CHAPTER 3

CHAPTER - III

PROBLEM AND PROCEDURE

INTRODUCTION

Research is a kind of investigation or method of investigation. According to Tuckman(1966)research is a systematic attempt to provide answers to questions. Such answer may be abstract and general as in the case of basic research or they may be highly concrete or specific as in the case of demonstration or applied research. Research is carried out to understand or explain some phenomena, acquire knowledge, satisfy curiosity, understand cause and effect relationship and predict future events on the basis of known facts. Many times the goals of research depend on the process of data collection and techniques used in the data analysis. In a psychosocial type of research the emphasis is given on individual responses, on the uniqueness of the individual and the particular problem faced by him. The present investigation is of psychosocial and clinical nature wherein the effect of sex, age and deprivation on learning difficulties and scholastic achievement of the students of Baroda Muncipal Corporation is studied.

STATEMENT OF THE PROBLEM

The problem of the present investigation is "Effect of prolonged deprivation on learning difficulties and academic achievement of boys and girls".

As an exploratory study, the present research has three objectives.

OBJECTIVE NO. I

To study the effect of age, sex and deprivation on six learning difficulties and five type of scholastic achievement. In the light of these objectives following hypotheses were developed.

HYPOTHESES

a) Sex will have no effect on learning difficulties. In other words boys and girls will not differ significantly from each other on learning difficulties.

b) Age will have no effect on learning difficulties. In other words young students (below twelve years) and old students (above twelve years) will not differ significantly from each other on learning difficulties.

c) Deprivation will have no effect on learning difficulties. In other words high deprivation and low deprivation will have no effect on learning difficulties.

d) Sex and age jointly will have no effect on learning difficulties.

e) Sex and deprivation jointly will have no effect on learning difficulties.

f) Age and deprivation jointly will have no effect on learning difficulties.

g) Sex, age and deprivation jointly will have no effect on learning difficulties.

h) Sex will have no effect on scholastic achievement. In other words boys and girls will not differ significantly from each other on scholastic achievement.

i) Age will have no effect on scholastic achievement. In other words young students (below twelve years) and old students (above twelve years) will not differ significantly from each other on scholastic achievement.

j) Deprivation will have no effect on scholastic achievement. In other words high deprivation and low deprivation will have no effect on scholastic achievement.

k) Sex and age jointly will have no effect on scholastic achievement.

l) Sex and deprivation jointly will have no effect on scholastic achievement.

m) Age and deprivation jointly will have no effect on scholastic achievement.

n) Sex, age and deprivation jointly will have no effect on scholastic achievement.

OBJECTIVE NO. II

To study the relationship between fifteen deprivation factors (independant variables) and six learning difficulties and five scholastic achievements (eleven dependent variables) for boys and girls separately.

OBJECTIVE NO. III

To make prediction of learning difficulties and scholastic achievement on the basis of fifteen deprivation factors.

THE VARIABLES

In the present investigation the independent variables are 1)Age 2)sex 3)deprivation. While dependent variables are 1)Learning difficulties and 2)Academic achivement.

INDEPENDENT VARIABLES

1) Age

Age is an important variable in the study of any biological socialor psychological behaviour. According to Erikson's stages of development, there are different behavioural pattern for each stage. The problem faced by every social science today is to disentangle a person's life cycle change from changes in society can not be directly related to the age of an individual.

Neugartan (1968) in discussing young and old in modern society reviews the dynamics of the differences that may arise between the two generations. "old people are even more varied than are younger people" Neugartan notes further trend in potential generation gaps. The generation gaps eventually become absorbed in the general effort of society to correct the social ill which increase the differences between the age groups.

Moreover the "self-control"of an individual is influenced by many factors such as age, sex, economic status , material status,intelligence level, health, employment and social environment. But as the individual ages one become increasingly aware of age discrimination in adult behaviour. The young are less sensitive to complying with age related expected behaviour (Neugartan 1968) but as they grow older the lines become more firmly dracon.

Age as a variable in psychological research emphasizes the importance of viewing age changes as the individual develops rather than the differences between ages (Ledford Bisch of 1976). The purpose of this variable in the present research is similar.

Hence in this study, age was taken as an independant variable

assuming that young and old children will differ in their learning difficulties, as well as in scholastic achivement.

2) Sex

In biological and biosocial researches sex of the subject has gained parmount importance. Development of self and social attitudes, orientation and reacion are determined and differentiated by the gender identity of the subject. The psychoanalytic theory (Freud 1925), stresses that motivated by powerful emotions directed at parents, the child forms a gender identity congruent with his or her biological sex. The social learning theory (Mischel 1970) suggests that the child develops a gender identity through a learning process that involves modelling, limitation and reinforcement.

In their interaction with their surroundings, both the young and the old with definite sex identity, find the performance of sex appropriate behaviour reinforcing. In our culture, there are separate guide lines suggesting how male should behave and how female should behave. Today, with equal opportunities of education and job situations to both male and female in all fields, these sharply defined boundaries are getting blurred with the result that the reaction and adoptive patterns and perception of events of male and female have acquired a totally new direction. In the present investigation, biological sex difference of the old and the young pupils of municipal corporation schools of Baroda was taken as an independant variables assuming that old children and young children, male children and female children would differ in their learning difficulties and academic achivement.

3) Prolonged Deprivation

The concept of prolonged deprivation aims at characterizing the variation in psychological functioning of an individual in terms of his total experiential background.

