CHAPTER II

REVIEW OF RELATED STUDIES

As mentioned in the previous Chapter the present study aimed at identifying the differential cognitive and non-cognitive personality factors going with the blind subjects studying in the special and the integrated educational settings. As such it seems necessary to briefly describe the related studies in both the domains of personality, cognitive and non-cognitive for a better understanding of the present problem.

Studies on Cognitive Factors :-

Eaves and Lonoff (1970) carried out a study on 40 blind and 40 sighted subjects, both the groups of subjects were compared on tactual performance. the I.Q. was positively correlated with tactual performance test scores for the no vision group and one tactual performance test variable for those with guiding vision. The blind children had a higher mean I.Q. score than sighted on those with guiding vision.

Gottesman (1971) studied on Piagets' developmental schema of sighted children with that of a group of blind children. 15 congenitally blind subjects were compared with 30 sighted
subjects on the performance. 15 out of 30 sighted subjects were not permitted to use vision, they were blind folded in an experimental of haptic perception modeled by Piaget and Inhelder. The results showed no significant differences in the discrimination of blind was found between blind and sighted perception. Blind subjects performed more correctly in tactual discrimination than sighted group (blind folded). It was concluded that the developmental schema of the blind and sighted subjects was similar on haptic perception.

Tisdall, and Black-Hurst (1971) carried out a study on divergent thinking in blind children. The sample consisted of 76 sighted children and 76 blind children in residential schools and 76 blind children in day school programmes. The result revealed that (a)blind children exhibit more verbal fluency than do seeing children, (b)Visual familiarity with the environment allows seeing children advantage over the blind in a small number of divergent thinking activities, (c)Blind and seeing children generally do not differ in the ability to think divergently, (d)Blind children in residential and day school setting are equally capable of thinking divergently and (e)Seeing and blind day school males tend to be more divergent than their female counterparts.

Smits, Mommers, (1976) investigated on the differences between blind and sighted children on WISC verbal sub-tests and found significant differences on the measure of intelligence between blind and sighted children.
O'Keefe and Stuchel (1973) aimed at comparing auditory perceptual abilities of legally blind and sighted children with varying hearing and speech abilities with different mental ages, learning abilities and orientational abilities. It was inferred that blind and sighted children differed in auditory processing skills, the inter and intra-personal auditory abilities increased with the increase of mental age, learning ability did not affect a child's perceptual ability. Inappropriate articulation affects a child’s inter and intra-personal auditory skills.

Vanderkolk, (1977) carried out an investigation on the demographic etiological and functional variable related to intelligence in the visually impaired subjects. The results showed that age and level of education of visually handicapped subjects were related to verbal intelligence test scores.

Kool and Rana (1979) conducted a study on tactual short-term memory of blind and sighted children, a sample consisted of 48 subjects comprised of 20 blinds and 28 sighted as experimental group and 40 blind and 40 sighted as control group. It was concluded that the performance of blind subjects was poorer than sighted subjects on tactual short term memory. It was also noticed that blind subjects initially did better than the sighted but in delay in recall period, the performance was poorer than the sighted subjects.

Correa, (1982) conducted a study on young blind, severely/profoundly retarded children. Significant delays have been noted
in the manual exploratory behaviour of young, blind, severely/profoundly retarded children. The effect of a graduated-prompting treatment package on the development of reach-grasp responses were investigated in three experiments. The graduated-prompting treatment package consisted of three components: graduated prompting procedures, contingent social praise and toy manipulation.

The findings suggested that the graduated-prompting treatment package was effective in developing reach-grasp responses in three blind, severely/profoundly retarded children. Further for one child, the effects were durable over repeated application of the package, but were not maintained when the treatment was withdrawn. In addition for another child, the effects of training reaching and grasping responses generalized to reaching and grasping toys that were presented without sound, they were given only the verbal instruction.

Rai, G.C.(1982) conducted an experimental study of sensitivity and learning efficiency of blind and normally sighted children. The study was conducted with two groups of eight grade children—one group of blind subjects and the other of normally sighted subjects (with 20 subjects in each group) matched in respect of age, socioeconomic status, scholastic achievement and nature of school. Auditory sensation, tactile sensation, and learning efficiency of both the groups of subjects were assessed by using the relevant tools. It was
revealed from the study that auditory and tactile sensation were significantly better in blind subjects than in normally sighted subjects. On learning efficiency, the two groups were similar, they did not show any difference.

Vanderkolk (1982) carried out an investigation on a comparison of intelligence test score patterns between visually impaired and the sighted. It was concluded that visually handicapped did not differ in some substantial way on intelligence sub-test scores than sighted.

Elizabeth (1983) investigated upon synthetic Vs natural speech and comprehension in blind and sighted adults. This study investigated Kurzweil Reading Machines Model 3 in terms of listening comprehension. 30 blind and 30 sighted individuals at three verbal ability level as determined by the Wechsler adult intelligence scale vocabulary sub-test.

As ANOVA indicated significant main effects for speech conditions and verbal ability. Pearson Product correlations were significant for the same variables. Spearman rank order correlations on the mean scores across test selections to synthetic and natural speech groups indicated a relatively high degree of agreement between these two scoring patterns, i.e. synthetic Vs natural speech and comprehension.

Juurmaa (1984) investigated on the riddle of the rate of mental development in the congenitally blind. Cognitive and
emotional aspect and discussed the mental development of the congenitally blind and noted that total congenital blindness entailed a lack of all information, images, and experiences based on vision restricted ability to control the inter-relationships between self and environment. These shortcomings cause an apparent developmental retardation during infancy and early childhood, such as, object constancy develops with slow speed in blind children and their dependence is stronger and prolonged than usual. However, the blind children attain development with acceleration between the ages of 7 and 12 years. There were no differences in cognitive abilities between the congenitally blind and the sighted. It was concluded that integration of instruction of the blind with that of the sighted was a significant step forward.

