at .01 level, whereas between Superior and Above Average, it is not significant.

(vi) In the Low SES group, the difference between superior and Above Average is significant at .01 level.

#### 4:06(iv) ORIGINALITY AND ELABORATION AT DIFFERENT LEVELS OF GIFTEDNESS

In this section, the performances of children at different levels of giftedness on originality and elaboration are being dealt with. This is shown in the following table.

Table 4:06(iv)

Table showing performances in Originality and Elaboration at different levels of giftedness

Creativity Dimensions	LEVELS OF GIFTEDNESS						Mean Differences between	t	P
	Very Superior(9) Mean	SD	Superior(84) Mean	SD	Above Average(297) Mean	SD			
Originality	66.56	7	58.476	10.889	46.370	8.125	1 and 2	3.087	.01
							2 and 3	9.471	.01
							1 and 3	8.481	.01
Elaboration	61.112	4.844	45.166	7.355	50.414	8.879	1 and 2	8.844	.01
							2 and 3	5.217	.01
							1 and 3	6.312	.01

The above table shows that with regard to Originality, there are marked differences in the performance among the different groups each of which is significant at .01 level. There seems to be a close relationship between IQ and originality, the higher the IQ, the higher the Originality and vice versa.

Coming to Elaboration, the Very Superior Group shows outstanding performance as compared with the other levels of giftedness. However, the above Average Group shows higher performance than the Superior Group. The differences in the performance among the various groups is significant at .01 level.

#### 4:06(v) ORIGINALITY AND GIFTEDNESS

Section 4:06(v) deals with Originality. Here the performances at the various levels of giftedness is shown on the basis of gender and on the basis of socio-economic status.

#### 4:06(v) A. ORIGINALITY ON THE BASIS OF GENDER

This section deals with the performances on the basis of gender. This is shown in the following table.

Contd...

Table 4:06(v) A

Table showing the Mean scores on originality at various levels of giftedness on the basis of gender

Levels of giftedness	Mean	SD	Boys N	Mean	SD	Girls N	Mean Difference between	t	P
1. V.Superior	71.333	6.236	6	59	8.164	3	Boys and Girls	2.302	N.S
2. Superior	60.913	7.441	46	54.868	7.131	38	Boys and Girls	3.791	.01
3. Above Average	48.216	6.797	157	44.45	8.618	140	Boys and Girls	4.146	.01
							Boys & Boys 1 & 2	3.759	.01
							Boys & Boys 2 & 3	10.381	.01
							Boys & Boys 1 & 3	8.884	.01
							Girls & Girls 1 & 2	.851	N.S
							Girls & Girls 2 & 3	7.632	.01
							Girls & Girls 1 & 3	3.051	.01

The table shows that there is no significant differences in the performance between boys and girls within the Very Superior Group. However, with regard to the Superior and Above Average Groups, the differences in both groups is significant at .01 level with boys scoring higher originality scores in each case.

Coming to the performances between boys and boys at different levels of giftedness, the differences in performance is significant at .01 level in each case. In the case of girls however, the differences in performances between Very Superior and Superior Group is not significant, but in the other levels of giftedness, the differences is significant at .01 level.

#### 4:06(v) B. ORIGINALITY ON THE BASIS OF SES

In this section, the performances at various levels of giftedness on the basis of Socio-Economic Status is being dealt with, as shown in the following table.

Contd...

Table 4:06(v) B

Table showing performance on Originality at different levels on the basis of socio-economic status:

Levels of giftedness	SOCIO-ECONOMIC STATUS									Mean Difference between	t	P
	High I Mean	SD	N	Middle II Mean	SD	N	Low III Mean	SD	N			
. V.Superior	71.333	6.236	6	59	8.164	3				I & II	2.302	N.S
. Superior	67	2.830	3	59.415	7.328	65	53.937	7.120	16	I & II	4.057	.01
										II & III	2.741	.01
										I & III	5.406	.01
. Above Average				48.187	.523	220	41.909	6.815	77	II & III	6.761	.01
										High SES 1 and 2	1.432	N.S
										Middle SES		
										1 and 2	.086	N.S
										2 and 3	10.793	.01
										1 and 3	2.282	.05
										Low SES		
										2 and 3	9.283	.01

The table shows that within the Very Superior Group of children, there is no significant differences between the High and Middle Socio-economic status groups on Originality. There is, however, significant differences at .01 level in the Superior and Above Average Groups on the basis of socio-economic status.

Within the High S.E.S. group, there is no significant differences in performance between Very Superior and Superior children. In the Middle S.E.S. group we find that, there is no significant differences in performances between the Very Superior and Superior group, there is marked differences which is at .01 level between the Superior and Above Average group, and between the Very Superior and Above Average group, the differences in performance is significant at .05 level. In the Low S.E.S group, there is significant differences at .01 level between Superior and Above Average groups.

#### 4:06(vi) ELABORATION AND GIFTEDNESS

This section deals with Elaboration. The performances at different levels of giftedness on the basis of gender and Socio-Economic Status is shown.

#### 4:06(vi) A-ELABORATION ON THE BASIS OF GENDER

The performances on the basis of gender is shown in the following table.

Table 4:06(vi) A

Table showing performance on Elaboration on the basis of gender

Levels of giftedness	Mean	Boys SD	N	Mean	Girls SD	N	Mean Difference between	t	P
1. V.Superior	65	3.317	6	55.33	4.716	3	Boys and Girls	3.188	.05
2. Superior	44.630	7.674	46	46.210	5.909	38	Boys and Girls	1.065	N.S
3. Above Average	54.089	10.174	157	46.878	8.845	140	Boys and Girls	6.533	.01
							Boys & Boys 1 & 2	11.543	.01
							Boys & Boys 2 & 3	6.792	.01
							Boys & Boys 1 & 3	6.910	.01
							Girls & Girls 1 & 2	2.993	.01
							Girls & Girls 2 & 3	2.928	.01
							Girls & Girls 1 & 3	.549	N.S

The table shows that within the Very Superior Group, the differences in the performance between boys and girls is significant at .05 level, in the Superior group, there is no significant difference and in the Above Average Group, the differences in the performance is significant at .01 level, with boys showing higher elaboration scores at the Very Superior and Above Average level. Coming to the performances between boys and boys at different levels of giftedness, the differences in performance is significant in all cases at .01 level. In the case of girls, between the Very Superior and Superior group, the difference is significant at .01 level. However, in the Above Average group the difference in performance is not at all significant.

4:06(vi)B- ELABORATION ON THE BASIS OF SES

The performances at various levels of giftedness on the basis of Socio-Economic Status is shown in the following table.

Contd...

Table 4:06(vi) B

Table showing performances in Elaboration. on the basis of socio-economic status:

Levels of giftedness	SOCIO-ECONOMIC STATUS									Mean Difference between	t	P
	High I Mean	SD	N	Middle II Mean	SD	N	Low III Mean	SD	N			
1. V.Superior	65	3.317	6	55.33	4.716	3				I & II	3.179	.05
2. Superior	42	6.480	3	45.246	7.281	65	46.375	6.175	16	I & II	.843	N.S
										II & III	.631	N.S
										I & III	1.081	N.S
3. Above Average				52.622	8.119	220	44.363	7.401	77	II & III	8.214	.01
										High SES		
										1 and 2	5.781	.01
										Middle SES		
										1 and 2	3.515	.01
										2 and 3	3.320	.01
										1 and 3	.797	N.S
										Low SES		
										2 and 3	2.139	.05

The following can be concluded from the above table. On the basis of Socio-Economic status, the differences in performance between the High and Middle Socio-Economic status is significant at .05 level in the Very Superior group. There is no significant differences among the three Socio-Economic classes at the Superior Group and in the Above Average group, the differences in performance between Middle and Low socio-economic class is at .01 level.

Within the High Socio-Economic class, the differences in performances between Very Superior and Superior is significant at .01 level. In the Middle Socio-Economic class, the differences in performance between Very Superior and Superior, and Superior and Above Average is significant at .01 level and between Very Superior and Above Average however, it is not significant. In the Low Socio-Economic group, the differences in performance between Superior and Above Average is significant at .05 level.

4:07 GIFTEDNESS AND ADJUSTMENT

As mentioned in Chapter III, the Adjustment Inventory used to study gifted children emphasises on three aspects of Adjustment- Emotional, Social and Educational.

4:07(i) ADJUSTMENT IN GIFTED CHILDREN

The analysis in Section 4:07(i) shows the Adjustment scores of the gifted group and the performances on the basis of gender in three aspects - Emotional, Social and Educational. This is shown in the following table.

contd...

TABLE 4:07(i)  
TABLE SHOWING ADJUSTMENT SCORES IN EMOTIONAL, SOCIAL AND EDUCATIONAL  
ASPECTS OF GIFTED CHILDREN ON THE BASIS OF GENDER

	Gifted Group(390)		Boys (209)		Girls (181)		Mean Difference	t	P
	Mean	SD	Means	SD	Means	SD	between		
Emotional	5.963	2.950	5.942	2.828	5.596	2.859	Boys and Girls	1.209	N.S
Social	6.108	2.654	6.015	2.810	5.911	2.696	Boys and Girls	.371	N.S
Educational	6.247	2.571	6.495	2.678	6.093	2.502	Boys and Girls	1.546	N.S

The above table shows that with regard to Emotional Adjustment, boys are unstable in their emotions, whereas girls are somewhat emotionally stable. Though there is difference in their emotional adjustment yet it is not found to be significant.

In Social Adjustment, boys are found to be submissive and retiring, whereas girls on the other hand are aggressive in their social behaviour. The difference is however, not found to be significant.

With regard to emotional adjustment, boys are found to be poorly adjusted with their curriculum and co-curricular programmes provided in the school. The girls on the other hand are interested in the school programmes. Though there is a difference, yet it is not found to be significant.

#### 4:07(ii) ADJUSTMENT PATTERN OF CHILDREN WITH DIFFERENT LEVELS OF GIFTEDNESS

Section 4:07(ii) deals with the different levels of giftedness and the levels of Emotional, Social and Educational aspects of Adjustment. The three aspects are dealt separately as follows - 4:07(ii)A, 4:07(ii)B, 4:07(ii) C which deal with Emotional, Social and Educational aspects respectively.

#### 4:07(ii) A-LEVELS OF GIFTEDNESS WITH EMOTIONAL ADJUSTMENT

This section deals with the Emotional aspect of adjustment at the different levels of giftedness. This is shown in the following table.

contd...

TABLE 4:07(ii)A

TABLE SHOWING EMOTIONAL ASPECT OF ADJUSTMENT AT THE THREE LEVELS OF GIFTEDNESS.

Levels of Giftedness	N	Mean	SD	Mean Differences between	t	P
1. V.Superior	9	4.055	2.072	1 and 2	2.225	.05
2. Superior	84	5.738	2.828	2 and 3	.353	N.S
3. Above Average	297	5.862	2.885	1 and 3	2.543	.05

The above table shows that the difference in emotional adjustment between the Very Superior and Superior group is significant at .05 level. The difference between Superior and Above Average is not significant and the difference between Very Superior and Above Average is significant at .05 level. From the three groups, the Very Superior group is the most emotionally stable group and the Above Average group is the one which shows unstable emotion.

4:07(ii) B-SOCIAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS

In this section the Social aspect of adjustment at the three levels of giftedness is being dealt with. This is shown in Table 4:07(ii)B.

TABLE 4:07(ii)B

TABLE SHOWING SOCIAL ASPECT OF ADJUSTMENT AT THE THREE LEVELS OF GIFTEDNESS

Levels of Giftedness	N	Mean	SD	Mean Differences between	t	P
1.V.Superior	9	6.333	2.054	1 and 2	.303	N.S
2. Superior	84	6.108	2.611	2 and 3	.039	N.S
3. Above Average	297	6.121	2.716	1 and 3	.302	N.S

From the above table, we see that there is no significant differences with regard to social adjustment among the three levels of giftedness. The Very Superior group is however, found to be submissive when compared with the other two groups and the Superior group is the one with more aggressive behaviour than the other two groups.

4:07(ii) C-EDUCATIONAL ADJUSTMENT WITH DIFFERENT LEVELS OF GIFTEDNESS

Section 4:07(ii)C relates with the Educational adjustment at the three levels of giftedness. This is shown in the following table.

contd....

TABLE 4:07(ii)C  
TABLE SHOWING THE EDUCATIONAL ADJUSTMENT AT THE THREE LEVELS OF GIFTEDNESS

Levels of Giftedness	N	Mean	SD	Mean Differences between	t	P
1. V.Superior	9	7.668	3	1 and 2	1.241	N.S
2. Superior	84	6.393	2.144	2 and 3	.577	N.S
3. Above Average	297	6.232	2.617	1 and 3	1.419	N.S

The above table shows that though there are differences in educational adjustment in all the three levels, yet the differences are not significant. The Very Superior group is the one which is most poorly adjusted with the programmes at present offered in the school.

4:07(iii) ADJUSTMENT PATTERN OF CHILDREN WITH DIFFERENT LEVELS OF GIFTEDNESS  
ON THE BASIS OF GENDER

In this section, the Emotional, Social and Educational aspects of Adjustment among the three levels of giftedness is being analysed on the basis of gender. In this section also, the three aspects of adjustment are being dealt separately - 4:07(III)A with Emotional Adjustment, 4:07(iii)B with Social Adjustment and 4:07(iii)C with Educational Adjustment.

4:07(iii) A-EMOTIONAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON  
THE BASIS OF GENDER

This section tries to find out whether there are any differences in Emotional Adjustment among boys and girls at different levels of giftedness. This is shown in the following table.

contd...

Table 4:07(iii)A

Table showing emotional adjustment between boys and girls at different levels of giftedness

Levels of giftedness	Mean	Boys SD	N	Mean	Girls SD	N	Mean Difference between	t	P
1. V.Superior	5	2.449	6	2.834	.944	3	Boys and Girls	1.902	N.S
2. Superior	5.282	2.706	46	6.026	2.701	38	Boys and Girls	1.256	N.S
3. Above Average	6.249	2.872	157	5.578	2.844	140	Boys and Girls	2.020	.05
							Boys 1 and 2	0.262	N.S
							Boys 2 and 3	2.102	.05
							Boys 1 and 3	1.218	N.S
							Girls 1 and 2	4.565	.01
							Girls 2 and 3	.896	N.S
							Girls 1 and 3	4.607	.01

The table shows that boys belonging to the Very Superior and Above Average groups are found to indicate unstable emotion, as compared with the girls. In the Superior group however, girls indicate unstable emotion than the boys. Though the differences are there between boys and girls, yet it is found to be significant only with the Above Average group at .05 level.

With regard to the adjustment of boys between the Very Superior and Superior group, the difference is not found to be significant, between Superior and Above Average groups, the difference is significant at .05 level and between the Very Superior and Above Average groups, the difference is not found to be significant.

In relation to the adjustment of girls, the differences in performance between the Very Superior and Superior and Very Superior and Above Average is found to be significant at .01 level. However, between the Superior and Above Average, the differences are not found to be significant.

#### 4:07(iii)B-SOCIAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF GENDER

In this section the differences in Social Adjustment between boys and girls at different levels of giftedness is being dealt with and is shown in the following table.

Table 4:07(iii)B

Table showing social adjustment between boys and girls at different levels of giftedness

Levels of giftedness	Mean	Boys SD	N	Mean	Girls SD	N	Mean Difference between	t	P
1. V.Superior	6.5	2.290	6	5.833	1.886	3	Boys and Girls	.465	N.S
2. Superior	5.586	2.549	46	6.5	2.550	38	Boys and Girls	1.635	N.S
3. Above Average	6.434	2.679	157	5.771	2.714	140	Boys and Girls	2.114	.05
							Boys 1 and 2	.907	N.S
							Boys 2 and 3	1.961	.05
							Boys 1 and 3	.068	N.S
							Girls 1 and 2	.573	N.S
							Girls 2 and 3	1.541	N.S
							Girls 1 and 3	.055	N.S

The table shows that boys belonging to the Very Superior and Above Average groups are submissive and retiring, whereas girls indicate aggressive behaviour. In the Superior Group however, girls are submissive and retiring whereas boys are aggressive in their social behaviour. The differences however are not significant between the Very Superior and Superior groups. Only in the Above Average group, the difference is significant at .05 level.

Coming to the adjustment of the boys, only between Superior and Above Average that the difference in adjustment is found to be significant at .05 level. In the other levels of giftedness, the difference in social adjustment is not found to be significant.

With regard to the girls at all levels of giftedness there are no significant differences in social adjustment.

4:07(iii) C-EDUCATIONAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF GENDER

This section deals with the differences in Educational Adjustment between boys and girls at different levels of giftedness. This is shown in the following table.

Table 4:07(iii)C

Table showing educational adjustment between boys and girls at different levels of giftedness

Levels of giftedness	Mean	Boys SD	N	Mean	Girls SD	N	Mean Difference between	t	P
1. V.Superior	8.501	2.063	6	6	2.449	3	Boys and Girls	1.519	N.S
2. Superior	6.305	2.041	46	6.578	2.256	38	Boys and Girls	.576	N.S
3. Above Average	6.471	1.645	157	5.985	2.547	140	Boys and Girls	1.928	N.S
							Boys 1 and 2	2.455	.05
							Boys 2 and 3	.505	N.S
							Boys 1 and 3	2.382	.05
							Girls 1 and 2	.395	N.S
							Girls 2 and 3	1.396	N.S
							Girls 1 and 3	.010	N.S

From the table it can be seen that boys belonging to the Very Superior and Above Average groups are poorly adjusted with their curricular and co-curricular programmes offered in the school. In the Superior group however, boys are interested in the school programmes, whereas the girls are poorly adjusted. Though differences are there between boys and girls at all levels of giftedness with regard to educational adjustment, yet the differences however are not significant at all levels.

With regard to the adjustment of the boys, significant differences at .05 level are found between Very Superior and Superior and between Very Superior and Above Average groups. Between Superior and Above Average there is no significant difference in adjustment.

In the case of girls, at all levels of giftedness there are no significant differences in their educational adjustment.