From etymological point of view the term 'deprivation' stems from the verb 'to deprive' which means to disposes or strip (a person or an object), and it implies a "felt loss". It is apparent that deprivation stands for certain deficiencies in the environment, which are not only there but are also experienced as such by the individual (Sinha 1977).

In the present investigation deprivation has been studied in relation to fifteen areas namely 1) Housing conditions 2) Home environment 3) Economic sufficiency 4) Food 5) Clothing 6) Formal educational experiences 7) Childhood experiences 8)Rearing experiences 9) Characteristics of parents 10) Interaction with parents 11) Motivation and emotional experiences 12)Traveling and recreation 14)Religious experiences 15) Socio-cultural experiences

A detailed description of these areas is given below.

1. Housing Condition

This area deals with type and sufficiency of residential accommodation and its physical status, facilities, available in it, its spatial location and neighbourhood.

2. Home Environment

This area is related to complexity and variety of stimulus conditions present in home and covers items dealing with household gadgets and equipments including pots and pans, cooking utensils, furniture, water

facility, lighting arrangement agricultural and other occupational implements available in home and other utilitarian mechanical gadgets. The mechanical stimuli provide opportunity for exploration, curiosity and manipulation.

3. Economic Sufficiency

The third area deals with the economic condition and in it are included items such as sources of income, area and type of agricultural land, cattle possessed, garden, condition of debt and level of economic problems.

4. Food

Nutrition is one of the basic determinants of one's physical as well as intellectual functioning. So the fourth area of prolonged deprivation referred to food habits and food stuffs used. Items such as eating habits, types of meals indicating their nutritive value etc. are considered in this area.

5. Clothing

This area is concerned with type of clothes used, sufficiency of cloths, use of ornaments, bet and shoe etc.

6. Formal Educational Experiences

This area deals with educational experiences and covers items regarding age of school entrance, educational attainment, year of schooling, attendance in school, relation with teachers, interest in extra curricular activities and interaction with peer group.

7. Childhood Experiences

This area is related to experiences derived in connection with parental

care during early years of life, attention and affection received from parents and mode of parental discipline.

8. Rearing Experiences

This area is related to the preceding area and deals with items referring to interactional experiences of various sorts. Opportunity of interaction with friends, experience of marketing, listening to stories from parents, participation in household activities etc.

9. Characteristics of Parents

This area referred to parental characteristics such as educational status, income, social prestige, physical and mental health etc.

10. Interaction with Parents

This area is concerned with items such as expression of feeling before parents, adjustment problems and parental expectations etc.

11. & 12. Motivational and Emotional Experiences

This area dealt with satisfaction of psychological needs such as respect, affiliation, curiosity decision making, power, initiative and interest etc. Emotional experiences dealt with pleasure, fear, avoidance, sympathy, anxiety, praise and reward etc.

13. Travel and Recreation

This area covered items pertaining to sources of recreation, variety of recreational experiences, leisure time activities and experiences of travel.

14. Religious Experiences

Items on God worship, life rituals, and knowledge of other religions were included in this area.

15. Socio-Cultural Experience

This area deals with social and cultural interactions with respect to acceptance of food, water participation in social activities, social prestige etc.

DEPENDENT VARIABLES

The two dependent variables in the present research are (1) Learning difficulties and (2) Academic achievement.

1. Learning Difficulties

There are several attempts to define the term learning difficulties dating back to early sixties. The first definition was given by Kirk in 1962. According to Kirk "A learning difficulty refers to a retardation, disorder or delayed development in one or more of the processes of speech, language, reading, spelling, language, writing or arithmetic, resulting from a possible cerebral dysfunction and/or emotional or behavioural disturbance and from mental retardation, sensory deprivation or cultural or instructional factors."

The concept of learning difficulties has gained firm ground in the west. However, the field is still in its infancy in India so that there is a complete reliance on Western literature in understanding the concept. Kirk (1962) was one of the leading pioneers who accorded learning difficulties was made by National Advisory Committee of U.S.A. in 1968.

Children with learning difficulty exhibit a disorder in one or more of the basic psychological processes involved in understanding or using spoken or written languages. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling or arithmetic. In the present study the term learning difficulties refers to minor or major difficulties in various aspects of reading and writing as revealed by the class teaches and formal test measures. There are numerous definitions of "learning difficulty" available. The stand accepted for the present study has been the one offered by Kirk (1972) he has delineated common aspects of various definitions, such as :

a) The learning problem should be specific and not a correlate of other primary handicapping conditions as mental retardation, sensory handicaps, emotional disturbance.

b) The children must have discrepancies in their own growth (intra individual differences) with abilities as well as disabilities.

c) The deficits found in a child must be of a behavioral nature such as thinking conceptualizing, memory, speech, language, perception, reading, writing, spelling arithmetic and related abilities.

d) The primary focus of identification should be psycho-educational.

One of the most recent definitions of learning difficulty to achieve acclaim has been advanced by the council for exceptional children (1971), "A child with learning difficulties is one with adequate mental ability, sensory process and emotional stability but evidences specific deficiencies in perceptual, integrative or expressive process. Learning disabled child may be a disadvantaged child and vice versa but one does not necessarily imply the other; both encounter difficulties in learning

inspite of having normal intelligence. The source of difficulties of a disadvantaged child is poor stimulation at home and a school. The source of learning difficulty lies in sensory process and functional skills but not in the environment.