Erin (1984), investigated on question frequencies and types in the language of visually impaired and sighted children. The study examined the frequency of questions and the question types used by blind, low vision and sighted children. Twelve subjects from each vision group were included in the study. A language sample from each child was recorded as the children were examining house-hold objects. When a child had produced 100 utterances, the number of questions was counted and analyzed using an analysis of variance.

The results indicated significant differences in question frequencies of blind / sighted and low vision / sighted children.
There was also a significant difference in question frequencies of the oldest and youngest group according to an analysis of variance and a scheffe post hoc comparison.

Kamila (1984) carried out a study on creativity thinking abilities of blind school children. The sample consisted of 50 blind and 150 normal students, were randomly selected from class VIII, IX and X from different schools aged from 13th to 19th. The result revealed that:

1. Normal children were significantly more fluent in Game No. 1 and Game No. 3 than the blind children who were significantly more fluent in Game No. 2 than the normal children.

2. The normal children were significantly more flexible in Game No. 1 and Game No. 3 that the blind children and there was no such difference in Game No. 2 between normal and blind children.

3. The normal children were more original in Game No. 2 and Game No. 3 than the blind children.

Laurel & Hudson (1984) carried out a study on relationships among five measures of survey level mental representation of space in the visually impaired. The purpose of study was to examine the relationship among typical measures of survey level mental representation of space, i.e. defined as ability to derive routes or take perspective when the spatial information relative to these tasks was not previously directly experienced in the blind.
The five measures of survey level mental representation of space were administered on 48 blind adults (24 were congenitally blind and 24 adventitiously blind). It was inferred from the data analysis that the congenitally visually impaired subjects scored comparably higher to the adventitiously impaired.

Singh and Sharma (1984) conducted a valuable study on short scale I.Q. measure for the visually handicapped and found that congenitally blind and adventitiously blind differed significantly on digit span sub-test.

Singh (1984) aimed at comparing achievement of blind and sighted children studying in an integrated system. Four visually impaired and four sighted children studying in an integrated educational setting were selected for the study. It was found that achievement of the blinds in Hindi, English, Social Studies and Sanskrit was higher than the sighted children. The higher achievement of visually impaired may be the result of non-educational factors, e.g., Psychological factor, individual factors etc.

Sanford (1984) conducted a study effectiveness of an instructional programme designed to teach visually impaired students to use microcomputers. The primary purpose of study was to field-test the programme entitled, "Instructional Modules for beginning Micro-computers and Access Technology skills. The subjects consisted of 10 legally blind braille students ranging
in age from 12 years 6 months to 18 years 8 months. There were two girls and eight boys with I.Q.s ranging from 85 to 120 as measured by standardized intelligence tests. Nine teachers from five different school programmes participated in the field testing of the modules.

The results indicated that the modules were very effective. All of the subjects in the study completed the modules activities within a reasonable length of time and reached criterion on the performance test within a reasonable number of trials. The students in the study who had I.Q.s in the borderline range required more time to complete the modules and generally required more trials to reach criterion in the performance tests than the brighter students. The younger students require less time and fewer trials than the older students. Results show, although not statistically significant for either group, that there was in over-all increase in both students and teachers' positive attitudes towards micro-computers during the study. Generally, the students and teachers felt positive or very positive about the instructional programme.

Matsuda (1985) studied on facilitating the language acquisition skill of blind infants, the author argued that parents of blind infants must understand to facilitate their child's environmental system to compensate for the deficit in their biological system and suggested to aid the infants to make the transition from sensorimotor functioning to symbolic functioning.
The suggestions were (1) provide a consistent source of sound identification, (2) expand the infant's source of information, (3) become familiar with hand language and (4) engage in verbal interaction with the infant.

Koenig, Mack, Schenk and Ashcroft (1985) conducted a valuable study on developing writing and word processing skills with visually impaired children. It was a 2 years' project for the purpose of studying the development of word processing skills by visually handicapped students. Apple lle microcomputers, printers, soft wares, and specialized technological aids are being used by students and teachers in Tennessee school for the blind and by the pre-service teachers at Peabody college. The conceptual framework of the projects activities at the project site and a module developed to introduce students to the Braille Edit word processing system were brought to light.

Pozhar (1985) studies on influence of long-term sensory deprivation on the recognition of verbal stimuli and of short-term recognition memory of 10 blind and 5 partially blind students at a professional school for the blind. The totally blind subjects were more confident about their performance than the partially sighted and also the blind subjects recognized auditory stimuli better than the partially blind subjects. The completely blind subjects were superior in auditory memory training.

Tulloch (1985) carried out a study on visually typical, visually atypical and down syndrome infants. Thirty-one infants
aged 4 to 20 month with average chronological age of 12.6 months were divided into three subject groups: visually typical, visually atypical and down syndrome. Measures for visual status included forced preferential looking, optokinetic nystagmus and behavioural measures were used. Information on levels of object permanence and expressive language skills were obtained from scales I and IIIa, respectively, of the Uzgiris Hunt ordinal scales of psychological Development. Additional information on expressive language skills was obtained from the Bzock-league Receptive - Expressive Emergent language scale. The results revealed (1) A relationship between intactness of binocular vision and performance on tasks measuring concepts of object permanence emerged for the visually typical and visually atypical infants (2) No support for a relationship between intactners of binocular vision and performance on tasks measuring expressive language skills was observed for any of the subject groups (3) Down syndrome infants appeared to follow a typical, although delayed, developmental sequence for object permanence & expressive language skills. In spite of being at risk for visual deficits, they showed a low incidence of problem in this area.

Kennedy and Campbell (1985) carried out an investigation on convergence principle in blind people's pointing. The 9 blind children of 5 - 14 years age and 8 blind adults were examined the ability to demonstrate the use of a convergence principle in pointing tasks. Results from domestic horizontal, manipulative - horizontal, domestic-vertical, manipulative vertical and
wall-pointing activities suggest that convergence was evident in 2 functionally different haptic spaces, i.e. reaching and walking and that the phenomenon was evident in both the horizontal and vertical plane.