#### 4:07(iv) ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF S.E.S

This section deals with the analysis on the basis of Socio-Economic Status. The three aspects of adjustment are being dealt separately - Section 4:07(iv) A with Emotional Adjustment, Section 4:07(iv) B with Social Adjustment and Section 4:07(iv) C with Educational Adjustment.

#### 4:07(iv)A-EMOTIONAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF S.E.S

The following shows analysis on the basis of Socio-Economic Status with regard to Emotional Adjustment.

Table 4:07(iv) A

Table showing Emotional adjustment on the basis of socio-economic status

Levels of giftedness	SOCIO-ECONOMIC STATUS									Mean Difference between	t	P
	High I Mean	SD	N	Middle II Mean	SD	N	Low III Mean	SD	N			
1. V.Superior	5	2.449	6	2.834	.944	3				I & II	1.902	N.S
2. Superior	6	2.830	3	5.923	2.927	65	5.437	2.424	220	I & II	.046	N.S
										II & III	1.220	N.S
										I & III	.342	N.S
3. Above Average				6.022	2.940	16	5.857	2.841	77	II & III	.205	N.S
										High SES		
										1 and 2	.522	N.S
										Middle SES		
										1 and 2	4.716	.01
										2 and 3	.120	N.S
										1 and 3	3.484	.01
										Low SES		
										2 and 3	1.158	N.S



The table shows that there are no significant differences among the different socio-economic status groups at all levels of giftedness.

Within the High SES group, there is no significant difference between Very Superior and Superior group. In the Middle SES group, there is significant difference at .01 level between Very Superior and Superior and Very Superior and Above Average groups. There is however no significant differences between the Superior and Above Average groups. In the Low SES group, there is no significant difference between the Superior and Above Average groups.

4:07(iv)B-SOCIAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF S.E.S

This section deals with Social Adjustment. Analysis is done on the basis of Socio-Economic Status. This is shown in the following table.

contd...

Table 4:07(iv) B

Table showing social adjustment on the basis of socio-economic status

Levels of giftedness	SOCIO-ECONOMIC STATUS									Mean Difference between	t	P	
	High I Mean	SD	N	Middle II Mean	SD	N	Low III Mean	SD	N				
1. V.Superior	6.5	2.290	6	5.833	1.886	3					I & II	.464	N.S
2. Superior	6	1.416	3	6.015	2.594	65	6.687	2.801	220		I & II	.017	N.S
											II & III	1.801	N.S
											I & III	.818	N.S
3. Above Average				6.186	2.733	16	5.857	2.598	77		II & III	.441	N.S
											High SES		
											1 and 2	.402	N.S
											Middle SES		
											1 and 2	.160	N.S
											2 and 3	.226	N.S
											1 and 3	.274	N.S
											Low SES		
											2 and 3	2.363	.05

The table shows that there are no significant differences on the basis of Socio-Economic Status at all levels of giftedness. Within the High and Middle SES groups, at all levels of giftedness there are no significant differences. In the Low SES group however, the differences is significant at .05 level.

4:07(iv) C-EDUCATIONAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF S.E.S

This section deals with Educational Adjustment, analysis is done on the basis of Socio-Economic Status. This is shown in Table 4:07(iv)C.

Table 4:07(iv) C

Table showing analysis of educational adjustment on the basis of socio-economic status:

Levels of giftedness	SOCIO-ECONOMIC STATUS									Mean Difference between	t	P		
	High I Mean	SD	N	Middle II Mean	SD	N	Low III Mean	SD	N					
1.V.Superior	8.501	2.063	6	6	2.449	3					I & II	1.519	N.S	
2. Superior	8	1.416	3	6.292	2.104	65	6.375	2.089	220			I & II	1.990	N.S
												II & III	.279	N.S
												I & III	1.958	N.S
3. Above Average				6.25	2.697	16	6.012	2.542	77			II & III	.324	N.S
												High SES		
												1 and 2	.426	N.S
												Middle SES		
												1 and 2	.203	N.S
												2 and 3	.058	N.S
												1 and 3	.159	N.S
												Low SES		
												2 and 3	1.126	N.S

The above table shows that though there are differences in Educational Adjustment at various levels of giftedness, yet the differences in adjustment on the basis of Socio-Economic Class are not found to be significant.

Further, within each of the High, Middle and Low SES groups, at all levels of giftedness there are no significant differences.

4:08 GIFTEDNESS AND ACADEMIC ACHIEVEMENT

To study the academic achievement of gifted children, the marks obtained in the various subjects in the final school examination were used. The marks are being analysed on the basis of percentages.

4:08(i) GIFTED STUDENTS AND ACADEMIC ACHIEVEMENT

This section deals with the performance of the gifted group as a whole and also on the basis of gender with regard to Academic Achievement. This is shown in the following table.

Table 4:08(i)

Table showing the Academic Achievement of Gifted Children and also Performances on the basis of gender.

	Mean	SD	N	Mean Differences between	t	P
Gifted Group	51.55	8.555	390			
Boys	51.742	9.147	209	Boys and Girls	.670	N.S
Girls	51.155	8.179	181			

The above table shows that the performances between boys and girls are somewhat the same, though boys show a slightly better performance than that of the girls. The differences in the performances between boys and girls however are not found to be significant.

4:08(ii) ACADEMIC ACHIEVEMENT AT DIFFERENT LEVELS OF GIFTEDNESS

The Academic Achievement of gifted children at different levels of giftedness is being dealt in this section and is shown in the following table.

TABLE 4:08(ii)

TABLE SHOWING THE ACADEMIC ACHIEVEMENT AT DIFFERENT LEVELS OF GIFTEDNESS

Levels of Giftedness	Mean	SD	N	Mean Differences between	t	P
1. V.Superior	71.445	7.264	9	1 and 2	5.624	.01
2. Superior	56.822	8.677	84	2 and 3	7.149	.01
3. Above Average	49.458	6.989	297	1 and 3	8.955	.01

The table shows that there are marked differences at all levels of giftedness with regard to academic achievement. The differences at all levels are significant at .01 level with high academic achievement associated with higher level of giftedness.

4:08((iii) ACADEMIC ACHIEVEMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF GENDER

This section deals with the differences in academic achievement between boys and girls at different levels of giftedness. The differences in achievement are shown in the following table.

TABLE 4:08(iii)

TABLE SHOWING DIFFERENCES IN ACADEMIC ACHIEVEMENT BETWEEN BOYS AND GIRLS AT DIFFERENT LEVELS OF GIFTEDNESS

Levels of Giftedness	Boys Mean	SD	N	Girls Mean	SD	N	Mean Differences Between	t	P
1. V.Superior	74.333	5.224	6	65.333	4.716	3	Boys and Girls	2.602	.05
2. Superior	59.217	5.610	46	54.421	10.520	38	Boys and Girls	2.528	.05
3. Above Average	48.879	7.663	157	50.20	7.024	140	Boys and Girls	1.549	N.S
							Boys 1 and 2	6.606	.01
							Boys 2 and 3	10.049	.01
							Boys 1 and 3	11.472	.01
							Girls 1 and 2	3.395	.01
							Girls 2 and 3	2.336	.05
							Girls 1 and 3	5.430	.01

In the first two levels of giftedness, the boys are found to perform better than the girls. The differences in their performance in both levels is found to be significant at .05 level. In the case of the Above Average group, girls are found to perform better than the boys, but the differences in their performance is not found to be significant.

With regard to the performance of the boys, at all levels of giftedness, the differences in performance is marked at .05 level. In the case of the girls, the differences in performance between Very Superior and Superior and Very Superior and Above Average is marked at .01 level. However, between Superior and Above Average, the differences in performance is marked at .05 level.

#### 4:08(iv) ACADEMIC ACHIEVEMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF SES

In this section, analysis of academic achievement at different levels of giftedness is done on the basis of Socio-Economic Status. This is shown in the following table.

TABLE 4:08(iv)

TABLE SHOWING ACADEMIC ACHIEVEMENT AT DIFFERENT LEVELS OF GIFTEDNESS ON THE BASIS OF SOCIO-ECONOMIC CLASS

Levels of Giftedness	SOCIO-ECONOMIC STATUS									Mean Differences between	P	
	High I Mean	SD	N	Middle II Mean	SD	N	Low III Mean	SD	N			
1. V. Superior	74.333	5.224	6	65.333	4.716	3				I and II	2.603	.05
2. Superior	60.001	1.416	3	57.77	7.962	65	52.437	11.202	220	I and II	1.740	N.S
										II and III	4.289	N.S
										I and III	6.796	.05
3. Above Average				49.1	7.869	16	50.845	5.888	77	II and III	.839	.05
										High SES 1 and 2	6.274	.01
										Middle SES 1 and 2	2.611	.05
										2 and 3	3.938	.01
										1 and 3	4.832	.01
										Low SES 2 and 3	1.575	N.S

The above table shows that in the Very Superior group differences in academic achievement between high and middle socio-economic groups are found to be significant at .05 level. In the Superior group, differences in academic achievement between High and Middle and Middle and Low Socio-Economic groups are not found to be significant. However, between High and Low Socio-Economic groups, the differences are found to be significant at .05 level. In the Above Average group, differences in academic achievement between Middle and Low Socio-Economic groups are found to be significant at .05 level.

Within the High S.E.S group, the differences in performance between Very Superior and Superior groups are marked at .01 level. In the Middle S.E.S group, between Very Superior and Superior, the difference is at .05 level, and with the other levels of giftedness, the differences are at .01 level. In the Low S.E.S group, the differences are not found to be significant.

CHAPTER V  
ENRICHMENT PROGRAMME FOR THE GIFTED

## CHAPTER V

### ENRICHMENT PROGRAMME FOR THE GIFTED

#### 5:01 INTRODUCTION

Gifted students typically find their regular classroom experiences dull and less than challenging. Although some rare teachers detect the gifted child's spark and do everything they can to fan it to flame, the majority of gifted students sit in schools for twelve years experiencing precious little challenge and motivation. This therefore, implies that the typical classroom diet is inadequate for the academically talented child. Gifted children should, therefore, be provided with learning activities that challenge them and expand and deepen their understanding (Greenlaw and McIntosh, 1988).

#### 5:02 MEANING

The specific defining attributes of the concept of enrichment in planning educational programmes have varied across the years and across the programmes which have been labelled 'enrichment'. Generally, however, the term has been used to designate the process of providing activities and/or content areas which are outside the range of the regular curriculum offered in the school. Enrichment denotes those programmes in which the student remains at grade level but spends part of the day or week engaged in activities which are supplemental to those offered in his or her classroom. The assumption is made that these activities have been especially structured to meet the particular needs of gifted children (Kauffman and Hallahan, 1981).

#### 5:03 HORIZONTAL AND VERTICAL ENRICHMENT

Newland (1976) further divided the concept of enrichment into the categories of horizontal and vertical enrichment. Horizontal enrichment is used to designate those activities which involve content areas

which may not be part of the regular curriculum (or exploration of those areas in more depth) but in which the level of sophistication used in the study and discussion of those topics remains at about the same grade level. The assumption underlying horizontal enrichment is the need for gifted children to become acquainted with a broad spectrum of content areas.

If however, the level of thinking skills required in carrying out the enrichment activities is more sophisticated, then the enrichment activity is considered vertical enrichment. It is based on the need for gifted children to develop more complex cognitive processing skills such as analysis, evaluation, discrimination and creativity.

Although the horizontal - vertical distinction is theoretically possible and is sometimes incorporated into models for enrichment, it has not served a useful purpose in the study of enrichment programmes. Programmes and models which have been labelled enrichment have generally been based on a combination of both vertical and horizontal enrichment with their components and their effects being indistinguishable. Even a programme which has stated explicitly that its objective is to develop higher level thinking skills will usually rely on content materials outside the regular curriculum in order to achieve these goals.

#### 5:04 ACADEMIC CURRICULUM FOR THE GIFTED

While it is true that gifted students do need to know the same content as other children and youth and that most will be able to

master the skills and content easily and well, it is not true that these skills and this content should be covered in the same way for the gifted as for other learners. By definition gifted youths require a differentiated curriculum to adequately meet their learning needs. According to Greenlaw and McIntosh(1988) curriculum differentiated for the gifted is purposely made, unlike or different from the regular curriculum, observers can perceive and implementers can express differences between it and the regular curriculum. In other words differentiated curriculum for the gifted has characteristics that distinguish it from regular curriculum for non-gifted students.

Curriculum for the gifted cannot just be differentiated, it must be qualitatively differentiated(Maker,1982). Based on her own work and that of other experts in the field of gifted education, Maker(1982) makes several recommendations concerning how basic curriculum can be made more appropriate for gifted children and youth. She says modifications should be made in the areas of content, process, product and learning environment.

At least sixty curriculum models exist for the gifted. However, only three models will be mentioned for the purpose of this study. These models emphasize three components that are vital in planning and developing curriculum for gifted students.

These are:

1. Bloom's Cognitive Taxonomy, which emphasizes higher level thinking.
2. William's Teaching Strategies for Thinking and Feeling which emphasize creativity.

3. Renzulli's Enrichment Triad, which emphasizes product. (Greenlaw and McIntosh, 1988).

### BLOOM'S COGNITIVE TAXONOMY

Bloom's Cognitive Taxonomy is one of the better known and more widely used models for creating curriculum for the gifted because of its emphasis on developing higher level thinking. It is also relatively simple in design and is easily applicable by teachers with a minimum of training in its use (Greenlaw and McIntosh, 1988).

As a taxonomy, Bloom's is hierarchical in nature, i.e. achievement at higher levels is dependent on success at lower levels. The following six levels comprise Bloom's Cognitive Taxonomy.

1. Knowledge: which is the lowest level, consists of remembering what has been read, seen or heard, with no transformation of the information received.

2. Comprehension: involves the lowest level of understanding and requires that a student be able to restate what has been read, seen, or heard in his or her own words and make use of the information, although not relating the information to any other ideas already possessed or presented.

3. Application: involves putting the new information to use in a different situation, without being told how to do so.

4. Analysis: entails deconstructing the whole into its component parts so that the relationship between the parts can be seen.

5. Synthesis: entails constructing a whole from constituent parts - although the new whole or pattern or structure is not the one from which the parts were taken.

6. Evaluation: is the highest level in the taxonomy, and it involves making judgements about the value of something, for a particular purpose. Students must either develop their own criteria or be able to apply the criteria of others and use various types of evidence in order to make these critical, evaluative judgement.

#### WILLIAM'S TEACHING STRATEGIES FOR THINKING AND FEELING

William outlines eighteen teaching strategies that lead to creative thinking.

1. Paradox: A seemingly contradictory statement that may nonetheless be true.

2. Attribute: A quality or characteristic belonging to a person or thing, a distinctive feature.

3. Analogy: A form of logical inference, based on a correspondence in some respect between people or things otherwise dissimilar.

4. Discrepancy: A divergence or disagreement, as between facts or claims; in-consistency.
  
5. Provocative Question: Questions intended to excite and stimulate students' thinking and exploration of new ideas.
  
6. Example of change: A demonstration of how dynamic the world is or can be. Making provision for activities that employ modifications or substitutions.
  
7. Example of habit: Habits are a constant, often unconscious inclination to perform some act, acquired through frequent repetition, Activities for this strategy seek to provide examples that encourage students to avoid habit - bound thinking.
  
8. Organised Random Search: Developing a structure to lead randomly to another structure.
  
9. Skills of Search: The development of methods to search for information. This might include trial and error, historical skills or experimental skills.
  
10. Tolerance for ambiguity:  
Ambiguous situations are open to multiple interpretation. Activities for this strategy seek to present open-ended situations for discussion.

11. Intuitive Expression: Intuition is the act of knowing without the use of rational process. Activities for this strategy seek to present open-ended situation for discussion.

12. Adjustment to development: This strategy seeks to enable students to develop or change rather than merely adjust to situations.

13. Study of Creative people and Processes: Activities for this strategy encourage students to look at people who are creative and explore the processes they utilise.

14. Evaluation of Situations: Activities for this strategy encourage students to engage in prediction from the delineation of actions and ideas and to form conclusions based on careful consideration of consequences and inferences.

15. Creative Reading Skill: Using text as a stimulus for the creation of an idea or a product.

16. Creative listening Skill: Encouraging students to respond to oral text in various ways that will allow them to develop ideas and respond to questions.

17. Creative Writing Skill: Encouraging students to express their feelings and emotions in clearly written passages.

18. Visualization Skill: Activities for this strategy encourage students to form a mental image that includes an unusual or unique perspective (Greenlaw and McIntosh, 1988).

### RENZULLI'S ENRICHMENT TRIAD MODEL

The Enrichment Triad Model is one of the very few teaching learning models developed specifically for use with gifted children. He developed the model after extensive experience working with, and evaluating programmes for gifted children and youth. According to Greenlaw and McIntosh (1988, p. 227), Renzulli, "sought to design a model that could be used as a guide in developing defensible programmes for the gifted - programmes that are qualitatively different". His model ties in closely with his conclusion about what constitutes giftedness. In his three ring conception, giftedness resides at the intersection of three clusters of traits (1) Above-Average General Ability, (2) Task Commitment, and (3) Creativity. Renzulli believes that the interaction of these three clusters is necessary for creative productive accomplishment.

Accordingly, Renzulli's triad model includes three types of enrichment:

#### 1. Type I - General Exploratory Activities:

The three main purposes of Type I enrichment, general exploratory activities are (1) exposing students to topics that are not a normal part of the school's curriculum, (2) making general enrichment activities available to all interested students, and (3) inviting highly motivated students to find and pursue a later Type III. Independent

Project. Gifted students should understand that they are to explore these interest areas purposefully, with a view toward identifying ideas for further study. Some students already will have long standing interests or hobbies which are well suited for type III projects (photography, drama, calligraphy and so on). In these cases, Type I activities serve mainly to expose students to new topic areas.

Resource centres should be well stocked with books, magazines, and other media dealing with a large number of topics.