In the present research six types of learning difficulties namely (1) Spoken language (2) Motor coordination (3) Personal social behaviour (4) Memory (5) Visual perception (6) Auditory comprehension were used as dependent variables. They are further described below :

1. Spoken Language

Language is an important tool in learning. Understanding content and effective expression of one's thought and ideas depends on language. A person with a large vocabulary will be more efficient in expressing complex ideas. Language has also been considered to be a reflection of one's intelligence. Children with high intelligence have been found to use large sentences compared to children with average and below average intelligence. Because of this reason almost all the intelligence test use language as diagnostic symptom. The very first intelligence test developed by Binet and Simon in the year 1905 had items to gauge language ability.

Language is defined in many ways by many investigators with varying degree of precision. These definitions are in part dependent on the investigator's discipline. For instance Carroll (1953) defines language from a linguistic point of view as a structured system of arbitrary vocal sounds which is used, or can be used in interpersonal communication by an aggregation of human beings and which rather exhaustively catalogue the things events and processes in the human environment. In this instance Carroll sees language as an internalised system or code

that individual has acquired and is able to use in verbal communication. Speech on the other hand is the behavioural manifestation of language that is communication or overt verbal performance. Marge (1972) distinguishes the four main components of language behaviour. They are listening,speaking,reading,and writing. He emphasizes that language is composed of phonological,morphological syntactic and semantic components that one must acquired in order to understand and speak a language. All these components are found in studies of the language and speech difficulty of learning disabled adolescents.

The study of spoken language disorders developed from the work done in the 19th and 20th centuries by a variety of professionals. Who observed that children with disorders of spoken language suffered from many problems. To iterate individuals with oral language problems have difficulty in formulating their own language and or in understanding that ofothers. Their speech behaviour is characterized by malapropisms, unintelligible, jabbering jargon, mutism, regression to or arrest at infantile levels of grammar and vocabulary, telegraphic speech, inappropriate grammar or vocabulary, circumlocutions, and inordinately, long pauses.

In the present investigation learning difficulty is studied in relation to expressive language with following attributes :

(i) Vocabulary : Vocabulary is an integral aspect of classroom learning and medium of subject matter learning thereby.

(ii) Word Recall : An ability to recall appropriate word is an indication of normal use of expressive language. A child faces problems when he may recognize the words but not recall them.

(iii) Relating Experiences : This is an important feature of developmental learning (Bindet and Simon 1916; Doll 1953). Even while relating an already familiar episode a child requires to organize his language in a logical and coherent manner.

(iv) Verbal Fluency : It is an essential aspect of expressive language. A child who lacks this is generally at a loss in expressing himself even though his knowledge of the subject matter may be adequate.

2. Motor Coordination

Class room involves reading and writing ability. It is a process of making response which involves coordination of various muscles for example when the child is reading he is coordinating, the functions of eye, attention, tongue etc. Motor coordination refers to coordination of various muscles in accomplishing some task. Every behaviour is basically motor in nature which requires coordination of different muscles. According to Kephart (1967). There is a normal sequence of development in motor patterns and learning is a generalization of motor functions. Kephart has presented four motor generalizations that he felt lead to the integration of basic motor patterns into functional learning capabilities. These four generalizations include :

(i) Posture and Balance : Those activities that involve becoming aware of and maintaining one's relationship to the force of gravity.

(ii) Contract : Those activities, such as reading, touching, grasping, that provide information about the characteristics of the real world and possible manipulation of things and objects.

(iii) Locomotion : Those activities, such as walking that provide for the development of special relationship between separate objects.

(iv) Receipt and Propulsion : Those activities that involve some of the same aspects as the first three generalizations but deal also with objects and relationships that are not static but moving. These would include such activities as throwing, catching, pulling, and pushing.

In learning to write, motor skills are of great importance (Johnson 1963 P.134) Writing requires good eye-hand co-ordination and the ability to copy is a good example. Much instruction is provided through activities, learning through doing. One cannot do satisfactorily without good motor skills. Even turning the pages of book requires motor skills and coordination. More highly developed skills are required in arts, crafts, industrial arts and home-making activities that are an integral part of most curriculum. In the more academic areas, experiments in science, physics and biology require good coordination if the student is to derive the greatest possible benefit from the instruction provided him. Motor coordination in the present context includes general coordination, finer motor/manipulative skills and physical activities:

(i) General Coordination: It refers to the child's ability for hoping, skipping, running, climbing and walking.

(ii) Finer Motor/Manipulative Skills : It includes coordination of eye and hand muscles to be able to carry out activities such as painting, drawing and writing.

(iii) Physical Activity : For every task in a class room there is certain amount of physical activity to be employed. A child who is inactive might find that he is lagging behind. On the other hand, an overly active child may be constantly on the move hence unable to concentrate and learn.

3. Personal Social Behaviour

Children's personal and social contacts with other pupils of his own age or of older age are important in the development of various social activities like sharing cooperating, helping, competing etc. Healthy social relations are important in adjustment and adaptability. However in many a time a child may not be able to develop desirable social patterns and his personal and social relations may be disturbed. Disturbance in personal social aspects have been referred to as inattention,irritability, hyperactivity and distractability. Though not all with deficits in learning present such problems,in some cases these problems are indicators of disability.

(i) Co-Operation : It is an essence of classroom learning, for group participation requires the ability to follow directions without disturbing other. A child who fails to understand what goes on may indicate so in various ways. He may speak randomly not wait for his turn or withdraw.