Singh (1985) investigated on intelligence test score patterns of visually handicapped sub-groups. The sample consisted of 148 subjects and comprised of visually handicapped adult trainees, students and staff members of National Institute of Visually Handicapped, Dehradun. Wechsler adult intelligence scale revised (1981) Hindi adaptation was used. It was concluded that visually handicapped did not differ significantly from the sighted on sub-test of WAIS R verbal (Hindi). However, marked differences were found on digit span and arithmetic, where the visually handicapped were found to be better on digit span than sighted but they were on the lower side on arithmetic.

Anderson and Fisher (1986) studied on Nominal realism in congenitally blind children. 10 blind and 10 sighted children 3 - 9 years old responded to questions regarding the origin of object name and whether these names could be changed and inquired also whether the subjects assigned animistic qualities to the objects. The results showed that nominal realism, as an attribute of pre-operational thought, remained a characteristic of blind subjects' thinking longer than it did for sighted subjects. This finding is related to the limitation, blindness is thought to impose on children's interaction with objects and to the general delay in Piagetian cognitive development observed among
congenitally blind youngsters. Results underscored the need for providing appropriate cognitive and linguistic experiences for young blind children.

Barlow (1986) studied on the adult development of 18 congenitally blind men (aged 35 - 59 years) and concluded that blind subjects tended to develop along times similar to the sighted persons, engaging in similar developmental tasks and addressing similar critical developmental issues in the same general time frame as sighted subjects.

Bradshaw, Nettleton, Nathan and Wilson (1986) carried out a study on Tactual Kinesthetic matching of horizontal extents by the long term blind: Absence or reversal of normal left side underestimation. Ten subjects of age 26 to 55 years who were blind from infancy or childhood, laterally slid a horizontal rod within a short length of pipe located at the body midline, until the rod extremities were tactually kinesthetically judged to be equidistant from the ends of the pipe. Whereas sighted subjects normally set the left extremity of the rod closer to the mid line than the right irrespective of arm posture, crossed or uncrossed blind subjects, especially those blind from birth showed trends in the opposite direction.

Obaikor (1986) carried out a study on the development of self concept in normally sighted and visually impaired students. General and visually impaired forms of students self-Assessment inventory (Muller, Larned, Leonetti and Muller, 1984,
1986) was tested on 229 normally sighted and 61 visually impaired students. The areas of school life were physical maturity, peer relations, academic success and school adaptiveness. The results indicated that (a) there are only minor differences in the self concept of the groups, (b) since the visually impaired maintained higher scores in some instances, the perceptual notion that the visually impaired have low self-concept was not supported, (c) self-concept in area specific in nature at different grade levels and school experience seems to affect normally sighted and visually impaired students in similar way.

Landaw (1986) carried out a study on a 4 years old congenitally blind girls with no previous map use experience used a 2 symbol map to directionally guide her locomotion in space with successful location of objects in front of her, behind her, to her left or to her right. It was inferred from the data that a core knowledge required to use maps is a readily accessible product of a spatial knowledge system common to both the blind and sighted.

Lawer and Mowinski (1986) carried out a study on computer access by visually impaired persons. The researchers discussed the new profession of prescribing, interfacing, and training people in the use of computer aids for visually impaired persons and the cost of providing computer access to them. Problems involved in directing screen data to a braille, speech, or large print device were identified.
Safran and Safran (1986) investigated on videotaped presentations by blind speakers as attitudinal change agents. The purpose of study was to determine whether a videotaped presentation by a blind speaker would more positively influence attitude change and information retention than would a presentation by a sighted speaker, using 89 under-graduates. As ANOVA suggested there were no significant main effects for either presenter or pretest conditions on the measures. However, there was a significant interaction between presenter and pretesting on information retention. It was concluded that the blind speakers were less effective than the sighted speaker in changing the attitudes.

Wan-Lin (1986) carried out a study on cognitive development of the visually impaired children in the Republic of China as measured by Piagetian task of conservation. Eight visually impaired children of age ranged 6 - 15 and 40 sighted children of the same age were randomly selected using a stratified constant procedure. Each child was presented individually with eight tasks of conservation including number, length, distance, substance, liquid quantity, area, weight, and displacement volume. Each task included one transformation. The subjects were identified as conserver and non-conserver for each task.

(1) Discriminant analysis techniques were used to classify individuals into one of two groups (conserver, non-conserver) on the basis of age, vision, gender and residence, and to identify which variables contribute to making the classification.
(2) In the order of difficulty the eight conservation tasks were analyzed descriptively by determining the percentage of children who passed each task. (3) The percentage of children who passed each task by age level presented in table form. (4) Explanations given by the children were analyzed descriptively. Responses were categorized and presented in table form. It was pointed out that (1) Age and vision were two significant variables contributing to the attainment of conservation. Younger visually impaired children were more apt to be non-conservers, (2) The order of difficulty of eight conservation tasks for the partially sighted children was more similar to that of the sighted blind children with the blind children differing greatly from both the partially sighted and sighted children. (3) A one to four year developmental lag in the attainment of eight conservation tasks was found in blind children compared to the sighted and partially sighted children. (4) Blind children made their developmental delays at the age of 11, (5) The explanations given by the conservers among the sighted, partially sighted and blind children were similar, however, the explanations given by the blind and partially sighted non-conservers demonstrated more variability than the sighted non-conservers.

Zimmerman, (1986) studied on preferred textures of objects for visually handicapped infants and young children. The purpose of this study was to determine whether severely visually handicapped infants and young children demonstrated a preference for one particular texture at 1, 2, and 3 years of age. The study
also compared teachers and parents preferences from a national 20 item texture survey with the preferences demonstrated by the subjects during free play.