Another good exploratory activity is field experiences in which gifted and talented students meet dynamic people involved in creative and problem - solving endeavour - artists, actors, engineers, museum and art gallery curators, T.V show directors, business leaders and so on. This type of field trip goes beyond just visiting an art gallery or planetarium. The purpose is not to "look at" but to become involved with professionals and their activities.

The design of Type I exploratory activities will require effort and ingenuity by participating teachers. (Davis and Rimm, 1989).

#### Type II Enrichment-Group Training Activities:

The purpose of Type II Enrichment-Group Training Activities is to promote the development of a broad range of thinking and feeling processes (Renzulli and Reis, 1985).

The following are the general and specific skills especially recommended by Renzulli and Reis.

1. Creative thinking, problem solving, critical thinking, decision making and affective processes such as appreciating and valuing.
2. Learning how - to - learn skills, such as listening, observing, perceiving, note taking, outlining, interviewing, surveying, analysing and organising data and other research skills.
3. Using advanced - level reference materials including a variety of print and non-print references, information retrieval systems and other procedures for gaining access to advanced resources.
4. Writing, oral and visual communication skills that will be directed toward maximising the impact of student products upon appropriate audiences. (Davis and Rimm, 1989).

The objective of type II Enrichment is "to develop in the learner the processes or operations (the powers of the mind) that enable him/her to deal more effectively with content". Renzulli(1977, pp.24-25).

#### TYPE III ENRICHMENT - INDIVIDUAL AND SMALL GROUP INVESTIGATION

##### OF REAL PROBLEMS:

With Type III enrichment activities, the gifted young person becomes an actual researcher investigating a real problem. Renzulli emphasises that students should act as producers of knowledge, not merely consumers of information. They should not simply be asked to consult more encyclopedias, text books or other already summarized sources and then

write a report. They should use raw data as their main information source, from which they draw their own conclusions.

The student should play an active role or part in formulating the problem, designing the research methods and planning the final product. The teacher, as the "guide on the side", helps with clarifying the problem, designing the research, and locating materials and equipment, and recommends information sources or community experts (Davis and Rimm, 1989).

It is important for students to have audiences for their Type III products. Grown-up artists, scientists, and other professionals do not keep their work to themselves. Indeed a good part of their motivation and satisfaction derives from at least a limited amount of publicity and public awareness of their accomplishments (Renzulli, Reis, and Smith, 1981). Gifted students also are product-oriented; they wish to hold up their accomplishments and to inform and perhaps influence a particular audience.

#### 5:05 PERCEPTIONS OF THE GIFTED WITH REGARD TO EXISTING SCHOOL PROGRAMME

As mentioned in Chapter III, Section 3:04(vi) an Interview Schedule based on the school curriculum - subjects and activities offered in the school, areas of interest, kinds of activities which the gifted children would like to get involved with, methods of teaching etc. was conducted on the Very Superior and Superior children. Since the number of gifted children in the Very Superior group was small (9 in number), the Interview Schedule was conducted on all of them. In the case of the Superior group with a total of 84 students, the interview

was conducted only on 75 p.c of the total number.

The analysis of responses to some of the items in the Interview Schedule in percentage terms is shown in the following table.

TABLE 5:05

TABLE SHOWING PERCENTAGE OF RESPONSES OF THE GIFTED CHILDREN WITH REGARD TO EXISTING SCHOOL PROGRAMMES:

<u>Items</u>	<u>Very Superior N=9</u>	<u>Superior = 63</u>
1. Attitude Towards School Curriculum	Highly Satisfied = 11.11% Moderately " = 11.11% Not Satisfied = 77.78%	Highly Satisfied = 22.22% Moderately " = 14.29% Not Satisfied = 63.49%
2. Working on Groups and Projects	88.89%	87.30%
3. Interest in Academic Subjects	Arts - nil Commerce - Nil Maths. = 22.22% Science = 77.78%	Arts = 7.94% Commerce - Nil Maths. = 30.16% Science = 61.90%
4. Interest in Science Subjects	Biology Chemistry = 11.11% Maths. = 22.22% Physics = 66.67%	Biology = 4.76% Chemistry = 19.04% Maths. = 30.16% Physics = 46.04%

The above table shows the following: Most of the interviewees (77% in the Very Superior Group and 63% in the Superior Group) are not satisfied with certain areas of the school curriculum. They would be happy if studies in certain subjects could be expounded, so as to create opportunities for them to express their understanding, thinking and reasoning etc.

When asked if they would be interested to work in groups on Projects, majority of them, i.e 88% in the Very Superior Group and 87% in the Superior Group showed their interest to do so if the school provided the necessary facilities.

Regarding their interest in academic subjects, a good majority of both groups, (77% and 61% respectively) expressed preference for science subjects. Within the Science Subjects as many as 66% of Very Superior Group children and 46% of Superior group children indicated preference for Physics.

The other questions covered in the Interview Schedule pertained to facilities available in their schools - libraries, laboratories etc. Most of them expressed that their schools were not adequately equipped.

It was also expressed that attending classes which are easily managed without the help of a teacher proves to be dull and monotonous and therefore, a waste of time. To them, this could be utilized in furthering extra programmes and projects.

When asked the essential need for the presence of the teacher, most of them expressed the need especially in guiding and assisting them, while they work on projects.

#### 5:06 ENRICHMENT PROGRAMME

Basing on the findings of the Interview Schedule, the researcher has tried to develop Enrichment Programmes in Physics (depending on their choice of interest). The Enrichment Programmes have been

developed by drawing ideas contained in the three Models - Bloom's Cognitive Taxonomy, William's Teaching strategies for Thinking and Feeling and Renzulli's Enrichment Triad Model. The first Enrichment Programme relates with the topic "Heat", and the second one with "Renewable Sources of Energy"

#### 5:06 A. ENRICHMENT PROGRAMME ON HEAT

##### Step I - Knowledge:

The first step in the Enrichment programme relates with knowledge. A good text book (such as Physics by E.White, Physics - George Gammow) is given to the students and they are asked to read on the chapter of "heat". The teacher then explains to the students certain terms like:

(i) Temperature (ii) Heat (iii) Differences between Heat and Temperature (iv) Units of Heat (v) Thermal capacity (vi) Water equivalent (vii) Specific Heat (viii) Thermal expansion (ix) Co-efficient of expansion.

##### Step II Comprehension:

This step deals with testing student's comprehension. It could be done in the following ways:-

(i) Giving them calculations using specific heat and co-efficient of linear expansion.

(ii) Asking the students to explain the terms in their own words.

Step III - General Exploratory Activities:

- (1) Present to the students some aspects of Heat such as:
  - (i) Loss of heat of a substance under different situation.
  - (ii) Study on Evaporation
  - (iii) Study on heat as Electro-magnetic Wave
  - (iv) Heat and Light
  - (v) Heat as a form of energy
  - (vi) Expansion of substance under temperature
  
- (2) Give them time and opportunity to explore a wide variety of content - with the one they are interested in, so as to find a topic for further indepth study.  
(In between the teacher should ask provocative questions so as to excite and stimulate students' thinking and exploration of new ideas).

Step IV - Group Training Activities:

In this step the teacher should make use of instructional methods and techniques to help the learner to deal more effectively with content and which would also help to develop the higher levels of thinking, William's Teaching Strategies, such as Critical reading skill and Creative reading skill should be taught to the gifted children.

( Critical Reading Skill requires the reader to evaluate the material for truth, authority and value and also to be able to lead to conclusions upon which one can act. Creative Reading Skill on the other hand involves an even higher level of reading and thinking. It is a thinking process in which new ideas are originated, evaluated and applied. Creative Reading involves using the printed page as a spring board to thinking and action) (Greenlaw and McIntosh, 1988).

To be able to accomplish the above, the reading curriculum should have a wide variety of resources where the gifted learners will be exposed to different kinds of reference books -Encyclopedias, Dictionaries, Periodicals, Popular Science Series, Supplementary Text Books, Journals like Science Reporter, Science Age (2000 AD) etc.

#### Step V - Individual/Small Group Investigations

In this step the student becomes an actual investigator of a real problem or topic by using appropriate methods of inquiry.

For example: If students take up "Loss of Heat of a Substance under different situation", the steps involved would be:

(i) Students should first of all study the history of development of thermometer and thermoflask.

(ii) They should then design an experiment to compare the conductivity of heat of locally available substance such as dry cloth,

dry cotton, dry paper, dry bamboo, dry wood, pine - leaves, betel nut, peel fibres etc.

(iii) Check the validity of the designed experiment - allow them to exercise their original model of experiment as far as possible even at the cost of some amount of anticipation of unreliable findings.

(iv) Ask them to collect the data very carefully and prepare a chart of conductivity of material locally available.

(v) The next step is to design an experiment to measure the heat loss of substances in containers of different materials such as copper, aluminium, glass - first without the outer layer to cover them - Secondly, by taking different materials for the outer layer to cover them (bamboo, cloth etc.)

(vi) Collect data of temperature versus time with different room temperature and graphically represent it.

(vii) Ask them to design a low cost thermometer. Set guess list of performance of the designed thermometer basing on the above finding. (For example, water of  $60^{\circ}\text{C}$  will remain not less than  $50^{\circ}\text{C}$  for a period of ten hours).

(viii) Perform the experiment with the designed thermoflask to see how far the guessed performance is true, (quality test).

Step VI - Outlets for Creation:

Present the findings in a newspaper or in a seminar or in children's magazines which routinely publish children's writings and research summaries. If possible Children's Art Shows and Science Fair could be arranged to be as outlets for the children's or adolescents's products.

**5:06 B. ENRICHMENT PROGRAMME ON ENERGY**

Sub-Topic : Renewable Sources of Energy

Step-I Knowledge:

In the first step knowledge or general awareness of energy should be given to the students. This should be based on the concept that, "Energy is the capacity of doing work". It could be done in the following manner:

(i) The teacher should inform students about energy with regard to:

(a) Common usage of the term, energy.

(b) Examples such as - we need energy for our daily life to carry out different types of works: to walk, to run, to lift an object etc. Further, an athlete needs more energy than a common man, a car needs less energy than a truck to cover same distance.

Conclude the information given to the students that MORE THE ENERGY,  
MORE THE CAPACITY TO WORK, LESS THE ENERGY LESS THE CAPACITY TO DO WORK.

(ii) Allow students to consult books to find out.

(a) The relation between energy, mass and velocity.

(b) The potential energy( $mgh$ ) and Kinetic energy ( $\frac{1}{2} mv^2$ )

(c) The different types of energy, their transformation from one form to another.

(d) Unit of energy: Calorie, Watt, Joules,

(e) Different sources of energy: coal, petroleum, charcoal, electricity etc.

### Step II - Comprehension

Before the pupils proceed further, comprehension is to be tested. The test will not be on how much they can memorize but it will be how far their general/qualitative understanding of energy as they learn in step I (i) agree with the qualitative mathematical formulae (in step i(ii)).

Some sample/model questions to test pupil's comprehension should be as follows:

(a) Why do we say that  $K.E = \frac{1}{2} mv^2$  ? Why not  $mv^2$  or  $mv^3$  /

(b) Instead of  $mgh$ , if someone says that  $m^2gh = P.E.$ , do you think that the definition of energy as capacity of doing work remains the same ?

(c) Do you think that there is a system in the world where once it starts functioning, it keeps on working forever?

(d) Can a machine be 100% efficient? If Yes/No. Why?

(e) What advantages are there to measure energy in terms of calorie?

If a pupil's answer is not in agreement with the existing formulae or definition, the word "wrong" is not to be used. For example, if a pupil says that  $K.E. = \frac{1}{3} mv^2$  (which in the book is said to be  $\frac{1}{2} mv^2$ ), the pupil should not be discouraged, but should be allowed to carry on and find it for himself). (Of course, care is to be taken that the pupil does not draw conclusions from incomplete/discontinuous premises).

### Step III - General Exploratory Activities

Present to the students some aspects on energy such as:

(a) Utilisation of energy or energy consumption

(b) Misutilisation of energy

(c) Variation of wind speed

(d) Radiant energy from the sun(solar heat)

(e) Method of waste disposal/toilet system and estimation of energy which is to be obtained from the biomass conversion of the human excreta .

Give them time and opportunity to explore a wide variety of content with the one they are interested in, so as to find a topic for further indepth study.

#### Step IV - Group Training Activities

In this step the teacher should make use of instructional methods and techniques to help the learner to deal more effectively with content and which would also help to develop the high levels of thinking. Some of the teaching strategies suggested by William should be made use. These are:

- (a) Provocative questions
- (b) Skills of search
- (c) Tolerance for ambiguity
- (d) Intuitive expression
- (e) Adjustment to development
- (f) Evaluation of situation
- (g) Creative Reading Skill
- (h) Creative Writing Skill
- (i) Visualization Skill

#### Step V - Individual/Small Group Investigations

##### Characteristics:

- (a) It must be voluntary
- (b) Groups/individual must be coordinated
- (c) Based on the particular activities, extra knowledge is to be provided by the teacher concerned (if necessary).

(d) In case of survey, necessary permission and legal formalities are to be completed prior to the commencement of the projects.

Some Suggested Activities

Utilisation of Energy:

1. Statistical data available easily like Petrol consumption in India from 1960 to 1980 per year (b) Daily energy consumption of a person.
2. Data should be analysed and represented graphically showing calendar years versus energy consumption of the nation, persons versus energy consumption.
3. Make them aware of different levels of energy utilisation in different types of machine (degree of efficiency).

e.g Machine	Consumptions
(a) HERO HONDA 100 cc Bike	80 Km/1 litre
(b) Scooter Bajaj Super 150 cc	35 Km/1 litre

B. Survey on energy consumption

1. Select 3 houses of affluent class  
3 houses of upper middle class in urban set-up  
3 houses of lower middle class
2. Collect electricity bill, water bill, shopping bills for 3 months. Make a survey of types of fuels used.

3. Prepare a report on energy consumption level, types of fuel, population level - suggest some remedial measures.
4. Do the same activities in rural set up.  
Prepare a comparative study report on it.

#### C. Survey of Electrical Energy Consumption in a Particular Locality

1. Select a particular area
2. Contact State Electricity Board Billing Section to collect data of billing for last 10 years.
3. Draw graph of Bill vs months of the years - Bill versus years.
4. Choose 3 establishments with very high, medium, low billing.
5. With due permission, make a survey on how they utilise the energy.
6. Suggest ways and means to minimise the consumption with alternative sources of energy such as solar water heater, wind mill water pump, fanless-well ventilated room, zero level dim light etc.
7. Prepare a report to be submitted.

#### D. Survey on Misutilisation of Energy:

1. List out all the misutilisation/inefficient way of utilising energy e.g. A lot of smoke/unburned carbon in exhaust pipes of vehicles, not using pressure cooker, tube light etc.
  - (b) Estimate the total loss of energy
  - (c) List out its harmful environmental effect.
  - (d) Suggest Remedies
  - (e) Prepare a report

E. Non-Conventional Sources of Energy:

(a) The teacher concerned or an official from Non-conventional Energy Department, or an expert from University could be invited for a lecture on "Present trend in Non-conventional Sources of Energy"

(b) Students are given access to the current research findings and latest development of design of non-conventional energy sources in their chosen area.

(c) In consultation with the students involved some projects are listed e.g. windmill, solar cooker, biomass etc.

(d) Any innovative idea towards the saving of energy by improving/renovating/reforming the already existed system or machines to be encouraged.

F. Modelling:

(If student/students choose a project e.g. Windmill).

Tools to be provided: wooden saw, file, blade, scissor, knife, hammer, cellotape, gum, card paper etc.

Teacher's Role: A teacher must act as an assistant, not as a supervisor, he must suggest and not overrule/dictate except when it is for safety.

Steps involved:

(a) The student should first make a static model of a windmill.

(b) Based on this static/semi-working/working (mini) model, provisions should be made for the student to interact with experts in the field to help the child sharpen his abilities. (Any kind of

disagreements should not end in arguments but the child should be helped to complete the model with design, calculation and verification).

(c) All necessary knowledge (higher level) to be involved in the process of making the pilot project is to be taught to the pupils.

(d) With necessary arrangement of financial assistance, the student should be instructed to make a working model.

Step VI - Outlets for creation:

(a) Present the findings in a seminar

(b) Present findings in Children's Magazines which routinely publish children's writings and research summaries. If possible, arrange for Children's Art Shows or Science Fair to be as outlet for the Children's or Adolescent's products.

(c) Based on the interest of the student, it is the duty of the teacher to decide whether a life-size pilot project of the same should be made.

**C H A P T E R VI**  
**DISCUSSION OF FINDINGS**

## CHAPTER VI

### DISCUSSION OF FINDINGS

The following are the main conclusions which can be derived from the present study dealing with gifted children in relation to their Creativity, Adjustment and Academic Achievement.

#### 6:01 GIFTEDNESS AND CREATIVITY

In the light of the findings obtained in the present study, it can be inferred that there is a close relationship between giftedness and creativity with a higher level of IQ associated with higher level of creativity and vice versa. This finding is supported by several psychologists and researchers. Thus Mc Nemar (1964, p.879) claimed that, "the correlations between IQ and creativity test are generally far higher than those found in typical studies with range restrictions". He further stated that methodological problems often obscure the interrelatedness of these two constructs. According to Mednick (1967), the Remote Associates Test is the Creativity Test most likely to be highly correlated with intelligence. This test, which is both cognitive and convergent, has been compared with IQ tests in a number of studies. Welsh (1975) reports a range of correlations between the RAT and various Intelligence Tests of from 0.19 to 0.55.

The Torrance Test of Creative Thinking (TTCT) (Torrance, 1966) however claims to measure divergent thinking and should therefore, be less highly correlated than the RAT with measures of intelligence. Nevertheless, Wallach and Kogan (1965) cite research to show that the correlation between IQ tests and the Torrance scales are as large as intercorrelations either among Torrance Test of Creative Thinking subtests or among IQ subtests. Thus, TTCT subtests and IQ subtests are similar enough to represent aspects of the same psychological construct.

The findings has also been supported by Getzels and Jackson(1962) and Wallach and Kogan (1967) where High Intelligence is closely associated with High Creativity.