(ii) Attention : Learning requires paying attention. Lack of it may cause difficulties in learning. Often inattention is a trait of children who fail to learn. Such a child may be easily distracted.

(iii) Organization : A fundamental characteristic of a good learner is his ability to organize immediate circumstances into meaningful word. A child who has difficulties in planning arranging papers,books or other materials in a way that is appropriate for learning might encounter difficulties in effective learning.

(iv) New Situation : New situations necessarily include change to adopt to it successfully. A child needs self control and tolerance.

(v) Completion of a Task : Classroom learning is a series of various tasks which requires completion. A child facing difficulties will surely indicate it through his lack of task completion. Often such children fail to complete reading,arthmetic or writing work in the class.

There is evidence that student's with learning difficulties experience significant problems in social adjustment,social perception,self-concept and motivation (Desher D.D 1960 P. 59) These problems warrant the full attention of those involved in the educational process of learning disabled pupils.

4. Memory

Memory means ability to remember. Whatever an individual learns or acquires, it is retained by him for future purposes. Organization of ideas in sequence is possible because of memory. Solution of the problems is possible because of memory. Transfer of training takes place because an individual is able to retain the past information and applies it to the new situation. His past knowledge because of his memory helps him to understand novel situations, the interconnection between the conditions,the variables and thereby provides him an insight to organize the whole situation.

There are two types of memory (1) Short term memory and (2) Long term memory. Short term memory means remembering some thing for few seconds or few minutes or for a while. Short term memory has a limited capacity. It is extremely susceptible to disruption that means it is easily affected by distraction.If anything is lost from short term memory it is completely lost that is nothing can be retrieved. There is no point in searching for it. The only thing to do is to relearn the material to be remembered.

Long term memory means memory that lasts hours,days,or years. In others words to remember something for a long time. Long term memory is what psychologists are interested in studying and what teachers are interested in promoting in the classroom. Long term memory has wide capacity unlike short term memory it is much more resistant to distraction. Retrieval of information is possible in long term memory. In long term memory loss of information is partial but not complete. The individual does not forget anything,heis able to retain something.

5. Visual Perception

This requires a child to make a mental image of what she/he sees so that when asked to reproduce she/he can do so without additions,subtractions and distortation.Visual perception encompasses three specific skills.

(i) Visual Discrimination : It means ability to recognize what is seen and differentiate it. Visual discrimination is developed by teaching the child to select an object that is different from another,to find two or more objects that are alike, and to distinguish similarities and differences in size,shape or colour (Johnson G.O, P-130). Visual discrimination is essential if a child is later going to be able to note differences between the configuration of sentences and words on the chart, and words and letters and the order or sequence of letters, in more advanced reading and spelling. Visual discrimination is also used in arithmetic for understanding relationship differentiating between sizes and amounts, recognizing numbers,and determining signs.

(ii) Visual Memory : It means ability to remember what is seen. Visual memory is an important scale in the development of reading ability (Johnson G.O 1963 P 133)It is essential to remember things seen in the development of an initial sight vocabulary,associating the correct word

with printed symbols,and developing the use of syllables,prefixes,suffixes, and phonics essential in becoming a independent reader. While this thing has been recognized for a long time and instruction is included routinely in reading readiness program while most teachers competence is also essential to learning in other areas. Visual memory has purpose that carries its important well beyond reading. Instruction in almost all areas, arithmetic,science,health,social studies and many others is dependent on it. Instruction in general is carried on or associated with verbal instruction and visual demonstration. In order that these instruction be of value,that the individual learns as a result of them he must remember them. Good speech and language development will enhance the learning of reading since reading is merely putting information and ideas into language through the use of visual symbols. Its importance however, goes far beyond reading. Verbal communication is the single most important method used to transmit ones desires, need, ideas explanations, description and so on. One is severely handicapped both socially and vocationally if this means of communication cannot be used effectively.

(iii) Visual Sequencing : It means ability to remember the order of things seen. Visual sequencing is important in learning. The process of learning takes place in certain definite order. For examples the alphabets A to Z are universally written in a definite sequence where in A is followed by B. B is followed by C and at the end Y is followed by Z. The child observes these alphabets and forms the memory of them in a sequence. Visual sequencing is also important in learning process, reasoning and organization of ideas. Solution of problems is carried out through process of visual sequence.

6. Auditory Cmprehension

This reffers to the ability to record correctly. What is heard. It focusses on the ability to record the sound accurately. The specific skill include (1) Auditory discrimination : ability to recognize what is heard (2) Auditory memory : ability to remember what is heard (3) Auditory sequencing : ability to remember the order of things heard. Auditory discrimination is usually improved through helping the children distinguish the diffrences between sounds (amplitude, pitch, and quality Johnson P.132). These activities are usually initiated with sounds that are grossly dissimilar. As the children can make the appropriate selections indicating grasp of the principle involved as wellas the ability to make differentiations at this level, sounds are presented of a successively more similar nature requiring finer and finer auditory discrimination. Rhymes and songs, and listening to record the rhythms also contribute to the improvement of performance in this area. Auditory discrimination is also essential at later stagesinreading where the children are developing an independence of word attack. It is essential in word analysis, syllabication, use of prefixes and suffixes and alonge with sound blending or synthesis in phonics. Good abilities in auditory discrimination are essential not only to the learning of reading but also in many other areas of learning. It is essential in the production of good speech,and to the understanding of all stimuli of an auditory nature. Following directions, learning any and all materials presented verbally and better understanding of the environment are all partially or almost totally dependent upon good accurate auditory discrimination.