The sample consisted of 22 congenitally visually impaired children from 12 to 42 months of age. Normal development was checked with the Maxfield - Buchholz (1957), Social Maturity Scale for Blind Pre-school Children and degree of visual impairment was screened with the Vision, observation Form of Infants. (Jose, Smith and Shane 1980).

The subjects were videotaped in two free-play sessions in the home or educational centre. Textures used were satin, kitchen scrubber, metallic, plush, terry, vinyl, artificial chamois and needlepoint canvas. The first year olds received the first four texture, two year olds received the first six textures and three year olds received all eight textures. A letter "H" shape was used in the first session and a milkbone shape in the second session. Raw scores were converted to percentages for total time for each play session. Frequency distributions and Mann whitney U test were used to examine the relationships within data. The 't' value was calculated for knowing the significance of difference between the parents and teachers survey results at the .01 level. Results indicated that the children, one year old, preferred satin; 2 years of age preferred kitchen scrubber, and 3 years old preferred needlepoint canvas. Adults preferences for texture were inversely related to children's preferences.
Ravera (1987) studied on training blind children to employ appropriate gaze direction and sitting behaviour during conversation. The sample consisted of 5 congenitally blind children aged 5 - 8 years and they were trained to simultaneously employ appropriate gaze direction and sitting behaviour while talking with an adult. A multiple base line design showed that all subjects reached the criterion level of 100% for 3 days in 19 - 25 training sessions. Although 3 subjects were in the same classroom, targeted behaviours were not manifested until formal training was brought into light.

Singh (1987) carried out an investigation on role of visual experience in short term recall of movements of congenitally blind subjects. The 94 congenitally blind subjects were compared with 94 sighted subjects who were blind folded on short-term recall throughout the 2 experiments. Results showed that blind subjects failed in pre-selected conditions, while the sighted used the pre-selected conditions very effectively. It was also observed that blind subjects showed poorer recall in locating a target or reproducing the same movement extent than their sighted counterparts. When the movements of the subjects were pushed forward or backward to cause response biasing, the sighted subjects reduced the effects of response biasing on pre-selection of target while the blind subjects did not attenuate the effects of response biasing.

Ittyerah and Mitra (1988) carried out an investigation on synthetic perception in the sensority deprived. The sample
consisted of 60 Indian subjects comprised of 20 congenitally blind, 20 congenitally deaf, and 20 normal and they rated metaphors from English poetry containing either visual or auditory imagery on a 9-point visual and auditory scale ranged from very dark to very bright and very soft to very loud. Blind subjects were presented recorded cassettes and deaf were presented material through both modes. The results pointed out that the sensorily deprived subjects did not differ from each other or from controls in the rating of metaphors on visual or auditory imagery content. It was clearly concluded that there was synthetic perception among the sensorily deprived subjects.

Arnold (1988) carried out an investigation on reproduction of movement extent cues in sighted and blind adolescents. Under three retention conditions the kinesthetic abilities of blind and sighted adolescents in reproducing the arm movement were tested. Twenty congenitally blind, 10 adventitiously blind and 20 sighted subjects were evaluated on the ability to reproduce a movement extent on a linear positioning device for 75 trials and 0-, 7-, and 15-s retention conditions. Analysis of variance with repeated measure was calculated. It was concluded that congenitally blind, adventitiously blind and sighted subjects performed equally good in reproducing kinesthetically based movements.

Davidson (1988) carried out a study on the feasibility of identifying and using child specific behaviours other than
those commonly recognized as communication behaviours. The subjects were 4 visually impaired severely / profoundly handicapped boys ages 4 to 7 years, who were students in a private day school. A single subject alternating treatment research design that include a 10 minute baseline condition and two 10-minute treatment conditions was used. In baseline condition, stimuli were presented at 10 second intervals. In treatment condition B, the same stimuli were presented at 10-second intervals, and stimuli were presented additionally in response to smiles, gestures, or vocalization. If the child made no response within 10-seconds, the next prescribed stimulus was presented. The third treatment, condition C, was identical to the second except that additional stimuli were presented in response to behaviours that were specific to the subjects, such as Jaw movements or Cassation of random eye movement, in addition to the pre-determined behaviours of smiles, gestures, or vocalizations. All the session were videotaped for scoring the number of smiles, gestures and vocalizations that occurred within 10-minute condition.

The graphs for all 4 children showed an increase in variability between baseline and experimental conditions. There did not appear to be a significant difference in the effectiveness of the two experimental conditions on the dependent variables.
Gloria (1988) carried out a study on six totally blind and severely mentally retarded children. The findings and the anecdotal data obtained suggest that the decision to use either strategy should be based on knowledge of individual student characteristics. The students' ability to search for appropriate placement of the training items appeared to be influenced by their experience and practice in the haptic exploration of the environment.

Heller (1989) investigated on texture perception in sighted and blind observers and evaluated the visual imagery of 30 subjects composed of 10 early blind aged 24 - 50 years, 10 late blind aged 32 - 53 years and 10 sighted controls aged 20 - 55 years for texture perception. There was no difference in the relative smoothness judgement of abrasive surfaces by using active or passive touch between sighted and blind subjects. It was also found that vision and touch showed no difference on performance with relative course textures, but touch was superior to vision for much finer surface texture when 24 sighted subjects compared a broad range of textures using a similar procedure. It was concluded that for texture perception vision coding of tactual stimuli is not necessary or advantageous.

Heller and Kennedy (1990) conducted a study on perspective taking, pictures and the blind. The 27 congenitally blind, late blind and blind folded sighted subjects participated in two experiments conducted on Piagetian perspective taking task. Subjects used embossed line drawings to depict alternative
points of view of an array of 3 geometric solid forms. No difference was found between the three groups, i.e. blind, late blind and blind folded sighted in the accuracy or speed of tactile shape matching. It is concluded that visual imagery and visual experiences may not be necessary for tactile perspective taking.