The above findings has lead to the emergence of two view points where one holds that there is no distinction between Creativity and Intelligence, and the other which does not take creativity<sup>and</sup> intelligence to be synonymous terms. For example, Getzels and Jackson (1962) and Wallach and Kogan (1967) posit that a distinction does not seem to exist between Creativity and Intelligence, but Sanderlin (1979 pp.24-25) contends that although Creativity and Intelligence are not synonymous terms, creativity, is a function, and one of a very high order indeed, of the mind. What can be concluded is that, Intelligence and Creativity are interacting variables and trying to force clear distinctions would create only false distinctions.

With reference to the traits related to Creativity, the study reveals that Originality is more outstanding than Elaboration

in the gifted adolescents. Originality is also closely related with the levels of giftedness, where the higher the IQ, the higher is also the Originality. It, therefore, leads us to conclude that the High IQ adolescents who may seem to possess a high degree of ability and thinking that need to focus only on the usual, or to be channeled and controlled in the direction of the right answer - the 'customary' also have the ability to produce new forms, to risk conjoining elements that are customarily thought of as independent and dissimilar, to 'go off in new directions', to possess the ability to free himself from the usual, to 'diverge' from the customary and to enjoy the risk and the uncertainty of the unknown (Vernon, 1970).

The present study reveals that on the basis of gender, be it composite creativity or performances on the different traits of Creativity-Originality and Elaboration, boys show better performances than girls. For example, in the case of composite creativity, at different levels of giftedness, Mean Differences in the performances between boys and girls at the Very Superior and Above Average levels is significant at .01 level. Further in both the traits of Creativity, the Mean Differences in the performances is significant at .01 level. This finding however, is not in accordance with the study conducted by Acharjulu(1978), where it was found that there was no sex differences in Intelligence and Creativity.

The reason for the above finding in the present study may be due to the fact that among the children identified as gifted, more boys are found than girls. As it is seen from the above that Intelligence and Creativity are closely related, so, therefore, this accounts for the better performances of the boys than the girls in the Creativity Test.

On the basis of SES, we find that children belonging to the High SES group are found to perform better than those from the other SES groups, though the Mean Differences may be significant at .01 level, or .05 level or not significant. For example, in the case of Composite Creativity, the Mean Differences between High and Middle SES groups at the Very Superior level is significant at .01 level, between High and Low SES groups at the Superior group is found to be significant at .01 level. In the case of Originality at the Very Superior level, the Mean Difference is not found to be significant, and in Elaboration, the Mean Difference is significant at .05 level.

This shows that the intelligence and socio-economic background of a community influences the creativity level of gifted children. This is so because the experiences of the children from higher socio-economic and educational levels are probably much more conducive to the development of reasoning ability, seeing relationships, understanding abstract concepts, and other abilities usually considered indicative of intellectual capacity.

## 6:02 GIFTEDNESS AND ADJUSTMENT

### EMOTIONAL ADJUSTMENT

The findings revealed that IQ is closely related to emotional stability, where the higher the IQ the more stable the emotions are and vice versa. Thus, the Very Superior Group is the most emotionally stable group and the Above Average group is the one which is most unstable emotionally. The differences in Emotional Adjustment between Very Superior and Superior group is significant at .05 level, between the Superior and Above Average is not significant and between the Very Superior and Above Average is significant at .05 level. This finding is in accordance with the findings of Gallagher(1975) and Monks and Ferguson(1983) where they too found out the gifted to be emotionally stable.

This may be due to the following:

- (a) Persons with high IQ tend to give more importance and attention to matters pertaining to the intellect(head) rather than to those of the heart.
- (b) The ability to think and reason and to achieve intellectually substitutes emotional deprivation.
- (c) The high intellectual potentiality enables such a person to avoid emotional dependency and the same would also prevent spontaneity in emotional reaction because such a person would think first before reacting.
- (d) Lastly, persons with high IQ can also be emotionally creative and contented thus keeping them away from frustrations and emotional conflicts.

On the basis of gender we find a conflicting or an almost contrasting finding where boys in the Very Superior and Above Average groups are found to be emotionally unstable than the girls. The differences in emotional adjustment between boys and girls are not significant at the Very Superior group, but significant at .05 level between boys and girls at the Above Average group. In the Superior group, girls are found to be emotionally unstable than the boys though the differences are not found to be significant. Thus, on the whole, boys are emotionally unstable than the girls. This may be due to the fact that during the teenage years, when hormone changes are causing a physical and emotional metamorphosis, gifted adolescents may need to understand this phenomenon. Trying to understand it within themselves could lead to an ever increasing feeling of anxiety and fear. An opportunity to vent out these feelings would be emotionally and mentally conducive; girls have better access to such opportunities, since they open up more freely to peers or to an instructor may it be the mother or a similar figure on the first onset of puberty. Boys however, do not require a formal instruction and they are less prone to a liberal discussion on the changes in their body functions even within a peer group. This may be a factor as to the fact that during Adolescence, boys may suffer a slight set back in their emotional health.

With regard to the SES factor, we find that on the whole gifted students belonging to the High SES group are emotionally unstable and those belonging to the low SES group are emotionally stable. Though differences are there between these groups yet they are not found to be significant.

The emotional instability among the High SES group may be due to what Gowan (1960) calls it as the ambivalence over upward Social Mobility. Many gifted students are capable of achieving far more than the parents did. Some of them have difficulty resolving the resultant conflict: they worry about 'showing their parents up', about implying that the way they were brought up was not good enough, and about leaving family and friends behind as they pursue their own dreams. This problem goes beyond normal adolescent rebellion because it also threatens the relationship with the peer group.

#### SOCIAL ADJUSTMENT

The findings reveal that there are differences though not significant in Social Adjustment at different levels of giftedness. From the three groups of gifted children, the Very Superior group is one which is most submissive and retiring and the Superior group as the most aggressive group.

Superior children especially the highly gifted and /or the highly creative, have difficulties in peer relationships. These difficulties arise when they are unable to find anyone with whom they can relate intellectually. The highly gifted students think in a different way and on a different level than the majority of the children in the neighbourhood or students at the school. As a result, the student may be ostracized or may choose to withdraw. Consequently in order to be accepted they tend to suppress their needs but instead try to submit to the norms of the majority / or group.

On the basis of gender, boys on the whole are found to be submissive than the girls especially in the Very Superior and Above Average IQ groups. The differences between boys and girls are not significant at the Very Superior group, but at the Average group, the differences are significant at .05 level. This is apparent of the nature of the Khasi society itself, where the scene has always been dominated by the females at nearly any level or sphere of life. This again can go as far as to the matrilineal system which in so many ways has influentially brought about the inadequate sense of well being and purpose among the Meghalayan males.

With reference to the SES, we find that at the Very Superior Group, the High SES group is the one which is submissive and the Middle SES group is aggressive in their social adjustment. The differences are not found to be significant. In the Superior group, the Low SES group is the one, which is submissive when compared with the other SES groups, and the High SES group to be aggressive. Though it is so, here also the differences are not found to be significant. In the Above Average Group, the Middle SES group is the one which is submissive and the Low SES group is aggressive in their social adjustment. Here also, the differences are not found to be significant.

What may account for the High SES group within the Very Superior group to be submissive in their behaviour may be due to the fact that these children come from a disciplined and refined background, thus, they are less inclined to project or impose themselves on others, since they are brought up to contain themselves, to express themselves only when

it is needed and this also is done in a manner that is most acceptable to the others. Among the Middle Class children of the Very Superior group, the degree of self constraint is less and their added potentialities may be wrongly used as something to show off or to gain recognition and obedience from others. The finding that submissiveness prevails among the Low SES class in the Superior group may be due to lack of awareness and/or due to lack of means be it financial or otherwise to express and seek gratification for their intellectual needs.

#### EDUCATIONAL ADJUSTMENT

The findings reveal that from the three levels of giftedness, the Very Superior group is the one which is most poorly adjusted with the programmes offered in the school and the Above Average group is the one which is satisfied with the school programmes. Though differences are there in Educational Adjustment between these two groups, yet they are not found to be significant.

The following reasons given out in the course of interview of these children suggest that the Very Superior group is poorly adjusted with the school programmes. They expressed that certain subjects within the school curriculum could be presented and learnt in a more exciting and interesting manner and can incite their understanding, thinking and reasoning abilities. Certain topics for example, in science, geography could be learnt not from the text book but by experiments or by direct experiences. Subjects like History, Literature which can be boring to many could be learnt through more active and interesting methods like research, discussions, class seminars etc. Many are poorly adjusted also because

science libraries, laboratories, gymnasiums and sporting facilities are under equipped and therefore, broader opportunities cannot be available to them.

It has been found out that boys on the whole are poorly adjusted than the girls, It should be remembered that boys are more creative than the girls, (as revealed in the findings). It may be possible that subjects that boys tend to choose cannot offer fields for expression of creativity, unlike subjects such as Home-Science, Hygiene etc. favoured by girls.

The study reveals that children from the high SES group are the ones which are poorly adjusted with the school programmes and those from the Low SES group are interested in the programmes 'offered' in the schools. Mention should however be made that though differences are there among the various SES groups, yet they are not found to be significant.

The simple reason for such a trend is the degree of exposure, the students can avail of according to their class and background. Children belonging to the Low SES class can adjust well to the school programmes because their degree of awareness coincides with the limited facilities from staff or equipment available in our schools. Children belonging to the other classes however, are more exposed to the outside world through magazines, tape-recorders, televisions, visitations and social contacts and therefore, they become more and more dissatisfied with what is available for them at their schools. This may also include the staff, the majority of which is regretdly not up to the mark of dealing with students of such calibre whether in qualification, knowledge, experience or exposure.

### 6:03 GIFTEDNESS AND ACADEMIC ACHIEVEMENT

With regard to Academic Achievement, it is found out that there are marked differences at .01 level at all levels of giftedness, with high academic achievement associated with higher levels of giftedness. This finding has been supported by Acharjulu (1970), Bhadauria(1980), Singh (1983), Basu (1983) and Urmi(1984).

Their academic performance corresponds with their intellectual abilities inspite of their silent frustration and dissatisfaction with the subject matter or the methods of learning. Yet when it comes to the gauging their academic performances, the gifted children at all levels show a markedly superior performance in proportion to their abilities. This may be to the fact that our society is still guided by the mentality that a person with extra-ordinary abilities can be accepted or appreciated as 'bright' only when he performs extremely well in the academic field and not in any other.

On the basis of gender, boys at the Very Superior and Superior levels show better performances than the girls( $p < .05$ ). At the Above Average group, however, girls perform better than the boys, though the differences in performances are not found to be significant.

Very Superior and Superior boys perform better because they are motivated by past achievements, in the present they know that they can do better than the others and are also motivated by what they can achieve in their future. They can see further than an average student, be more aware of broader studies and also aware of their ability to fight in

the competitive fields that would enable them to acquire high ranks in career and society. Girls, however, to a very large extent may still be bridled by the sub-conscious knowledge of ending as a house wife or a mother.

At the Above Average level, the boys depict the existing trend in this society, where females achieve more than males. They are already showing the signs of the outcome of Board, University or Competitive Examinations, where the girls as a whole not only fair better in exams but maintain a steady streak of responsibility and industriousness throughout the whole learning period.

With regard to the SES factor, it is found out that children coming from the High SES level perform better when compared with other SES groups. This is due to the interest shown by parents, family members and social groups which motivate, encourage or even streamline them into believing that they should do better.

#### IMPLICATIONS OF THE RESEARCH FINDINGS

After reviewing, reading and researching on gifted children, it is found that gifted students cannot "make it" on their own. They cannot teach themselves, identify themselves, counsel themselves, serve as advocates for themselves or obtain favourable legislation for themselves. They therefore, must have knowledgeable support from many sections of society who will pave the way for them to achieve up to the levels of which they are capable. It is incumbent upon those who believe in education, those who believe in educating the ablest, and those who believe that the future of the world depends on the intellectual abilities of the gifted to ensure that these students are given the educational opportunities which allow

them to become tomorrow's leaders, creators and decision makers. Thus, excellence in education must include education for the excellent. Advocates must move forward informing and organising others who can then go out and further inform and organise. The biggest hindrance to gifted education is lack of knowledge on the part of the public, including parents, teachers, students, school administrators, legislators and business people. When people understand the needs and goals of gifted education, they are much less likely to be antagonistic and much more likely to become proponents of the movement.

In addition, gifted children and youth must have increased access to counsellors who have been specially trained for working with the able. It is too much to expect one guidance counsellor to adequately serve an entire elementary school, let alone two or three schools, as is often the case. And with the many chores thrust upon guidance counsellors in high school, their ranks must be swelled, so that they can provide counselling and career/college advising to a reasonable number of students. Their sensitivity and training must be enhanced in order that the able students in their charge can be beneficially served.

One of the areas in which the counsellors must take a more active role is preventing under-achievement among the gifted. Especially important is coordination of efforts of teachers, parents, school administrators and community volunteers. Advocates for able students must not permit the gifted to perform far below their potential. Talent is a resource the nation cannot afford to squander.

Further, in the future, efforts must be made to be able to make the identification procedures become more broad. Efforts must also be made to pick out the gifted and the talented from among majority and handicapped populations. Efforts at more adequate identification of minority students must involve members of that culture in order to properly determine what is valued by the culture and how it is manifested in its members.

Research concerning identification and programming must be continued. This research is needed not only to further our knowledge about the gifted but also as evidence of the imperative need for differentiated education for the gifted.

In order to maintain the gain in knowledge and education of the gifted and in order to make further studies - it is vital that experts and lay people in the field to form an active action group. If this is not done, it is quite certain that interest will decline, but if we band together, then at some future time, the phrase 'gifted child movement' will no longer be needed, because education for the ablest will be an accepted and expected part of our educational system.

#### SUGGESTED FURTHER RESEARCH

The following are some of the possible areas of giftedness to be further explored into.

(i) Giftedness in relation to specific areas of achievement such as in Fine Arts, Management etc.

(ii) Longitudinal studies of gifted children.

(iii) A survey on a larger scale to locate details of Enrichment Programmes where the same has been incorporated.

(iv) The identification and nurture of gifted children among the handicapped.

CHAPTER VII  
SUMMARY OF FINDINGS

## CHAPTER VII

### SUMMARY OF FINDINGS

The present study dealing with gifted students was carried out to find out their Creativity, Adjustment and Academic Achievement. First of all, the study identified the various levels of giftedness among gifted children within the age group of 13 to 16 years from the High Schools of Shillong. This was followed by a Creativity Test and an Adjustment Inventory. In addition, the performance of the students in the various subjects in the final school examination was taken to study about their Academic Achievement.

The study was conducted on students from 29 High Schools of Shillong by making use of Stratified Random Sampling. The nature of educational research used is normative survey. The statistical techniques utilised were Descriptive and Inferential Statistics.

The following is the summary of findings.

#### 7:01 IDENTIFICATION OF GIFTED CHILDREN

In identifying the gifted children, it was found that:

(i) From 1,400 students, 390 students were found to have Above Average Intelligence (on the Culture Fair Intelligence Test).

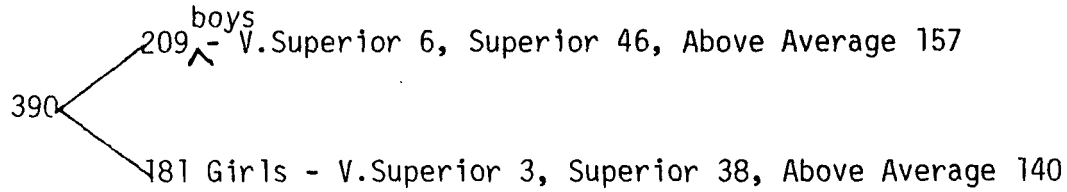
(ii) The 390 students when further sub-divided were found to be comprised of three groups:-

(a) Very Superior Group (IQ 130-139)

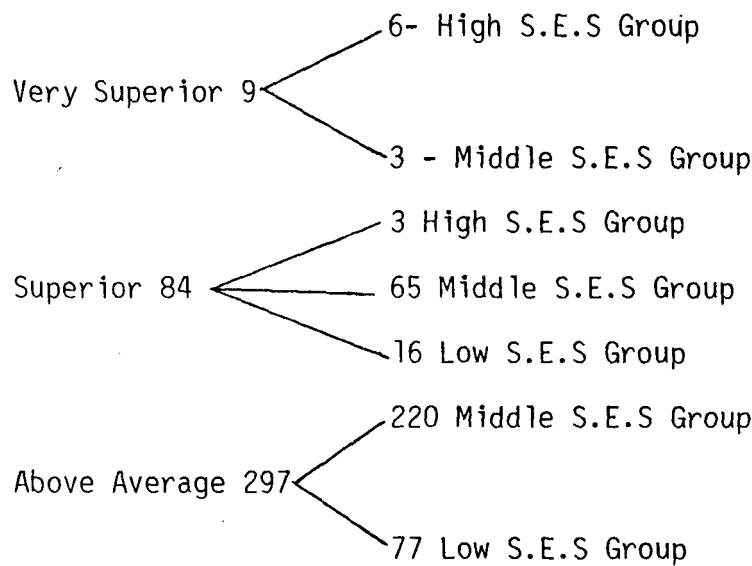
(b) Superior Group (IQ 120-129)

(c) Above Average Group (IQ 110-119)

(iii) The break up of the 390 students on the basis of gender showed the following trend:



(iv) The socio-economic status of the gifted was seen as follows:-



### 7:02 GIFTEDNESS AND CREATIVITY

#### A COMPOSITE CREATIVITY

(i) The Mean Scores of Creativity (on Non-Verbal Test of Creative Thinking Test) among gifted children as a whole on the basis of gender showed that there are significant difference in the performance between boys and girls, with the boys showing higher creativity scores than that of girls.

(ii) Mean differences among all levels of giftedness are significant at .01 level.

(iii) Marked differences (at .01 level) can be found between boys and girls at the Very Superior and Above Average levels. Such a trend is not prevalent at the Superior Level. Girls scored less than the boys in the field of creativity.