2. Academic Achievement

Achivement is a term used to denote "The degree or level of success attained"in some general or specified area (English and english,1962)" Degree or level of succes "is measured in this study in terms of marks obtained in the examination. In this study the marks obtained in the

subjects, formally taught in the school, at the examination conducted by the schools are taken as "Academic Achivement"

In the present research the effect of prolonged deprivation has been studied in relation to the academic achivement of 6th and 7th standard students of Muncipal Corporation Schools of Baroda in the subjectsof Mathematics, Science, Gujarati, Social studies and Hindi.

Reading and Achivement in Social Studies

Michaelis (1956) listed some ten main types of material which the child must read in social studies. Some of the reasearch showing relationship between reading and achievement in social studies has been summarised by Horn (1973, PP.151-205) W.E. Young (1941) and Witty (1950). In a study of two groups of eight grade children, Rudolf (1949) found that instruction in reading skills over a five month period produced superior knowledge of social studies information and superior test scores in study skills and reading comprehension without requiring additional class time. She gave the group practice in comprehension and interpretation of social studies materials, reference works, note taking, outlining and summarising. Howell (1950) commented on the values of special instruction in the use of references and in reading maps,graphs, charts and tables Cubertson and Powers (1959) found verticalbar graphs somewhat easier to interpret than horizontal bar graphs and both of these easier than line graphs. Labels and symbols on graph seemed somewhat easier to interpret than cross hatching and keys. Edgerton (1954) found that articles in well known children's encyclopedias were often at the seventh or eight grade levels of difficulty.

One aim of social studies instruction often cited in courses of study, is that of developing habits of critical reading or thinking. Although not based directly on research, a list of criteria suggested by Tiegs and

Adams (1959), for the evaluation of social studies materials which require critical thinking might improve the selection of items to be placed in the pupil's hands. The criteria included authorship, philosophy, organization , contents, readability, illstrations and physical features, and the use of other teaching aids and accessory materials.

Reading and Achievement in Mathematics

Spencer (1960) stated that "mathematical reading occurs whenever quantity or relationships of a quantitative nature are experienced." (p. 204). Mathematical symbolism is one type of language which each child must acquire, at least in part, and understanding of meaning is essential in both mathematics and reading. Skills required in reading arithmetical materials were discussed by Mckee (1948), by G.L. Bond and Wagner (1960) and others. Research on the role of reading in solving verbal problems was summarized by D.H. Russell (1960). This research has revealed a low relationship of arithmetical achievement to general reading ability but a closer relationship to specific vocabulary and to selected reading skills such as ability in noting details, drawing inferences and integrating scattered ideas for example H. C. Johnson (1944) found that a seventh grade group instructed in mathamatical vocabulary not only gained in arithmetic vocabulary but made significant advances in ability to solve problems which included the vocabulary taught. Treacy (1944) found that, with the effect of mental age removed, threre was, little relationship between problem solving abilities and such reading abilities as predicting outcomes comprehending at a particular rate, getting the central thought and interpreting the content. On the other hand success in problem solving was related to mathematical vocabulary. Ability to perceive relations, ability to note details clearly and ability to combine dispersed ideas. In other words, ability in problem solving is related to some reading, thinking abilities but not

so others. Again research on some focus for reading instruction by the mathematics teacher is indicated.

Reading and Achievement in Science

Although the reading of science textbooks is common in both the elementary and secondary grades, such books do not constitute a complete program in science, for reading must be combined with observation and experiement. However, reading can be useful in building up a background of information on such matters, for instance, as the lives of scientists or methods used in studying weather. It may have additional values in developing attitudes, forcusing observations, or preparing for experimentation. As in the case of mathematics, not all kinds of reading are used in these activites, Swenson (1942) found that scores on tests of ability to read science materials and on sstandardized general reading tests were substantially correlated but that rate of reading was not highly correlated with achievement in science classes. Shores (1943) found, for ninth grades, that good reading in science was related to power (level) in reading comprehending the general meaning of a passage. In a later study Shores and Saupe (1953) found that results of a test of reading ability in science materials, given in grades 4, 5 and 6. Suggested the existence of specific abilities in reading different materials for different purposes.

DESCRIPTION OF TOOLS

PROLONGED DEPRIVATION SCALE

To measure the prolonged deprivation of the subjects, deprivation scale constructed by G.S. Misra (1980) was used. The scale consists of 96 items measuring fifteen deprivation areas. There were about eight items specifically meant for rural conditions which were not applicable to the urban setting, hence they were eliminated. Thus, the final scale

was consisted of 88 items. The different areas of deprivation and number of items to measure each of them are shown below :

DEPRIVATION AREAS	NO. OF ITEMS
1. Housing Conditions	5
2. Home Environment	8
3. Economic Sufficiency	6
4. Food	4
5. Clothing	4
6. Formal Educational Eexperiences	6
7. Rearing Experiences	5
8. Childhood Experiences	7
9. Parental Characteristics	7
10. Interaction With Parents	6
11. Motivational Experiences	10
12. Emotional Experiences	8
13. Religious Experiences	3
14. Travel and Recreation	4
15. Miscellaneous Socio-cultural Experiences	5
TOTAL	88

For each item there are five response categories namely A, B, C, D and E. Category A stands for lowest degree of deprivation and category E for highest degree of deprivation category C indicates average deprivation. As one moves from category A to E the degree of deprivation goes on increasing. Category, A is given a score of 1, category B a score of 2, category C a score of 3, category D a score of 4, and category E a score of 5. Thus high score indicates high deprivation and low score indicates low deprivation.