Jan, Sykanda and Groenveld (1990) studied on habilitation and rehabilitation of visually impaired and blind children. The purpose of study was to describe neurological developmental and cognitive differences that exist between visually impaired (6), blind and sighted children. The areas of discussion on neurophysiological principles of intervention were associated with handicaps in 6 children, motor development in 6 infants and young children. Visual impairment affects the total process of gathering and exchanging information and also affects noticeably the motor skills, language development cognition and social skills. For specific intervention the needs of blind children and the effects of visual impairment on social and emotional development were stressed and identified.

Jan, Groenveld and Sykanda (1990) carried out a study on light-gazing by visually impaired children. They assessed the prevalence and characteristics of light-gazing by visually impaired children referred to a V.S.I. programme over two and a half years. 167 children with ocular visual loss and 69 children with cortical visual loss took part in the study. One of the
clinical sign of cortical visual loss, light gazing occurred in 60% of children with cortical visual loss. The results suggested that the blind mannerism had specific neuropathological substrata.

Pring, Freestone and Katan (1990) studied on recalling pictures and words: Reversing the generation effect. The 22 blind and 21 sighted subjects were experimentally tested on memory of words and embossed pictures. Performance was studied under neural conditions (naming words and pictures) and when they were self generated in response to cues. Blind subjects identified pictures with the same case as blind-folded sighted subjects. The memory performance was similar in both the groups, i.e. blind and sighted.

Tait (1990) carried out an investigation on the attainment of conservation by Chinese and Indian children. 30 blind Chinese, 34 blind Indian children and 40 sighted Chinese children took part in the study. Both groups of blind subjects performed poorer than sighted on achievement of conservation. It is concluded from the results that visual impairment obstruct the achievement of conservation.

Bigelow (1991) conducted a study on hiding abilities in blind and sighted children. The children with varying visual abilities participated in the study of the development of the ability to detect what is seen by another. The blind children
were not as successful as the other children at hiding activity. The blind children associated hiding with being in contact with an obstacle but did not necessarily understand that the covering obstacle had to completely block the observer's view of what hidden or that covering was not necessary if other obstacles already blocked the observer's view. The blind and one visually impaired children associated self-exposure with exposure of mouth, whereas the other children who associated self-expose with a particular body part associated self-exposure with exposure of their eyes.

**Studies on Non-Cognitive Factors:**

Hamed (1965) conducted a study on fifty blind and fifty sighted children on personality measure. The purpose of the study was to identify the differences between comparison-groups on personality measure. The Williams' intelligence test for children with defective vision and version's abstraction test of intelligence were used for assessing I.Qs. The writer prepared and used the blind children's structured interview, a sentence completion test and a semantic differential for the assessment of the personality. The junior Mandslay Personality Inventory was also used. It was indicated from the results that the process of adjustment in the blind persons was not significantly different from that of sighted people.

Kaur, Singh and Jain (1978) carried out a study on 'Social and emotional Adjustment of Normal and Blind Adolescents. A random sample of 80 normal adolescents was compared with 40
blind adolescents, age 11 - 13 years and 14 to 16 years respectively. Junior personality Inventory in Hindi formulated by Mohan et al (1968) was administered. The result revealed that there were no significant differences between social adjustment of normal and blind adolescents. There were significant differences between emotional adjustment of normal and blind adolescents. It was also found out that there were no significant differences between social and emotional adjustment of younger and older blind adolescents. No significant difference was found between blind male and female adolescents in the areas of social and emotional adjustment.

Schulz, (1979) carried out a study on 100 blind veteran (78 of whom were aged 50 years or older) for their rehabilitation. The researcher measured their levels of functioning regarding self-care, home-care, travel, recreation, writing, and reading. He indicated how much time their performance took in these activities so that the assessment was based on subjects' subjective perceptions of their own needs. Findings showed that further training in many of the activities was unnecessary, but where needs existed, they were concentrated primarily in reading areas and to a lesser extent, in recreation and home care. It was concluded that rehabilitated veterans believed they had continuing unmet needs despite the fact that sources at the time were allocated to redress those needs.
Nisar and Khan (1982) carried out an investigation on the personality characteristics of visually disabled boys through the level of aspiration test. 42 blind school going aged 11 - 16 year old boys were administered Ansari's test of level of aspiration. The results revealed that the aspiration level of visually handicapped was low. They were cautious, insecure and failure avoiding.

Qadari, and Husain (1982) carried out a study on certain social psychological dimensions among handicapped and non handicapped students. The study consisted of 20 blind students as an experimental group and 20 normals as a control group studying in standards VIII to IX at Aligarh. Interview technique for data collection was followed. Analysis was done with the help of chi-square and percentages. It was found out that the blinds were from psychological broken homes and suffered from emotional maladjustment.

Rodrigues, (1982) studied on the nature of self-injurious behaviour among visually impaired residents of mental retardation facilities. This study was an exploratory investigation into the characteristics of self-injurious behaviour in groups of mentally retarded persons with varying degree of sensory impairments - normal vision, partial vision, legal blindness with guiding vision, no vision and multi-sensory handicap (or deaf-blindness) Questionnaires and interview schedules were completed for 171 institutionalized subjects.
Data were collected relating to social history, physical status, social relatedness, level of functioning, and stereotypic activities in addition to various aspects of self-injurious behaviour.

The five groups did not differ in physical status, consistent relationships were found between the degree of sensory impairment and lack of family contact, social relatedness, level of functioning and non-injurious stereotype. There was also a relationship between sensory impairment and the frequency and severity of self-injurious behaviour.

Iverson (1984) conducted a study on stereotypic behaviour in blind children and in relationship with autism. For this purpose twenty-six blind children were selected from two residential schools for the blind. These children were classified into groups. These groups were (1) those with rubella, (2) those with retrolental fibroplasia, and (3) those blinded by other causes. Each child's cumulative file was reviewed for background information. Systematic observations were conducted on each child for presence of autistic-motility behaviour. Observation was for a five minutes period in four environments, i.e., classroom, structured instruction, meal-time activity / breakfast, lunch, and supper, physical education / movement activity and unstructured leisure time.