(iv) At the Very Superior Group, differences in performance between High and Middle SES Groups were significant at .01 level. At the Superior Group, differences in performance between High and Middle SES groups was not found significant, between Middle and Low group, it was significant at .05 level and between High and Low SES groups at .01 level.

#### B. ORIGINALITY AND ELABORATION AT DIFFERENT LEVELS OF GIFTEDNESS

With regard to Originality, there are marked differences in the performance among the different groups of gifted children, each of which is significant at .01 level.

In Elaboration, the Very Superior group showed outstanding performance. The Above Average group showed higher performance than the Superior Group. At all levels, the differences were statistically significant.

#### C. ORIGINALITY AND GIFTEDNESS

(i) No significant differences appeared in the performance between boys and girls within the Very Superior group. With regard to the Superior and Above Average groups, the differences within each group is significant at .01 level, with boys showing higher originality scores in each case.

(ii) Between High and Middle socio-economic groups, there was found no significant differences among children of the Very Superior group. It was found among the various SES groups, a significant difference within the Superior and Above Average groups.

#### D. ELABORATION AND GIFTEDNESS

(i) Within the Very Superior group, the differences in the performance between boys and girls is significant at .05 level. In the Superior group, there is no significant differences, while in the Above Average group, the difference is statistically significant. Boys showed higher elaboration scores at the Very Superior and Above Average levels.

(ii) The differences in performance between the High and Middle Socio-Economic Status groups is significant at .05 level in the Very Superior group. Such differences do not prevail among the three Socio-Economic Classes at the Superior and Above Average groups.

#### 7:03 GIFTEDNESS AND ADJUSTMENT

##### A. ADJUSTMENT IN GIFTED CHILDREN

(i) On the basis of gender, it was found that with regard to Emotional Adjustment boys appeared unstable in their emotions, girls are somewhat stable.

(ii) The girls however are aggressive socially rather than the boys who turn out to be the opposite.

(iii) Educationally, however, boys adjust poorly to the curriculum, whereas, girls show a greater interest.

Though differences are there between boys and girls on all the three aspects of Adjustment, yet the differences are not found to be significant.

##### B. LEVELS OF GIFTEDNESS WITH EMOTIONAL ADJUSTMENT

(i) The differences in emotional adjustment between the Very Superior and Superior group is significant at .05 level. Between Superior and Above Average is not significant and between Very Superior and Above

Average is significant at .05 level. Emotional stability is manifested not by the Above Average students but by the Very Superior group.

(ii) Boys belonging to the Very Superior and Above Average groups are found to indicate unstable emotion as compared with the girls. In the Superior group, girls indicate unstable emotion than the boys. The differences are found to be significant only with the Above Average group at .05 level.

(iii) It has been found that at all levels of giftedness there are significant differences on the basis of Socio-Economic Status.

#### C. SOCIAL ADJUSTMENT AT THREE DIFFERENT LEVELS OF GIFTEDNESS

(i) In social adjustment however, there is no significant differences among the three levels of giftedness. Aggressiveness is a nature exhibited by the Superior group and the Very Superior are prone to submissiveness.

(ii) Boys belonging to the Very Superior and Above Average groups are submissive and retiring, whereas girls indicate aggressive behaviour. In the Superior group though the reverse of the above is found. Differences between the Very Superior and Superior groups are not found to be significant. Only in the Above Average group, the difference is statistically so.

(iii) On the basis of S.E.S and at all levels of giftedness, significant differences are non-existent.

#### D. EDUCATIONAL ADJUSTMENT AT DIFFERENT LEVELS OF GIFTEDNESS

(i) There are differences in educational adjustment at all the three levels, though they are not found to be significant. The Very Superior

group is the one which is most poorly adjusted with the programmes at present offered in the school.

(ii) No satisfactory adjustment is shown by boys within the Very Superior and Above Average group to the programmes offered in the school. In the Superior group however, they reverse their reactions. The differences at all levels are negligible.

(iii) Differences, even though insignificant prevail among all levels of giftedness on the basis of Socio-Economic Status.

#### 7:04 GIFTEDNESS AND ACADEMIC ACHIEVEMENT

##### A. GIFTED STUDENTS AND ACADEMIC ACHIEVEMENT

(i) Gender wise boys perform better than girls in Academic Achievement, nevertheless, girls rank only slightly lower in their performance.

##### B. ACADEMIC ACHIEVEMENT AT DIFFERENT LEVELS OF GIFTEDNESS

(i) There are marked differences at .01 level at all levels of giftedness with regard to academic achievement.

(ii) In the two higher levels of giftedness, boys are found to perform better with a statistical significance of .05 level. The contrast to the above was found in the Above Average group, but with no difference of importance.

(iii) A statistical significance of difference is found in the Very Superior Group on the basis of S.E.S. This does not occur in the Superior group between High and Middle, and Middle and Low Socio-Economic Group. However, at .05 a difference is found among the High and Low Socio-Economic groups. The same is also exhibited by Middle and Low Socio-Economic groups among Above Average students. In the High and Low Socio-Economic group,

the differences are found to be significant at .05 level. In the Above Average group, differences between Middle and Low Socio-Economic groups are found to be significant at .05 level.

#### 7:05 PERCEPTIONS OF THE GIFTED WITH REGARD TO EXISTING SCHOOL PROGRAMME

(i) Most of the interviewees especially the Very Superior group were not satisfied with certain areas of the school curriculum. They would be happy if studies in certain subjects could be expounded that would create opportunities for them to express their understanding, thinking, reasoning etc.

(ii) Following from the above, they would be interested in working as groups on projects related to their subject of interest as long as the school provides the necessary facilities.

(iii) When asked about facilities available in their schools most of them expressed regret that they were not adequately equipped.

(iv) Attending classes which could be easily managed without the help of the teacher proves to be dull and monotonous and therefore, a waste of time. To them, this could be utilised in furthering extra programmes and projects.

(v) When asked to indicate their interest among the various subjects, the general preference was for science with emphasis on physics.

(vi) In spite of all these, they expressed the need for the presence of the teacher for guidance and direction while working on the projects.

It therefore, followed that any Enrichment Programme for the gifted should emphasise the three following components:-

- (a) Emphasis on higher level thinking
- (b) Emphasis on Teaching Strategies
- (c) Emphasis on Product

Two enrichment programmes were developed by the researcher. The programmes pertained to the subject of Physics in the areas of Heat and Energy in particular. The programme involves orienting students into knowledge of the subject, after which they are to be evaluated on how far they have comprehended the former. Opportunities are then provided for them to explore into the various areas of the subject which are not part of the school curriculum. Further they are to be exposed to Group Training activities to promote the development of a broad range of thinking and feeling processes. The last step involves the gifted young persons to become actual researchers investigating a real problem, designing the research methods and planning the final product.

The proposed programme needs to be tried out in practice and it appears to have promise for providing meaningful programmes for the gifted.

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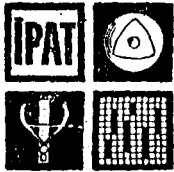
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**A P P E N D I C E S**



APPENDIX A

# Test of "g": CULTURE FAIR Scale 3, Form A

*Prepared by R. B. Cattell and A. K. S. Cattell*

Name..... Sex.....  
                    First                                    Last                                    (Write M or F)

Name of School (or Address).....

Today's Date.....Grade (or Class).....

Date of Birth.....Age.....  
                    Month                    Day                    Year                    Years                    Months

Test	Score	Remarks
1		
2		
3		
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		Total Score

M.A. \_\_\_\_\_

C.A. \_\_\_\_\_

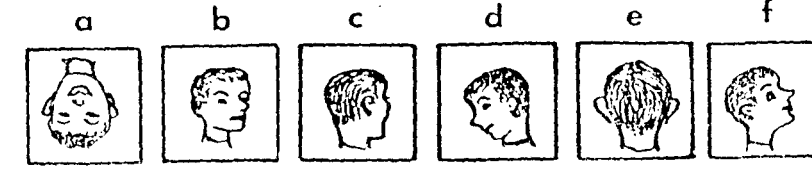
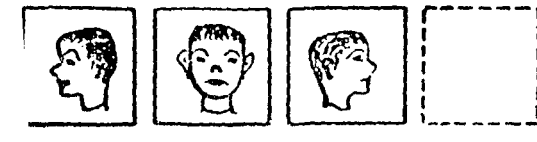
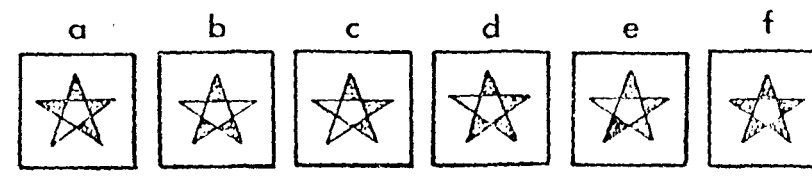
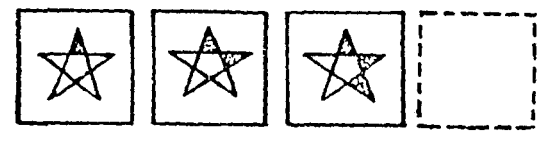
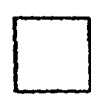
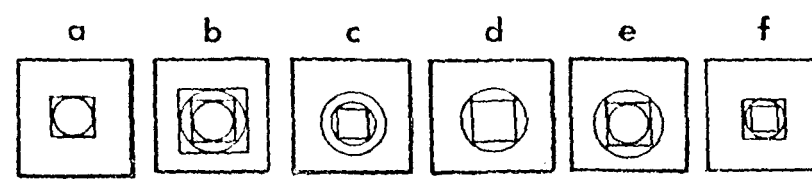
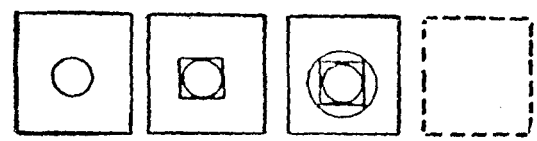
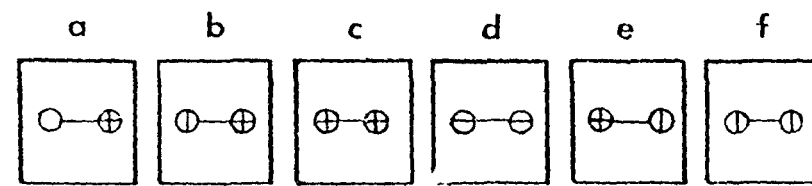
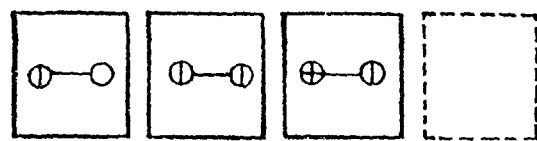
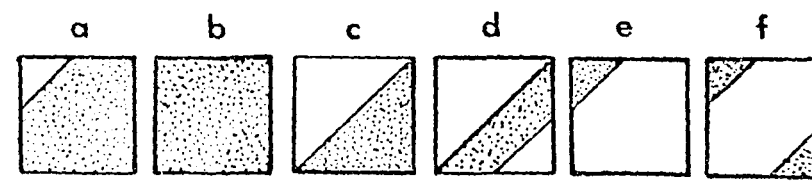
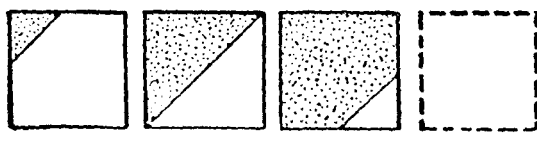
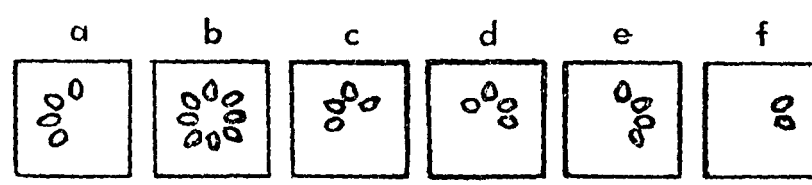
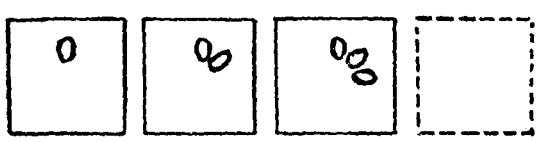
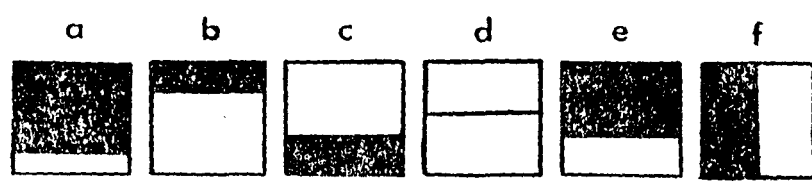
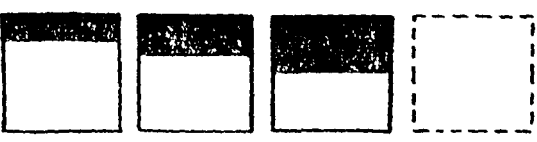
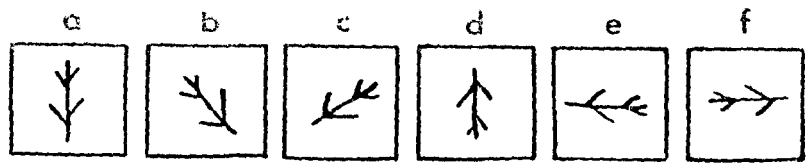
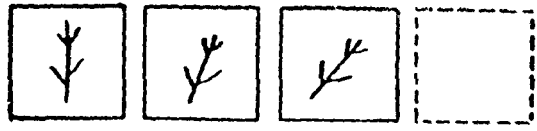
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1963 Edition