RELIABILITY

The test retest reliability of the prolonged deprivation scale was found to be .77. The split-half reliability co-efficient was found to be .91. On the basis of this value the split-half reliability for the whole test was determined which was found to be .95. Internal consistency of the scale determined by Kuder-Richardson formula 20, was found to be .92

VALIDITY

The author has reported content validity, intrinsic validity, predictive validity, and construct validity. To establish the construct validity, correlation between total prolonged deprivation scores on each of the fifteen areas of prolonged deprivation were found. These correlations are shown below in Table No. 1

TABLE NO. 1

Correlation between total prolonged deprivation scale score and fifteen deprivation areas

Area	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Correlation	.67	.74	.68	.65	.83	.61	.34	.56	.68	.63	.51	.41	.62	.52	.61

All the correlations are statistically significant at .01 level. This means that all the dimensions of prolonged deprivation are highly inter-related with each other.

NORMS

Percentile Norms for the prolonged deprivation scale have been established on a sample of 645 males of 15 to 25 years age range drawn from Gorakhpur, Deoria and Basti districts of eastern Uttar Pradesh.

They are presented in table No. 2

TABLE NO. 2

Percentile Equivalents of Test Scores

Percentiles	Number of Persons	Scores
100	645.00	425.50
95	612.75	346.77
90	580.50	327.57
80	516.00	301.41
(Q. 3) 75	483.75	294.75
70	451.50	286.79
60	387.00	271.75
(mdn) 50	322.50	256.97
40	258.00	243.50
30	193.50	230.75
(Q.1) 25	161.25	224.00
20	129.00	214.45
10	64.50	194.25
1	6.45	156.32
N		645.00
Mean		259.00
Median		256.00
S. D.		49.50

These norms should be viewed as reference points for interpreting the test scores. An individual with a very high score, namely above the 75th percentile, may be considered a highly deprived person while low scores namely, below the 25th percentile, would indicate people who are low deprived. In order to determine middle deprived group the limits of 37.50 the percentile and 62.50th percentile may be used. The scores on

PDS corresponding to these values are 238.15 and 277.50 respectively. This range represents middle 25 percent population.

The author cautions that present norms are based on the sample drawn from a particular region, and users of PDS may develope their norms based on their own population.

TEACHERS RATING SCALE

To measure the learing difficulties of the pupils "Teachers Rating Scale" constructed by Mohite(1986) was used. This scale was specifically constructed to indentify children facing difficulties in reading and writing. The scale is divided into five sub scales. namely (1)Spoken Language (2) Motor coordination (3) Personal Social Behaviour (4) Memory (5) Visual Perception and (6) Auditory Comprehension.

Each scale has a three point ratings. The teacher rates the student on three categories (points).A, B and C. Category A indicates below average ability, category B indicates average ability and category C indicates above average ability. Category A is given a score of O, B a score of l, and C a score of 2. Thus low score shows high proportion of learning difficulty while high score indicates low proportion of learning difficulty. A description of all the scales is given below

1. Spoken Language

Fluency in language is an accepted parameter of learning ability. Binet and Simon (1916) relied heavily on it as a diagnostic symptom. This scale is made of 12 items and each item measures twelve different dimensions of spoken language. These dimensions are shown below with their respective number of items.

1. Vocabulary	1
2. Relating experiences	1
3. Verbal fluency	1
4. Word Recall	1
5. Word enunciation or articulation	1
6. Reading printed or written words	1
7. Using words that express the intended meaning	1
8. Use of sentences in relation to context	1
9. When questioned answers in complete sentences	1
10. Sound blending	1
11. Fluency in oral reading	1
12. Organization of thoughts	1

2. Motor Coordination

Class room learning essentially means reading and writing requires adequate finer motor coordination. A child has to have a fair grasp to be able to write. Apart from this a child requires motor coordination to live a full school life. This scale is made of six items and each items measures six different dimension of motor coordination. These dimensions are shown below with their number of items.

1. General coordination	1
2. Physical activity	1
3. Copying letters and words from the board and books	1
4. Control cover writing on line	1
5. Pencil pressure	1
6. Cursive letters	1

3. Personal Social Behaviour

Children's social contacts with others of his own age and with those older and younger adjustments are important contribution in preparing

children for social activities for e.g. sharing and cooperation while in turn are important in learning reading. This scale is made of nine items and each item measures nine different dimension of personal social behaviour. These dimensions are shown below with their number of items :

1. Organization	1
2. Attention	1
3. New situations	1
4. Completion of a task	1
5. Concentration	1
6. While at a task	1
7. Attitude towards reading	1
8. Level of confidence while answering	1
9. Consistency in class performance	1

4. Memory

A child with a good memory can operate later in thinking activities than a child who has difficulty of remembering what somebody has said to communicate to him through print, child who cannot remember cannot possibly make interpretation based upon these paragraphs. This scale is made of three items and each item measures three different dimensions of memory. These dimensions are shown below with their number of items.

1. Retaining informations	1
2. Auditory memory	1
3. Visual sequential memory	1

5. Visual Perception

Learning to read requires visual perception that permits accurate association of a printed word from to be spoken language. It may be defined as the receiption and identification of the stinmulus of the printed words. This scale is made of four different dimensions of visula perception. These dimensions are shown below with their number of items.