It was concluded that the presence of stereotypic behaviours in all blind children was a fallacy. Where the
Impairment is in the visual tract of the central nervous system (CNS) stereotypic behaviour in blind children are performed. These included autistic motility behaviour and the visual behaviour of eye pressing / pocking and flicking. These are greater in rubella children as a result of their multiplicity of handicapping conditions. When seizures, diabetes, and other diagnosed neurological diseases or neurologically related disorders are part of a multiple handicap, a wider variety of stereotypic behaviour are performed. The lack of vision had no effect on the manifestation of stereotypic behaviour.

Singh and Pathak (1984) studied on four personality dimensions, i.e., psycholicism, extraversion, neuroticism and Lie of 30 totally blind (15 congenitally and 15 adventitiously) and 30 sighted subjects aged 18 – 31 years. Subjects were matched on age, income and education. Eye-senicks' Personality questionnaire (Hindi version) was administered. The results of the study indicated that both the groups (visually impaired and sighted were similar on any of the four scales. However, there was a marginal difference between the two groups on Lie scale.

Nelms, (1984) carried out a study on personal and program variables related to the successful rehabilitation of persons who are diabetic and blind. The purpose of study was to determine the relationship between nine personal (i.e. (1) age of referral (2) age at onset of blindness, (3) gender, (4) material status, (5) race, (6) number of dependents, (7) level
of education, (8) work status at referral, and (9) receipt of transfer payments) and four programme variables, i.e. (1) total amount of money spent for rehabilitation services, (2) number changes in occupational goal, (3) proximity to the adjustment facility, and (4) training in orientation and mobility) and rehabilitation outcome. The 124 subjects were selected out of 619 legally blind and blind closed cases from project R-4. The findings were that the diabetic and blind persons rehabilitated successfully - (a) both were older at referral, (b) received less public assistance, (c) had more changes in occupational goals, and (d) were more often female than the successfully rehabilitated subjects.

Agarwal and Kaur (1985) carried out an investigation on anxiety and adjustment level among visually and hearing impaired and their relationship to locus of control cognitive, social and biographical variables. The sample consisted of 45 hearing impaired and 40 visually impaired residential school children aged 6 - 16 years. Subjects were administered measures of adjustment, anxiety and locus of control, intelligence scores and their academic level, teacher and peer acceptance and biographical variables were also obtained. It was concluded that the correlates of anxiety and adjustment differed qualitatively as well as quantitatively between the groups.

Bishop (1985) studied on 304 persons including teachers of visually impaired students, classroom teachers, school
principals, parents and visually handicapped students. The opinions were collected and evaluated through rank ordering procedure. The result revealed that seventy factors were associated with successful main streaming for visually handicapped pupils. The desirable characteristics of visually handicapped pupils included inner drive, emotional stability, independence, social skills, adequate basic and special skills and academic achievement.

Holburn & Dougher (1985) discussed the use of a generalization training technique that was employed to teach a 26 years old blind male with Down's syndrome to exit his living unit during a fire drill without panicking, using a combination of negative and positive reinforcement. Following a shaping procedure in which the opening of an exit door resulted in living unit from any internal point through generalization training and subsequent test probes. Training was conducted in an informal game like manner to decrease the subjects anxiety.

Luiselli (1985) conducted a study on behavioural training and acquisition of skills for the blind, severely retarded adults. The three blind severely retarded women aged 21, 22 and 24 years were evaluated for the effectiveness of a behavioural training programme for improving the prevocational work performance in two studies in which the three subjects were trained separately. Tasks included screwing nuts and bolts together and inserting cards into envelops. The results showed that a programme that combined responses - contingent prompting
and reinforcement procedures was successful in increasing the quantity of tasks that each subject completed. The data from study 2 also demonstrated that the attentional behaviour was enhanced following training and performance could be improved and sustained with low level of prompts from the trainer.

Harrell and Strauss, (1986) conducted a study on approaches to increasing assertive behaviour and communication skills in blind and visually impaired persons and found out that many visually impaired individuals were found to be too passive or too aggressive in their social interactions. Lack of assertive behaviour developed a sort of helplessness. With a structured intervention resulting in improved assertiveness skills, blind or partially sighted individuals could increase their effectiveness in communicating with others and they could also control their emotions.

Hensley, (1986) conducted a study on the application of contrast sensitivity data for adjustment of closed circuit television system used by the visually impaired subjects. Seven legally blind children age ranged 13 to 17 years took part in the multiple single case study with the enhancement of visual stimulation during use of closed circuit television. This research involved assessment of the child's functional vision by contrast sensitivity and identified a series of steps which used that data for adaptation of the closed circuit television for the individual visual requirements of the child. The child
adjustment relative to changes in rates of correct and incorrect responses to letters viewed on the video monitor and researcher contrast sensitivity adjusted settings were compared. A statistically significant increase in correct responses was associated with the experimentally adjusted closed circuit television. No increase in incorrect responses was observed. This findings suggest that application of this procedure may improve the reading efficiency of visually impaired persons during the use of closed circuit television.

Nemshich, Mc Cay and Ludman (1986) investigated the impact of retinitis pigmentose (RP) on the psychological, educational, vocational and social considerations of young adults. A survey of 307 subjects aged 13 - 17 years old with retinitis pigmentosa revealed that many subjects felt that this defect of vision adversely affected their educational employment, mobility and socialization. Subjects also indicated that special counselling was needed to accept and adjust to their condition and that sharing would be beneficial with peers.

Passini, Dupre and Langlois (1986) conducted a study on spatial mobility of the visually handicapped active persons. The forty-seven subjects who were congenitally blind, adventitiously blind or visually impaired with strong or weak visual residues were interviewed which covered the subjects mobility profile, value of mobility courses, way finding strategies, information used during way finding, physical obstacles and
dangers during way finding, use of residual vision and other senses and the cognitive mapping and spatial representation of the environment.