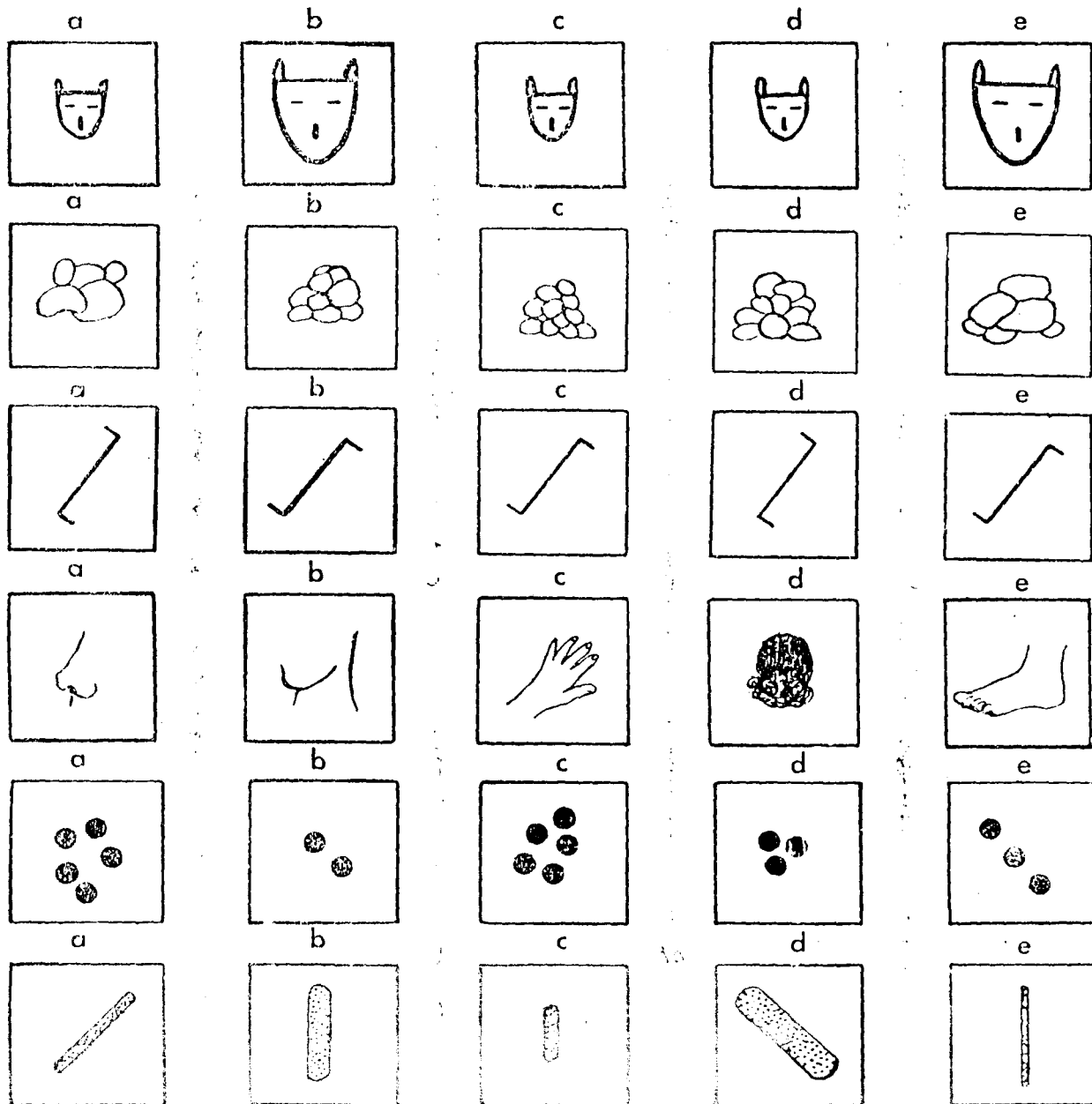
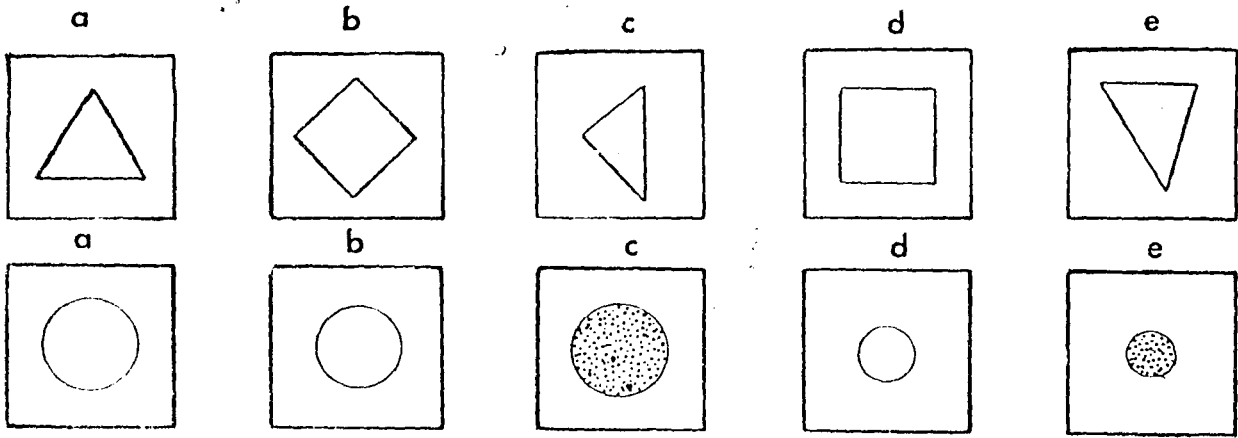
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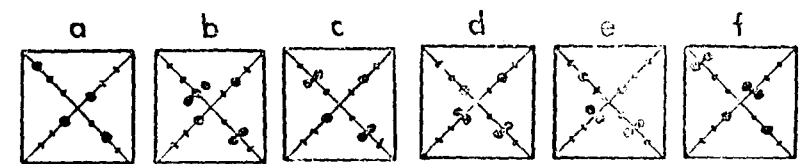
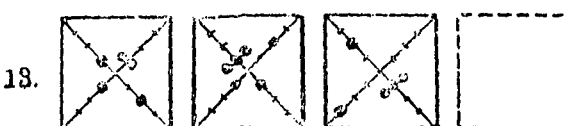
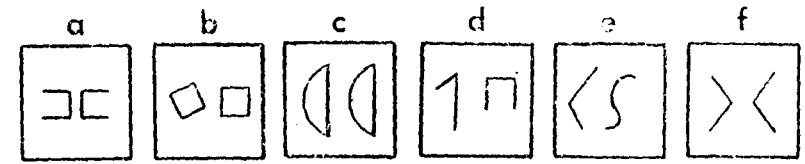
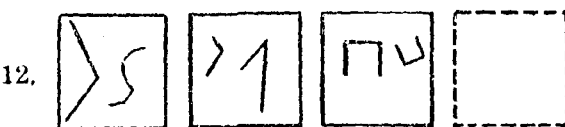
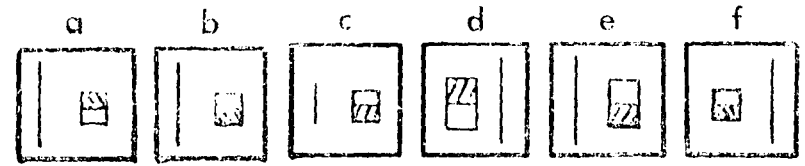
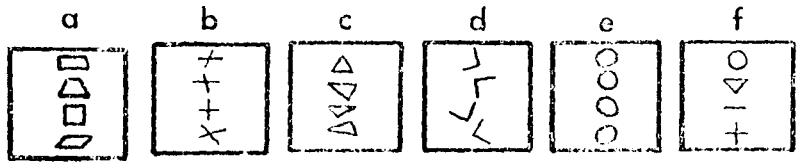
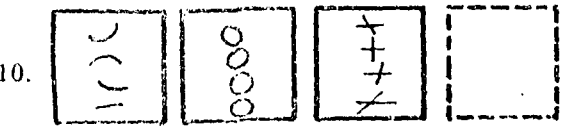
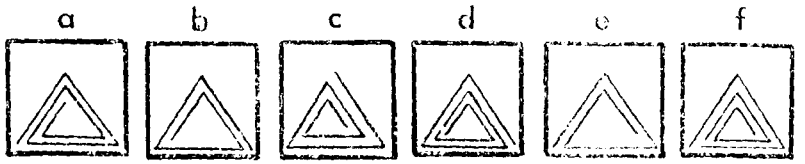
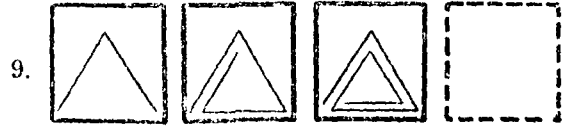
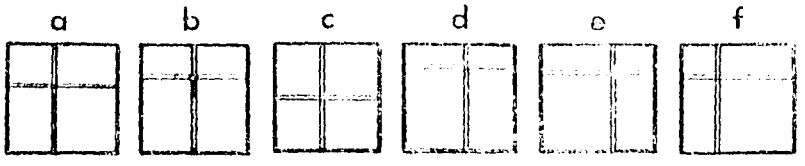
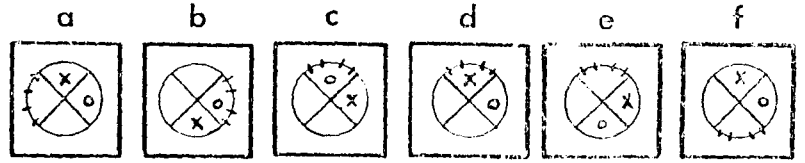
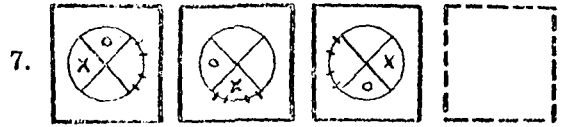
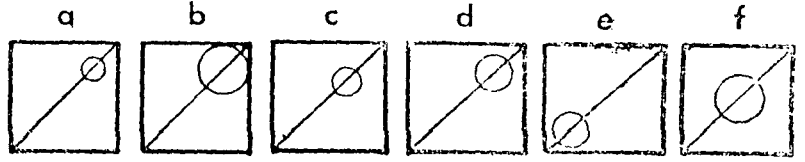
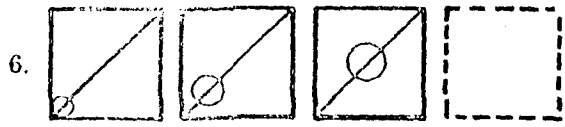
Answers



Examples

Answers

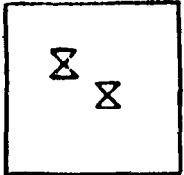
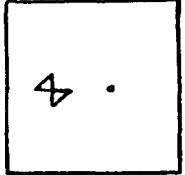
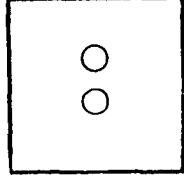
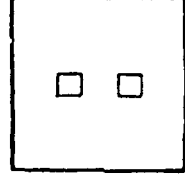
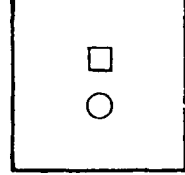


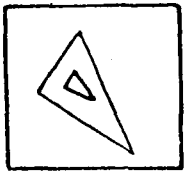
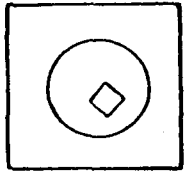
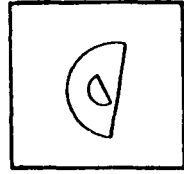
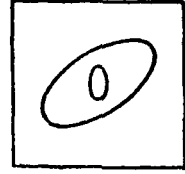
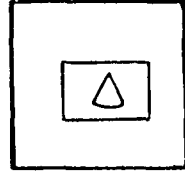


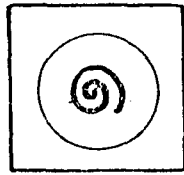
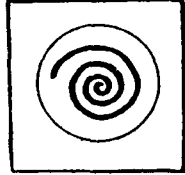
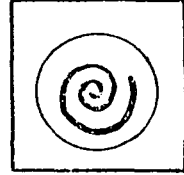
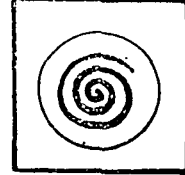
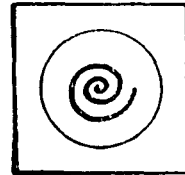
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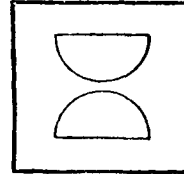
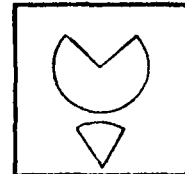
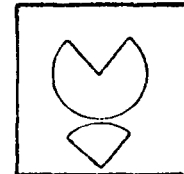
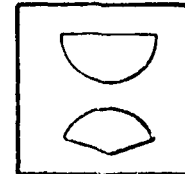
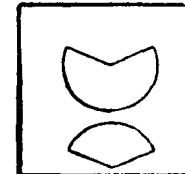
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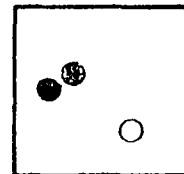
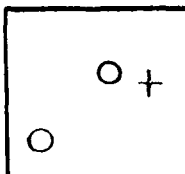
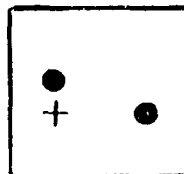
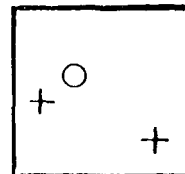
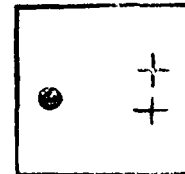
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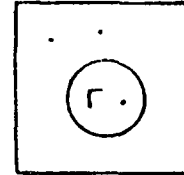
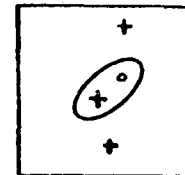
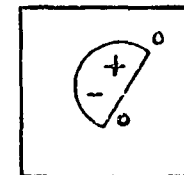
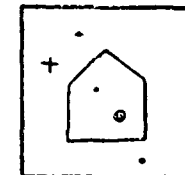
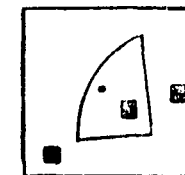
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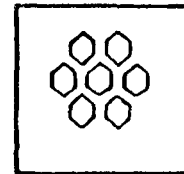
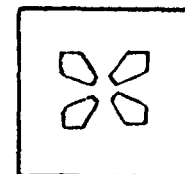
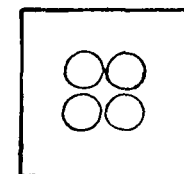
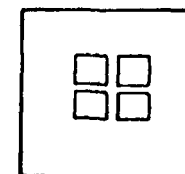
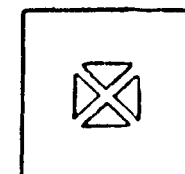
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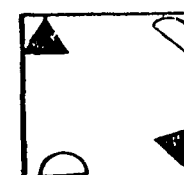
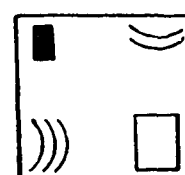
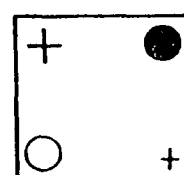
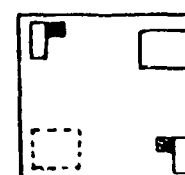
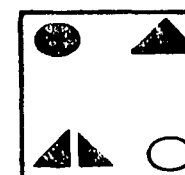
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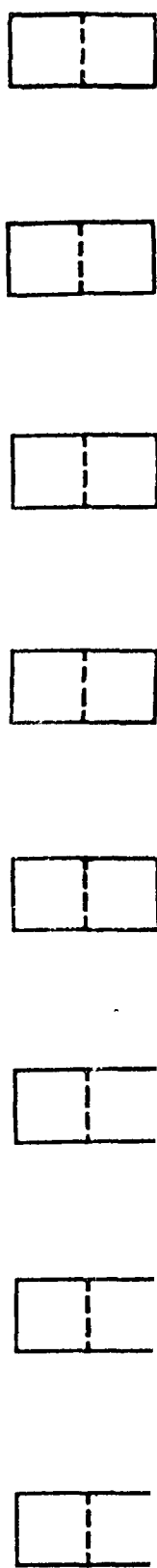
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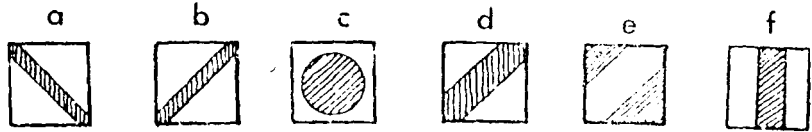
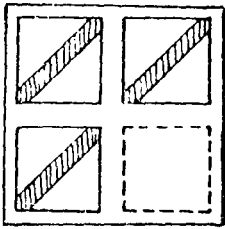


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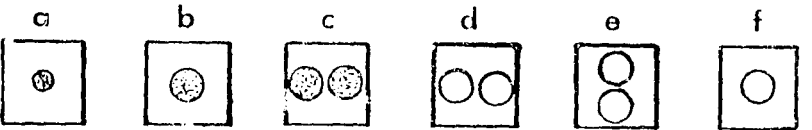
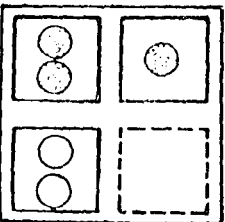
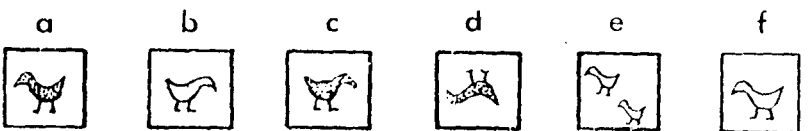
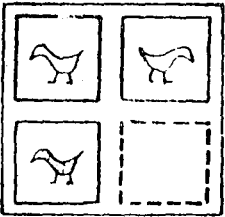
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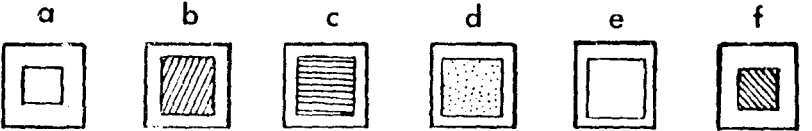
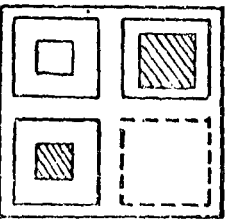
Examples



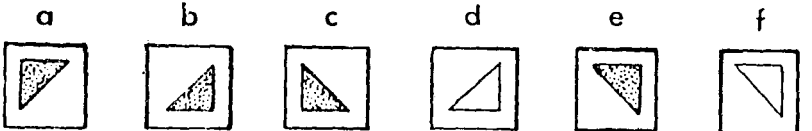
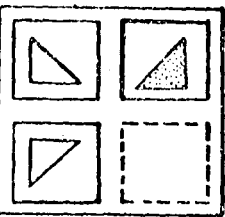
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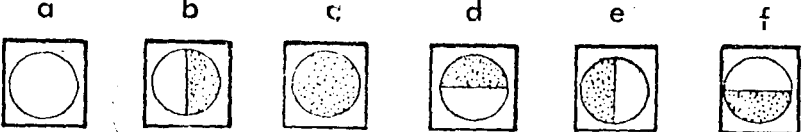
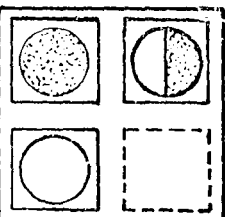
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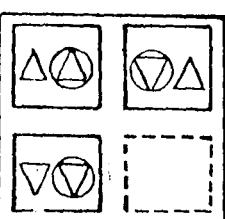
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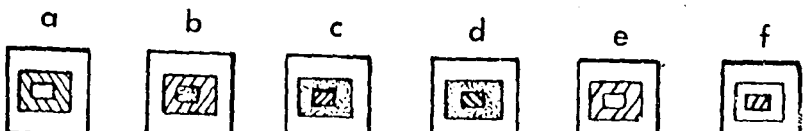
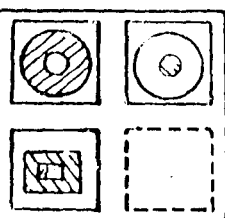
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4.



5.



6.