1. Visual discrimination	1
2. Recognition of Rhyming words	1
3. Punctuations (common signs)	1
4. While reading eye movement	1

6) Auditory Comprehension

Auditory and vision are man's two distance senses.Audition unlike vision which is undirectional, makes it possible to be seen in all direction simultaneously .Complex auditory processes are consequential to readiness for learning . If these processes do not develop normally, children may be able to hear but unable to listen .THe scale is made of seven items and each measures seven different dimensions of auditory conprehension. These dimensions are shown below with their respective number of items:

(1) Comprehending word meaning	1
(2) Following instructions	1
(3) comprehending class discussion	1
(4) Awareners of symbol sound relationship	1
(5) Understanding new sounds and accents	1
(6) AUditory discrimination	1
(7) From rapidly spoken word sequences	1

As the sample of the study consisted of Gujarati speaking students both the above tools were translated into Gujrati language. The deprivation scale was translated by DR. Z.M.Quraishi and learning difficulties scale was translated by Dr.(Mrs.) P. Mohite.

VALIDITY AND RELIABILITY OF TEACHERS RATING SCALE (TRS)

For establishing the content validity of Teachers Rating scale(TRS), opinions of 10 judges were sought for:1)Adequate representation of classroom learning abilities in the scale. 2)Whether the items measure each areas and sub-areas under which they are placed. The judges included school principals, experts in psychology, experts in education and experienced teachers.

The reliability of TRS was established by Test-Retest method .Two hundred children drawn from 1 to 4th standards were rated by twenty teachers twice with an interval of 15 days .In other words each of the 20 teachers rated 10 children twice .Co-efficient of correlation between the two ratings was calculated for (1) the whole scale (test) as well as for four sub categories namely (2) Spoken language (3) Motor - coordination (4) Personal social behaviour (5) and Auditory comprehension,The reliability co-efficients for the whole testt and the four sub-categories are shown below:

	r
1. Whole test scale	.89
2. Spoken language	.89
3. Motor coordination	.86
4. Personal Social Behavior	.89
5. Auditory Comprehension	.90

Mohite did not report reliability for sub categories of visual perception and memory .

MEASUREMENT OF ACADEMIC ACHIEVEMENT

In the present study annual marks of the students wer taken as an index of academic achievments.Thus the previous years final examination marks of the sixth and seventh grade students in the subjects of Mathematics Hindi, Science, Social Studies and Gujrati were obtained from the school records.

DATA COLLECTION

SAMPLE

There are about 163 corporation schools in Baroda, which are located in six different localities namely, Sayaji Gunj, Raopura, Fatehpura, City area, Babajipura, and Wadi. Out of 163 schools 52 schools are for boys, 45 schools for girls, and 66 schools are coeducational or mixed. The schools cater to the needs of the poor, underprivileged population and provide education free of cost. They also provide scholarships to deserving children, belonging to scheduled castes and scheduled tribes.

In the present study a sample of 504 students was selected from 6th and 7th standard of which 252 were boys and 252 were girls. The age range of all students irrespective of their sex was from 9 to 16 years, with median age of 12 years. The class, sex, school, and area wise distribution of the subjects is shown in the table given below.

TABLE NO. 3

	Girls School		Boys School		Co-educational School				
	Std.VI	Std.VII	Std.VI	Std.VII	Std.VI		Std.VII		
	Girls	Girls	Boys	Boys	Boys	Girls	Boys	Girls	
Sayajigunj	15	15	15	15	6	6	6	6	84
Raopura	15	15	15	15	6	6	6	6	84
Fatehpura	15	15	15	15	6	6	6	6	84
City Area	15	15	15	15	6	6	6	6	84
Babajipura	15	15	15	15	6	6	6	6	84
Wadi	15	15	15	15	6	6	6	6	84
Total	90	90	90	90	36	36	36	36	504
Grand Total	180		180		144				

Age was taken as one of the independent variables to study, its effect on learning difficulties and on academic achievement. On the basis of median age which was found to be 12 years the subjects were divided into two groups. Studnets below 12 years were considered as young and above 12 years were considered as old. The classification of the subjects on the basis of sex, median age, and level of deprivation to meed the requirements of a 2 x 2 x 2 experimental design is shown in the follwing table.

TABLE NO. 4

	High Deprived		Low Deprived		
	Boys	: Girls	Boys	: Girls	
Above Median Age (Old)	66	51	38	63	
Below Media n Age (Young)	67	51	39	64	
	235		204	=	439

It may be clarified that the actual sample was reduced from 504 to 439 because 65 questionnaires were found to be incomplete and were rejected.

In selecting the sample only those children were selected.
(1) whose birth dates were recorded in school register and who were in the age range of 9 to 16 years.
(2) Who belonged to low socio-economic groups with a family income not more than Rs. (80) P.M.
(3) Who were regular in the class.
(4) Who could read and write properly and who could understand oral and written instructions clearly.

ADMINISTRATION OF THE TEST

Prior to data collection and administration of the test the investigator approached the administrative authorities of the municipal corporation schools. She explained the nature and purpose of her research to them. The authorities were convinced and granted permission to visit the concerned schools and collect the data. They also issued letters in the names of the school principals.

Next day the investigator approached the concerned prinicpal and explained that she would be visiting the schools to administer certain tests to collect the data. She fixed the timings of her visit and went to the school at the scheduled hours.