Palazesi (1986) conducted a study on four visually impaired children to establish a relationship between a treatment programme that draws on the intervention curriculum model and static and dynamic behaviours. The result showed that no clear and definite change was evident in the subjects behaviour.

Taylor (1986) studied on Home-sickness, melancholy and blind rehabilitation and suggested that home-sickness is a form of depression often precipitated by the combined stresses of sight loss, aging and separation from family. It was found that the home-sickness caused by loss of sight of veterans impeded the rehabilitation programme of adjustment and management in a residential setting.

Sarita & Sharma (1987) carried out a study on adjustment pattern of visually handicapped and sighted students. The sample population consisted of 40 visually handicapped and 40 sighted students (Boys and Girls) of age group 14 - 18 years. Adjustment inventory for school students by A.K.P Sinha and R.P. Singh was administered. The result revealed that visually handicapped students were poorly adjusted in emotional, social and educational ground. The same condition prevailed on the measure of total adjustment.
Gupta (1988) investigated into the personality of the blind. The purpose of study was to know the perceptual / motor skills and personality variables likely to influence social adjustment and vocation training of 50 blind subjects aged 16 - 25 year. The results showed no significant difference on perceptual and motor performance of high and low scoring subjects on the sixteen personality factor questionnaire (16 P.F.) and an excitability rating scale.

Miller (1988) carried out a study on placement of visually impaired persons. The forty-eight states and fifty-five private agencies in the U.S. offering vocational rehabilitation services for blind and visually handicapped clients were surveyed and data revealed that agencies employing both rehabilitation counselors and placement specialists were experiencing a higher rate of success than those agencies not employing placement specialists.

Wilhelm, J.G. (1989) investigated on fear and anxiety in low vision and totally blind children. The sample consisted of 139 visually impaired children aged 6 - 16 years who were administered a fear survey and a manifest anxiety scale. Subjects were classified into totally blind and low vision groups. The scores of totally blind subjects on fear and anxiety were similar to those of low vision subjects. The totally blind and low vision sample and general population were compared favourably
on the level of anxiety. It was found that the subjects had the tendency of fear for bodily injury.

Saez (1989) investigated on integration of blind and visually impaired children. The author argued that integration of blind and visually impaired subjects into society is a way of achieving the far reaching goal of mainstreaming, whereby the differences inherent to each individual are considered by society as something normal. The differences should be taken for granted as part of the human variety underlying the various communities and groupings that compose society. The role of the family, educational agencies and society in attaining this goal were depicted.

Hill, Brantner and Spreat (1989) conducted a study on the effect of contingent music on the sitting behaviour of a blind young women with profound mental retardation. The subject was a 17 year old women, profoundly retarded, who exhibited non-compliant behaviour and refused to sit in the classroom. The purpose of study was to investigate the effectiveness of the music as a reinforcer for non-compliant behaviour. Reinforcements were delivered in 12 sessions and 16 sessions in two phases, namely, A.B.A. phases and 2 simultaneous treatment phases. There was significant increase in target behaviour. In addition, the subject discriminated among different types of music and the behaviour rates varied suitably.
Mishra, (1990) also carried out a study on "Self-concept of physically handicapped and normal children". The study was done on 25 blind subjects, 15 hearing impaired subjects, 15 orthopaedically handicapped and 45 normal subjects. The 80 item Oriya version of "The way I feel about myself developed by Pieris and Haris (1961) was used to measure the self con­cept of the physically handicapped and the normal. The results revealed that blind, orthopaedically handicapped and hearing impaired subjects were poor in self concept in comparison to the normal children.

Abdi & Zaidi (1990) conducted a study on general anxiety and test anxiety of visually handicapped children in relation to grades. Forty five randomly selected visually handicapped subjects took part in the study. General anxiety scale (Kumar 1982) and an Indian adaptation of Sarason's test anxiety scale for children developed by Kumar (1985) were used. The results revealed that the visually handicapped children have more general anxiety than the test anxiety which indicated that their general adaptedness was poor and they possessed an inextricable feeling of insecurity. On the other hand lower scores in test anxiety indicated no specific fear or threat in test situation.

Sherrill, Hinson, Gench and Kennedy (1990) examined the self-concept of 158 disabled athletes aged 9 - 18 years. The subjects were English speaking and had either cerebral palsy,
blindness, dwarfism, spinal cord injury, amputation or les autres. Subjects completed the self-perception profile for adolescents, measuring global self-worth, scholastic, athletic and job competence, social acceptance, physical appearance, romantic appeal, behavioural conduct and close friends. It was concluded that disabled blind following the same general pattern of able bodied youth subjects.

Nisar (1990) carried out a study on the psychological problems and extraversion of congenitally and adventitiously blind subjects in relation to their academic attainment. 23 congenitally blind and adventitiously blind subjects of both the sexes studying in VI to X standards were administered Eysenck's Personality questionnaire (E.P.Q.) through interview technique. Pearson's Product Movement Coefficient of correlation was calculated to find out the relationship between psychological problems and extroversion and school attainment of both the groups. It was found that (i) adventitiously visually impaired subjects were associated with more psychological problems like fear, anxiety, conflicts, tension, frustration etc, than their counterparts (ii) congenitally blind were found to be more extrovert, happy and satisfied than their counterparts. (iii) congenitally blind were found to be superior in academic performance than the adventitiously blind counterparts.

Mittal (1991) conducted a study on personality traits of educated blind and sighted youth. The Hindi adaptation of
Cattell's 16 P.F. test was administered on 100 sighted educated youths and an adapted Hindi version of 16 P.F. test for the blind youth in braille form was also administered on 100 educated visually impaired youths. The investigator also developed and used the family environment interview schedule to study the family environment of the blind and sighted youths. The results showed that:

(i) There was not much significant difference between visually impaired and sighted educated youth on the measure of personality.