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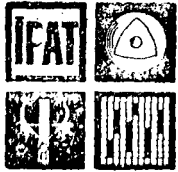
-181-  
TEST 4

Examples

Answers

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9.		a	b	c	d	e	<input type="checkbox"/>
10.		a	b	c	d	e	<input type="checkbox"/>



# Test of "g": CULTURE FAIR Scale 3, Form B

*Prepared by R. B. Cattell and A. K. S. Cattell*

Name	_____		Sex	_____
	First	Last		(Write M or F)
Name of School (or Address)	_____			
Today's Date	_____		Grade (or Class)	_____
Date of Birth	_____	_____	Age	_____
	Month	Day	Year	Years Months

Test	Score	Remarks
1		
2		
3		
4		
		Total Score

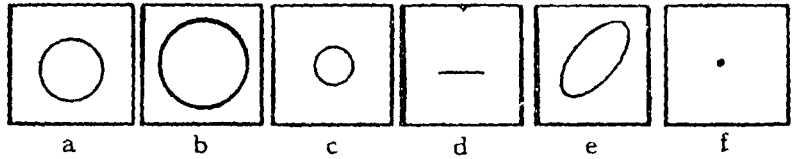
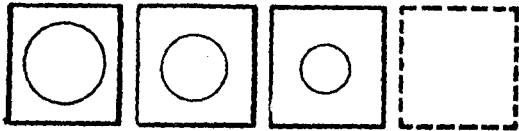
M. \_\_\_\_\_

Q. \_\_\_\_\_

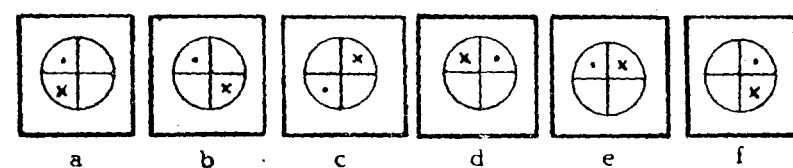
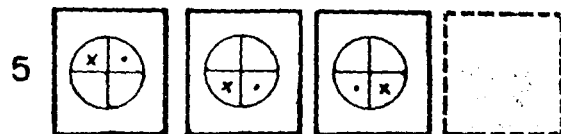
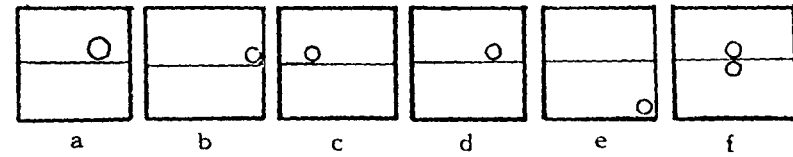
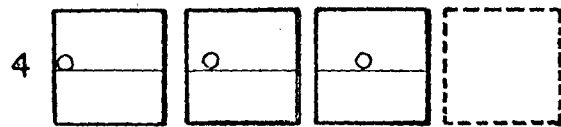
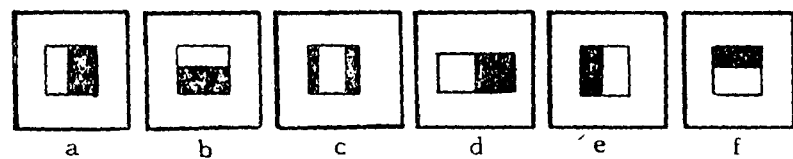
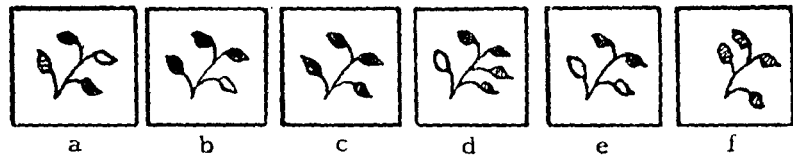
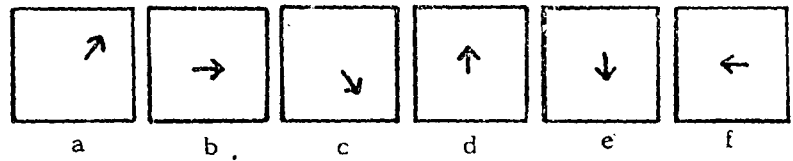
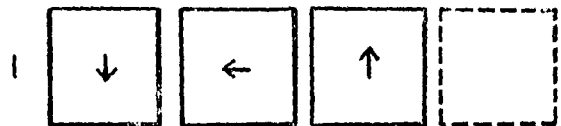
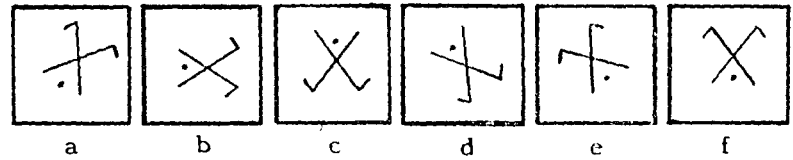
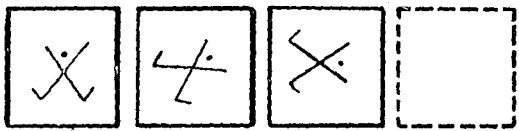
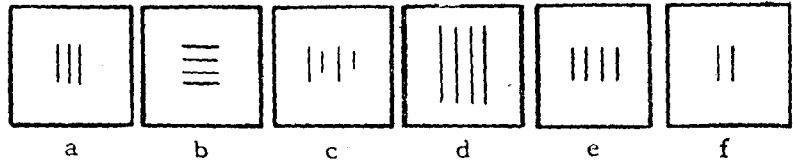
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1961 Edition (Second)

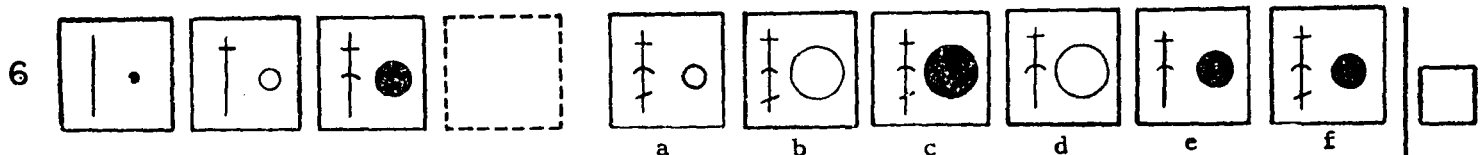
Examples

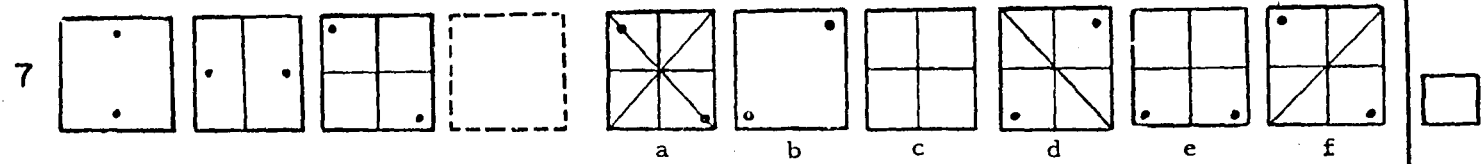


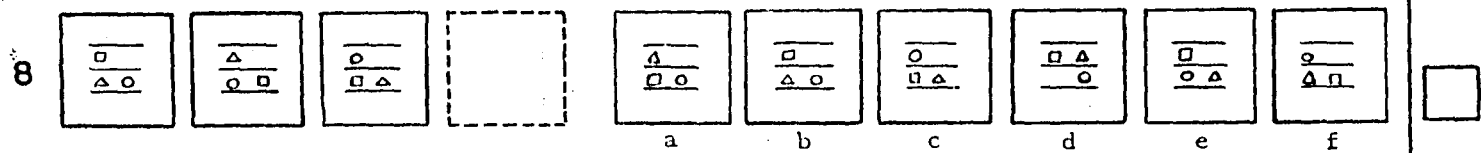
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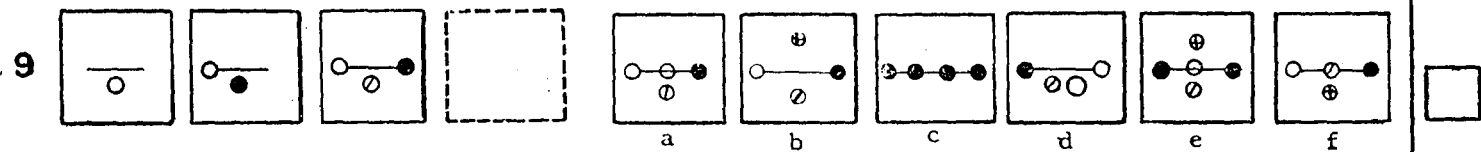


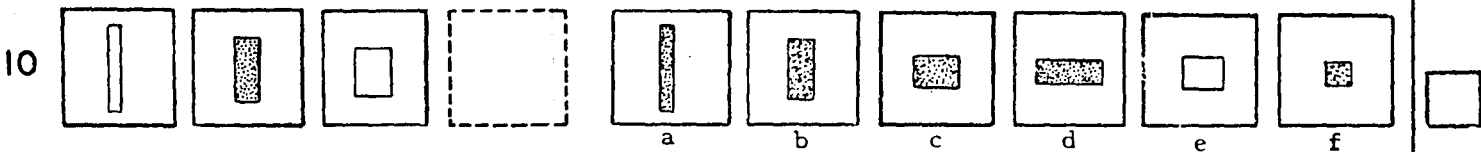
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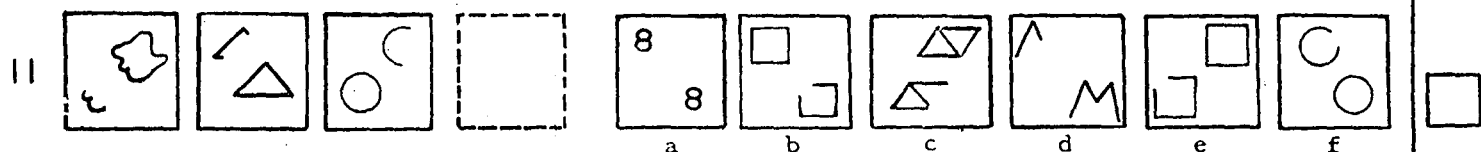
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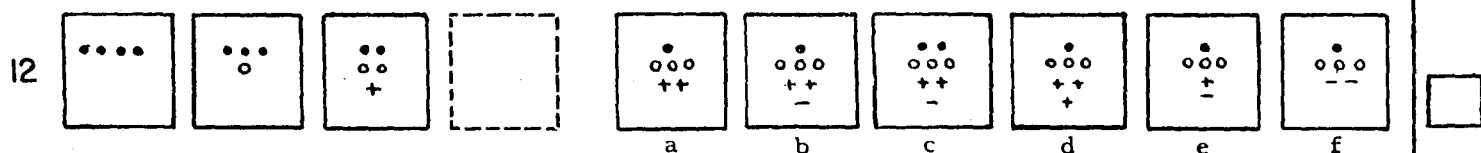
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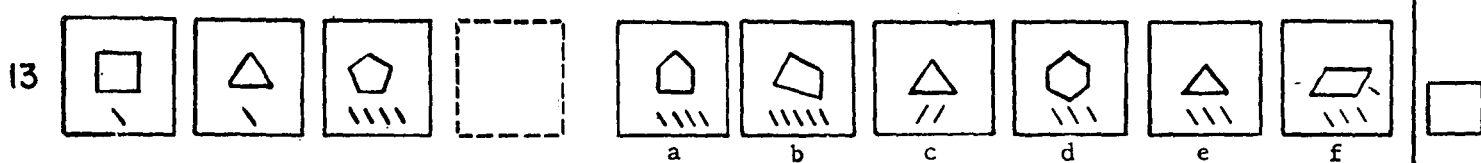
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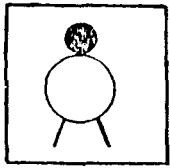
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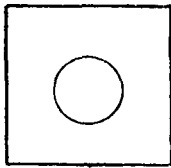
End of Test 1

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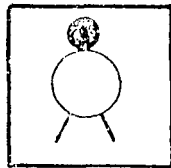
Examples



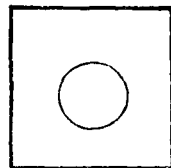
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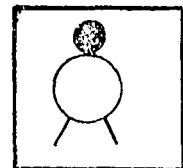
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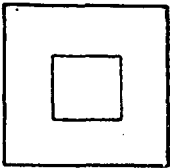
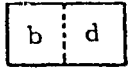
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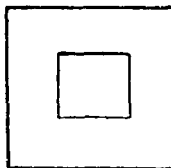
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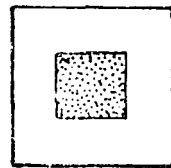
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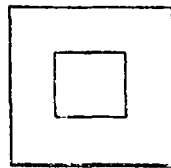
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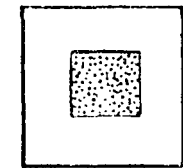
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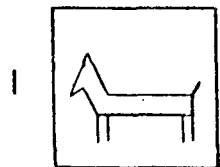
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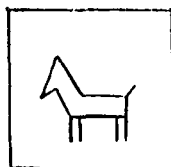
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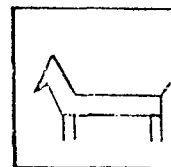
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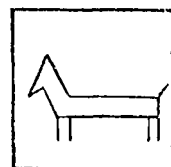
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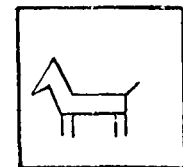
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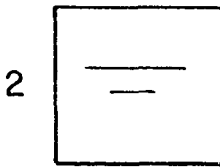
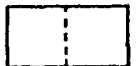
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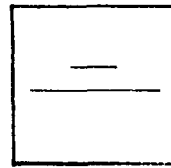
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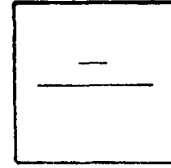
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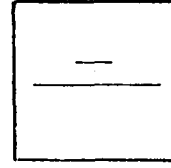
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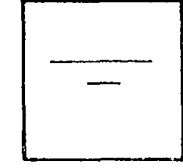
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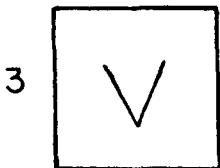
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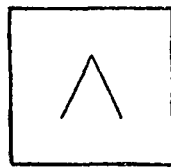
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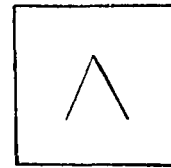
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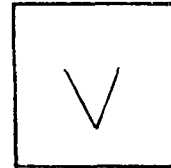
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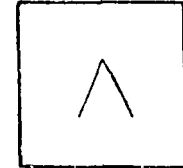
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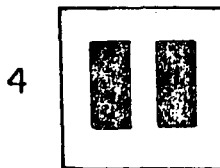
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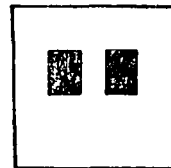
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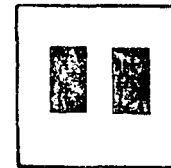
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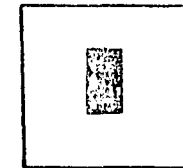
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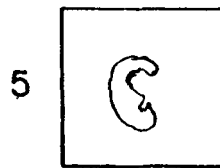
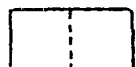
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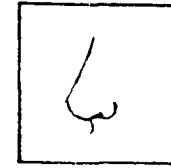
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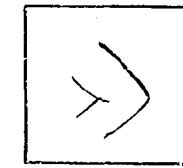
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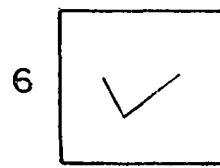
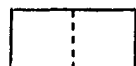
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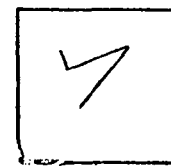
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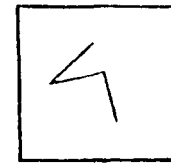
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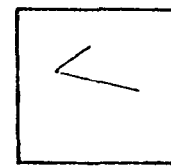
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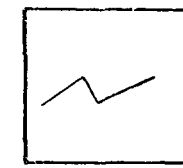
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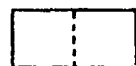
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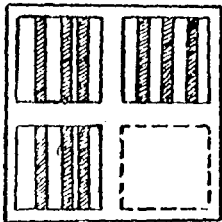


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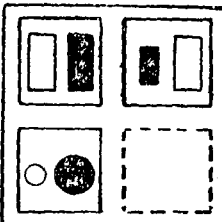
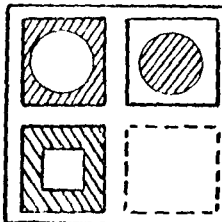
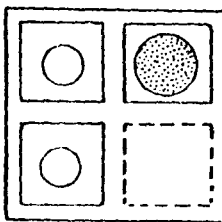
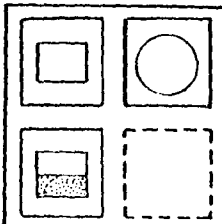
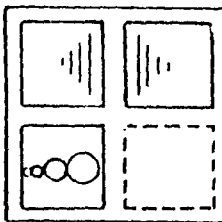
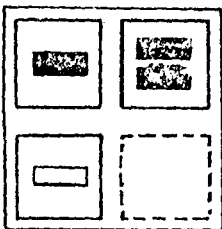
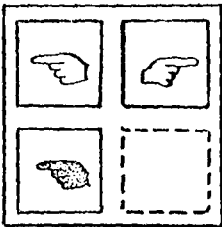
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14						
	a	b	c	d	e	

End of Test 2

STOP ! Do not turn the page until told to do so.



b



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Examples

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Appendix-B

SOCIO-ECONOMIC STATUS SCALE

A. EDUCATION

1. Professional degree, M.A and above
2. B.A or B.Sc degree
3. P.U.C or Post High School Diploma
4. High School Certificate
5. Middle School Certificate
6. Primary School or Literate
7. Illiterate

B. OCCUPATION

1. Profession
2. Semi-Profession
3. Clerical, shop owners, farm owners etc.
4. Skilled worker
5. Semi-skilled worker
6. Unskilled worker
7. Unemployed

C. INCOME

1. Above Rs.4200/-
2. Rs.3500-Rs.4,199
3. Rs.2800-3499/-
4. Rs.2200-Rs.2799/-
5. Rs.1600-Rs.2199/-
6. Rs.1000-Rs.1599/-
7. Below Rs.1000/-

Confidential



**DR. BAQER MEHDI**  
*Professor of Education*  
N. C. E. R. T.  
New Delhi - 110016

**T C F**

T. M. No. 458715

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Name—		Date of birth—
Sex—	Age—	Class—
Name of Institution—		
Father's name—		Occupation—
State—	City—	Date—

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### INSTRUCTIONS

Creative thinking has played a very important role in man's life. People have achieved great things with the help of their thinking and imagination. In this booklet you will find some interesting figures which will require the use of your imagination in working with them. The purpose is to see how quickly and imaginatively you can work with these figures in order to make interesting pictures out of them. Take the given figure as the base and then draw a novel and interesting picture on that base. Apply your best thinking in drawing the pictures. Draw the picture from your imagination and give an appropriate title to it to explain what you have drawn. There are no right or wrong drawings. You are to use your imagination as much as you can to give us as elaborate and interesting a picture as possible.

The tasks in this booklet are divided into **THREE ACTIVITIES**. Each **ACTIVITY** is separately timed. Within the time limit for the activity you may work on the different drawings according to your speed. When you finish one drawing, go to the next in the same **ACTIVITY**. If necessary, you may return to the previous one again for any addition you want to make in your drawing. Remember that you have not to go to the next **ACTIVITY** until the time for the first **ACTIVITY** is over and you are told to proceed further.

At the end, you will be given **5 MINUTES EXTRA** time which you may use to add new ideas to any drawing of any **ACTIVITY** in which you want to do additional work.