ADMINISTRATION OF PROLONGED DEPRIVATION SCALE

As has been mentioned earlier that prolonged deprivation scale was translated into Gujarati. It was cyclostyled and the copies were distributed to the students of sixth and seventh standards. The test includes 88 questions and each question has five alternate responses namely a, b,

c, d, e. which indicated degree of deprivation from most to least. The subjects rated each questions carefully and checked one of the five responses which described their response in a best way. On an average the students took minimum two hours to complete the questionnaire. When the students completed the questionnaire they were collected by the investigator.

The researcher administered the questionnaires to one class at a time. In this way the required data for prolonged deprivation scale was collected.

The first page of prolonged deprivation scale contained instructions as well as personal information columns like students name, father's name, sex, age, standard, caste, subcaste, religion, date of birth, mother tongue, address and name of the school. The investigator saw that these informations were properly filled in by each students.

ADMINISTRATION OF THE TEACHERS RATING SCALE

The information about learning difficulties was collected by distributing the Teachers Rating Scale to the class teachers who rated each student on six learning difficulties namely, spoken language, motor coordination, personal social behaviour, memory, visual perception and auditory comprehension. The spoken language had 12 dimensions and for each dimension there were 12 statements. Motor coordination ability had six dimensions and for each dimension there was one statement, personal social behaviour had nine dimensions and for each dimension there was one statement, memory had three dimensions and for each dimension there was one statement. For visual perception there were four dimensions and each of them had one statement. Auditory comprehension had seven dimensions and for each dimension there was one statement.

Thus, in all there were 41 statements for six types of learning difficulties. The teacher rated each statement on a three point scale namely A, B, and C. Category A, indicated below average ability, Categorty B, average ability and Category C above average ability. The teacher rated each students by selecting one of the three categories which described his learning difficulty in a best possible manner. It may be remembered that the teachers rated only those students who were administered prolonged deprivation scale.

SCHOLASTIC ACHIEVEMENT DATA

The scholastic achievement of the students was collected in the form of annual marks obtained by the students at the last examinations. Thus marks in the subjects of Mathematics, Hindi, Scinece, Social Studies and Gujarati were collected by the investigator from the school records.

SCORING THE PROLONGED DEPRIVATION SCALE

As has been mentioned earlier each question in prolonged deprivation scale had five response categories namely A, B, C, D, E. Category A to E show increased magnitude of deprivation. The scoring procedure for different response categories is as follows. Category A was given a score of one. B, a score of two, C, a score of three, D, a score of four, and E, a score of five. Thus, high score indicates high deprivation and low score indicates low deprivation. In this way all the items were scored and total deprivation score for each subject was found out.

THE SCORING OF THE TEACHERS RATING SCALE

The teachers rating scale was a three point scale with category A, B and C. Category A indicates below average ability, B indicates average ability, and C indicates above average ability. Category A was given a score of 0, B a score of 1 and C a score of 2. All the score on 41 items

were totalled and for each individual a total rating score was found out unlike prolonged deprivation scale a high score on learning difficulties indicated lesser degree of learning difficulty and low score indicated higher degree of learning difficulty.

ANALYSIS OF DATA

In order to study the effect of age, sex, and deprivation on learning difficulties and scholastic achievement analysis of variance was used. Analysis of variance is useful when there are two or more independent variables. Apart from main effect it also enables to study the interaction effect of the independent variables on the dependent variables. In the present study there were three independent variables namely age, sex, and deprivation and each variable had two levels. Thus it was a 2 x 2 x 2 factorial design with eight cells.

In order to make two groups on the basis of age it was decided to use median age as dividing point. For this purpose median age was calculated which was found to be 12 years. Students below 12 years of age were identified as young students and above 12 years were identified as old students. In this way two age groups were formed to study this effect of age on learning difficulties and achievement.

Similarly according to the research design it was also essential to form two groups on the basis of deprivation-one high deprived group and other low deprived group. For this purpose also median deprivation score was calculated which was found to be 220. Thus, pupils below 220 scores were considered to be less deprived and above 220 scores were considered to be highly deprived.

The second objective of the research was to determine relation between 11 dependent variables and 15 independent variables separately for boys and girls. For this purpose Pearson Product Moment Method was

used whiich yields a coefficient of correlation. A positive correlation indicates that the subject gets high score on variable one also gets high score on variablw two. A negative correlation means the subjects who gets high score on variable number one gets low score on variable number two. The coefficient of correlation ranges from plus one to minus one.

The third and last objective of the research was to predict eleven dependent variables on the basis of fifteen independent variables, separately for boys and girls. For this purpose step wise regression equation was used. This technique selects variable for regression equation one at a time(Quraishi 1979). Selecting first the most valid predictor variable, it then selects that variable which when combined with the first is the most useful, that is the one which adds the most to the multiple correlation and which thus yield the best two predictor equation among those equation which contains the first variable selected. The extent to which multiple correlation would be increased by a variable is determined by computing the validity of the orthogonal component or some mathemetically equivalent statistics for the predictor variable being considered. The technique then selects by the same criterion the variable which combines with the first two variables to produces the best three predictor equations. Subsequent variables are selected in a similar manner. Variables can also be removed if they are found to be no longer useful. The process could be stopped when the initial sample validity of the equation approaches that computed using all available variables, or when adding the most useful remaining variable produces no statistically significant increase in the multiple correlation by the signi-ficance test.

It may be remembered that all the raw scores were converted into standard scores with a mean of 30 and standard deviation of 10 to maintain consistency and uniformity in them.