Please do not omit any task. Start your work only when you are told to do so.

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Estd. : 1971

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## Activity : I

## Picture Construction

### DIRECTIONS :—

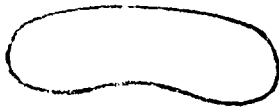
On the following page you have been given two simple line drawings. Using them as a base or a part you have to draw pictures which you consider both novel and interesting. You can turn the page in any way you like to begin to draw your picture. Think of a picture which you feel no one else would be able to make. Try to add as many ideas as you can to make the picture interesting and novel.

When you have completed the picture, give a title to it in the space provided for. Try to make the title as interesting and unusual as possible, which will show how imaginatively you can think.

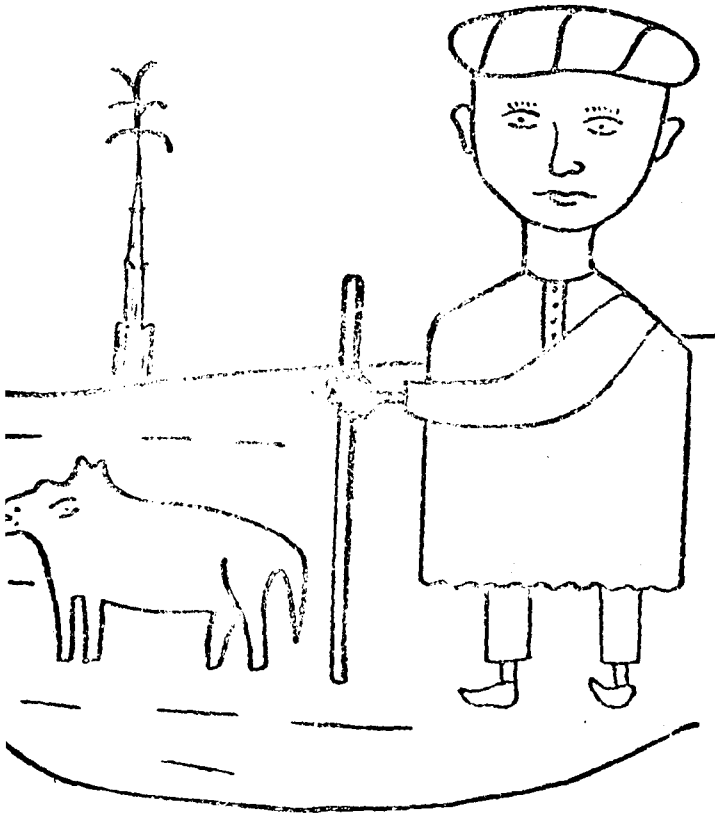
You need not give much attention to accuracy and beauty of the picture. What is more important is that how novel and interesting is the picture you have drawn. Copying will not be of any help.

You will be given 10 minutes to complete this ACTIVITY. You will be told the time after 5 minutes so that you may move on to the next item in the ACTIVITY.

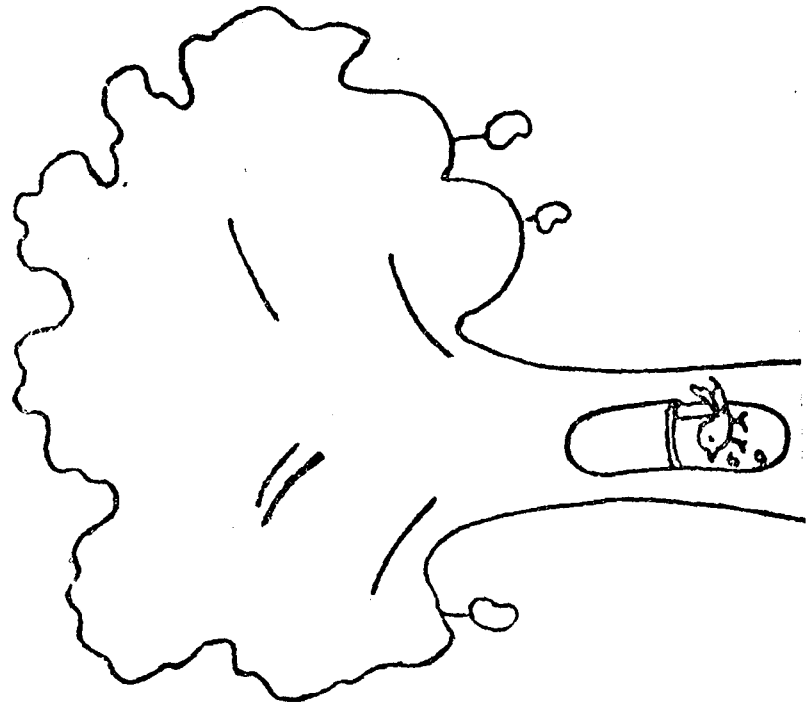
EXAMPLE :—



You will find that the figure given at your left has been used as a part in both the pictures. In the first picture, it has been used as a cap, and the other as hollow in the tree. You have to make only one picture with one part.

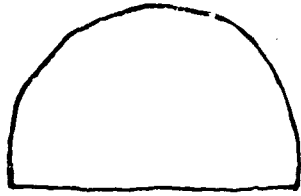


Title : *A man grazing a pig.*



( You will notice that here the page has been turned around to make the picture )

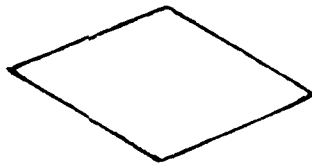
Title : *A bird's nest in the hollow of a tree.*



Title :

---

2.



Title :

Activity : II

**Picture Completion**

**DIRECTIONS :—**

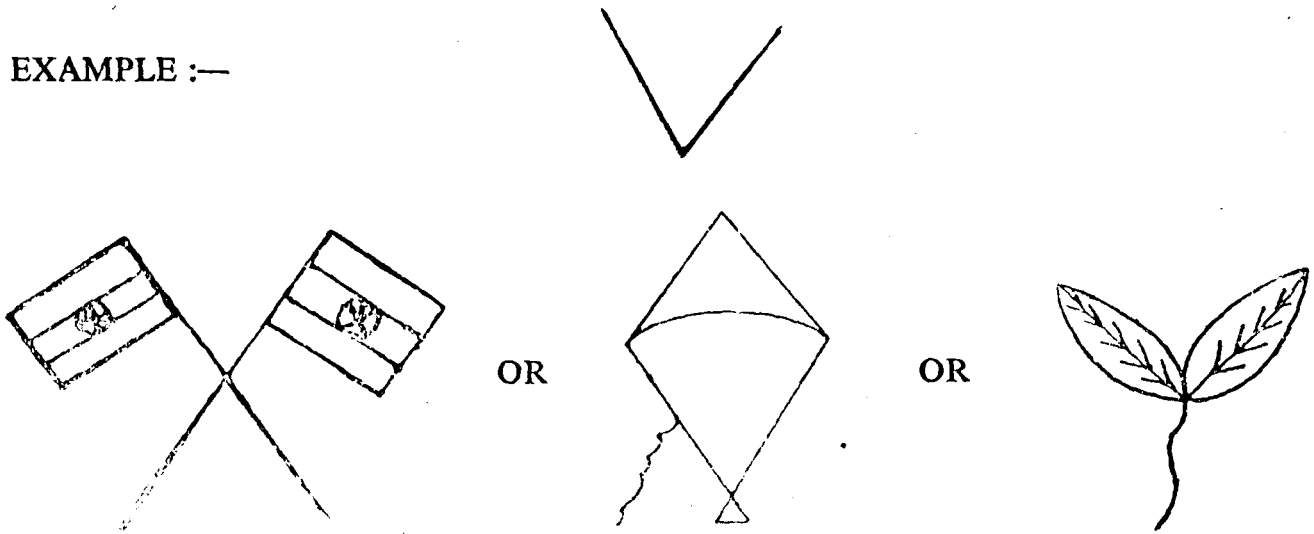
On the following pages you have been given 10 incomplete figures. Your task is to complete them in any way you like. Try to make the pictures as interesting and unusual as possible. Think of a picture which you feel no one else would be able to make.

Try to add as many ideas as you can to make the picture novel and interesting.

When you have completed your picture, give a title to it in the space provided for. Try to make the title as interesting and unusual as possible, which will show how imaginatively you can think.

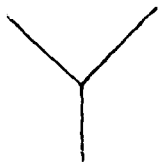
You will be given 15 minutes to complete this **ACTIVITY**.

**EXAMPLE :—**



*Title : Flags of India's freedom struggle. Title : Kite flying in the air. Title : Leaves which look nice on the tree.*

1.



Title :

2.



Title :

4.

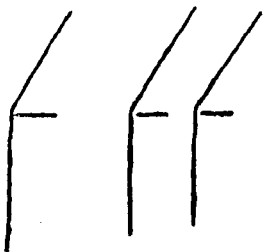


Title :



Title :

5.



Title :

6.



Title :

7.



Title :

8.



Title :

9.



Title :

10.



Title :

Activity : III

**Triangles & Ellipses**

**DIRECTIONS :—**

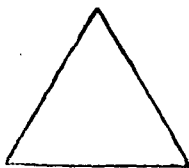
On the following pages you have been given two types of geometrical figures, namely, a triangle and an ellipse. You can think of many objects or pictures which you can make with the help of these two figures using them as the main part.

You have to make each picture as interesting and unusual as possible. Each picture should be different from the other and must convey a complete idea. Try to think of objects which no one else might have thought of. After completing each picture give a title to it in the space provided. Try to make the title as interesting as possible which will show how imaginatively you can think.

It is not necessary that you first finish all the triangles, and then to go to the ellipses. When you find that no new ideas are coming to you on triangles, immediately move on to ellipses. Try to make as novel and interesting pictures as possible.

You will be given 10 minutes to complete this **ACTIVITY**.

1.



Title :

2.



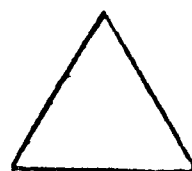
Title :

3.



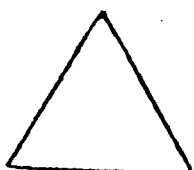
Title :

4.



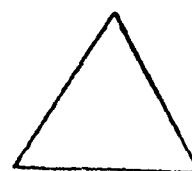
Title :

5.



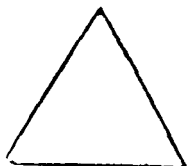
Title :

6.



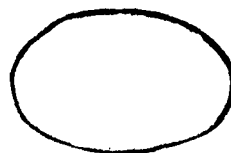
Title :

7.



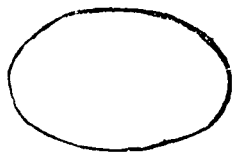
Title :

8.



Title :

9.



Title :

10.



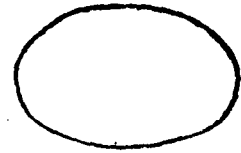
Title :

11.



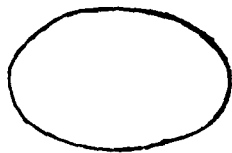
Title :

12.



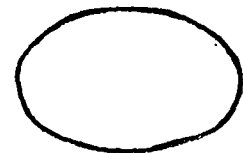
Title :

13.



Title :

14.



Title :

SCORING SHEET

TCF

ACTIVITY I

	Elaboration (N)	Elaboration (V)	Originality (N)	Originality (V)
Item 1.	.....	.....	.....	.....
Item 2	.....	.....	.....	.....
Total				

ACTIVITY II

	Elaboration (N)	Elaboration (V)	Originality (N)	Originality (V)
Item 1.	.....	.....	.....	.....
Item 2.	.....	.....	.....	.....
Item 3.	.....	.....	.....	.....
Item 4.	.....	.....	.....	.....
Item 5.	.....	.....	.....	.....
Item 6.	.....	.....	.....	.....
Item 7.	.....	.....	.....	.....
Item 8.	.....	.....	.....	.....
Item 9.	.....	.....	.....	.....
Item 10.	.....	.....	.....	.....
Total				

ACTIVITY III

	Elaboration (N)	Elaboration (V)	Originality (N)	Originality (V)
Triangles	.....	.....	.....	.....
Ellipses	.....	.....	.....	.....
Total				

SCORING SUMMARY

	Elaboration (N)	Elaboration (V)	Originality (N)	Originality (V)
Activity I	.....	.....	.....	.....
Activity II	.....	.....	.....	.....
Activity III	.....	.....	.....	.....
Total				
Grand Total				

See back page for further instructions regarding originality scoring.

**ORIGINALITY SCORING FOR RESPONSES NOT MENTIONED IN THE RESPONSE LIST**

For any novel response not mentioned in the response list given in the manual, first of all briefly note it down in the space provided below giving the number of the activity and the item to which belongs. Then, after you have scored all the test scripts, give it a score according to the scheme given in the manual and note the score in the appropriate column in the Scoring Sheet. In all probability, there will be very few such responses.

Activity	Item	Response	Originality Score

(Appendix- D)

ADJUSTMENT INVENTORY FOR SCHOOL STUDENTS

Undergiven information should be filled in by the candidate:-

Student's Name

Age: Name of the School:

Class:

Boy/Girl

Date:

Instructions

Below there are some questions covering your school problems which have two responses alternatives "Yes" and "No". Read every question carefully and decide whether you want to answer it with yes or no. If your answer is "yes", then cross (x) the cell ( ) under "Yes" and If "No", cross (x) the cell ( ) under "No". Remember your answers will not be told to any person, so please give the correct answer without hesitation. You may take your own time, but try to finish as soon as possible.

	Yes	No
1. Are you always afraid of something in your school?	( )	( )
2. Do you avoid meeting your classmates?	( )	( )
3. Do you forget soon what you have read?	( )	( )
4. Suppose, your classmates do something unreasonable unknowingly, do you immediately get angry with them?	( )	( )
5. Are you a shy nature?	( )	( )
6. Are you afraid of examinations?	( )	( )
7. Do you worry if your teachers scold you for your mistakes?	( )	( )
8. Do you hesitate in asking a question when you do not understand something?	( )	( )

9. Is it difficult for you to understand the lessons taught in the class? ( ) ( )
10. Are you jealous of those friends whom teachers appreciate very much? ( ) ( )
11. When some of your teachers are together, do you go there without any complex? ( ) ( )
12. Can you note down the lessons taught in class correctly? ( ) ( )
13. Do you envy those classmates whom you think better than you? ( ) ( )
14. Do you feel sometimes, as if you have no friends in your school? ( ) ( )
15. Do you yawn when the lessons are being taught in your class? ( ) ( )
16. When you see some students talking to themselves, do you think they are gossiping about you? ( ) ( )
17. Are you able to get friendly easily? ( ) ( )
18. Are you satisfied with the method of teaching of the teachers of this school? ( ) ( )
19. Do you express your anger to others when you are not asked to come forward in any programme in your school? ( ) ( )
20. When some students are talking together, do you join them freely? ( ) ( )
21. Do you think that the teachers in the school do not give any attention to your problem? ( ) ( )

22. Are you often sad and distressed in the school? ( ) ( )
23. Do you like to join your classmates working together? ( ) ( )
24. Are you satisfied with progress in your studies? ( ) ( )
25. Do you feel that the teachers neglect you? ( ) ( )
26. Do you try to attract the attention of your teacher to yourself in the class? ( ) ( )
27. It is a burden for you to study? ( ) ( )
28. Do you get yourself worked up and try to harm a student when he complains against you? ( ) ( )
29. Do you often like to be alone? ( ) ( )
30. Are your teachers always ready to solve your problems concerning your studies? ( ) ( )
31. Are you often dissatisfied with your school? ( ) ( )
32. Do you establish a friendly relationship with the students in the class? ( ) ( )
33. Do your teachers in the school praise you? ( ) ( )
34. Do you try to rationalise your mistake? ( ) ( )
35. Do you like to sit in the front seats in the class? ( ) ( )
36. Do you often get less marks in examination? ( ) ( )

37. Do you resent it when your teachers ask you a question in the class? ( ) ( )
38. Do you have a friendly association with your fellow students? ( ) ( )
39. Do you like the idea of having more holidays in the school? ( ) ( )
40. Do you get wild when one of your classmates jokes with you? ( ) ( )
41. Do you openly take part in the school assemblies? ( ) ( )
42. Do you often quarrel with your classmates? ( ) ( )
43. Do you sometimes go home before the school closes? ( ) ( )
44. Do you take part in the school sports? ( ) ( )
45. Do some of your teachers often keep on scolding you for the studies? ( ) ( )
46. Do you often have doubt on others in the school? ( ) ( )
47. Are you shy of talking to the senior students in school? ( ) ( )
48. Do you look at your teachers respectfully? ( ) ( )
49. Do you show impertinence(arrogance) towards something good sent by a mate with whom you do not get along well? ( ) ( )
50. Do you have some intimate friends in this school? ( ) ( )
51. Do you pay attention to the lesson being taught in class? ( ) ( )
52. Do you develop resentful feelings towards your teachers when you get less marks? ( ) ( )

53. Are you always ready to help your classmates in everyway? ( ) ( )
54. Do you borrow books and magazines from the school library and read them? ( ) ( )
55. Are you often afraid of meeting the senior students? ( ) ( )
56. Do you enjoy irritating other students in the school? ( ) ( )
57. Do you take part in the debates? ( ) ( )
58. Do you feel mentally depressed when you meet the senior students? ( ) ( )
59. Do you lend your books or note-books gladly when your classmates ask for it? ( ) ( )
60. Are you interested in the things regarding education? ( ) ( )

APPENDIX E  
INTERVIEW SCHEDULE

1. Are you happy with the present system of teaching in school subjects? What are your reasons?
2. Given a scheme, would you prefer to work through projects in addition to your regular class work?
3. Do you find the volumes in your school library and the equipment in the laboratory adequate?
4. Do you enjoy attending all classes in the class routine. If No, what subjects would you like to stay away from? Why?
5. How would you like to spend the time thus saved?
6. Indicate your subject of interest and preference.
7. During your extra project works, would you like the presence and guidance of a teacher?

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