(ii) There was significant difference in some personality traits of the blind and sighted youth, the blind subjects possessed higher level of anxiety than the sighted subjects.

(iii) The perception of family environment by the blind was found to be highly negative and highly positive among the sighted subjects.

(iv) Age education and perceived family environment were found to have influenced the personality development of the blind as well as the sighted.

Bigelow (1992) carried out a study on locomotion and reach in blind infants. A longitudinal study on the relationship between locomotion and object-reach was carried out on blind infants by examining the timings between the emergence of crawling and walking and the infants' performance on
reaching tasks indicative of advancement in object permanence. The children's locomotor skills were related to their development of object permanence despite developmental delays in both the abilities.

Troster and Brambring (1992) conducted a valuable study on early social emotional development in blind infants. The purpose of study was to find out the impact of blindness on social and emotional development during first one year of life and the level of social and emotional development was compared in blind and sighted infants. Blind infants exhibited a more limited repertoire of facial expressions and less responsiveness. They less frequently attempted to initiate contact with their mothers or comply with simple request and prohibitions than sighted infants.

Studies on Remedial and Rehabilitation :-

Perlman and Gillman (1979) conducted a study on Mainstreaming visually handicapped preschoolers. Four visually handicapped children were mainstreamed by the child development centre of the New York Association for the Blind. The children attended a developmental preschool programme for the visually handicapped in the morning and were bused in the afternoons to a private non-sectarian pre-school programme.
Observations of a mainstreaming programme led to the conclusion that extensive preparation is vital to success. Pupils and teachers although well intentioned, become anxious, resort to stereotypic behaviours, and demonstrate avoidance of handicapped students. These behaviours seems to be infrequent in the beginning overtime.

Drigger (1982) studied on a relationship between the behaviour of elementary school level blind and low vision children and social acceptance by sighted peers in regular classroom. It was concluded that blind and low vision children were less accepted by sighted peers, they were either ignored or isolated in the classroom.

Dietz (1984) conducted a study on work status outcome for blind and legally blind vocational rehabilitation clients as a function of gender and residency. The purpose of study was to identify whether selected personal, financial process, occupational and geographic variables could discriminate among work status, wages, group membership for rural male, rural female and urban male and urban female. Population of blind and legally blind vocational rehabilitation clients. The sample consisted of 619 blind and legally blind vocational rehabilitation clients. The population was classified in four groups on the basis of work status, i.e. wage earner I, competitive employment, self-employment, or business enterprise. Wage Earner II, sheltered workshop or home bound industries, non-wage earner I, home-
maker or unpaid family worker, and non-wage earner II, student, trainee, unemployed or other. The rural female cases were most accurately predicted into their actual group, followed by rural males, urban females, and urban males respectively.

Pandey (1985) studied on affectional deprivation, ego strength and adjustment pattern among visually handicapped children and their rehabilitation. 40 visually impaired students, consisting of 32 males and 8 females were randomly selected. Out of 32 males, 16 belong to congenitally blind (8 urban and 8 rural) and 16 were post natal blind (8 urban and 8 rural). Out of 8 female students 4 were (two urban and two rural) congenitally blind and the remaining four were post natal blind (two urban and two rural). The tools used were (i) Ego strength scale by S.Q. Hasan (ii) Prolonged Deprivation Scale PDS, Mishra and Tripathi, (iii) Adjustment Inventory - the adapted version of Eysenk's and (iv) Mandsley Personality Inventory MPI, Jalota and Kapoor, 1965. The results were, 1. The deprivation among rural blind children was found significantly more acute than the urban blind children, 2. On affectional deprivation both the groups, congenitally blind and post natal blind were similar, 3. There was no significant difference in the level of ego-strength between urban and rural visually handicapped children, 4. There is no significant difference in ego-strength between congenitally and post-natally blind children, 5. There is no significant difference in adjustment patterns between urban and rural visually handicapped children, 6. There was no significant difference in
the pattern of adjustment between congenitally and post-natally blind children. 7. There was no significant difference in the ego-strength, affectional deprivation and adjustment pattern between the male and female visually handicapped children.

8. It was found that 10 blind children had poor ego-strength and poor adjustment. They were emotionally immature and the need was felt for their rehabilitation.

Khan (1985) aim at comparing the educational aspiration and occupational expectations of blind and normal children. The results revealed that blind children possessed lower educational aspirations than the sighted which may be due to the blindness and non-availability of facilities for blind children. For blinds the occupational expectation were highly related with the type of training, they have got in the school.

Freedman (1985) studied on visual prostheses and aids: Psychosocial issues of readiness or appropriateness. The author discussed the sensitivity needed by professional in suggesting and providing visually impaired individuals with vision prostheses and aids. Many visually impaired individuals have fear and ambivalence in the use of such devices and often reject their use.

Ridgeway (1985) carried out a study on mainstreaming of visually handicapped students. The administrations, regular class room teachers, teachers of visually impaired and parents
of visually impaired children were administered a questionnaire and also interviewed for knowing whether their visually impaired children were benefitting from being mainstreamed. In this study 86 visually impaired subjects participated. There was an over all agreement between four groups about success and good quality of teaching. The teachers of visually impaired students were the most negative among all respondents. It was concluded that for real success of main streaming for visually impaired children a next coordinated effort is needed.

Sisson and Dixon (1986) investigated on improving meal time behaviours of a multi handicapped child using behaviour therapy techniques. Audiotapes of favourite stories were played during the meal time session of a 10 year old girls who was blind mentally retarded and behaviourally disordered and were turned off during inappropriate or self-injurious behaviour. Praise for appropriate napkin and utensils was provided once desired sitting posture had been established. Trainer behaviour brought the good compliance with treatment procedure, suggestion that the treatment programme may be effective in other settings also.

Covelli, (1987) conducted a study on utilization of recreation and sports related programmes by the blind and visually impaired university population at an Illinois University. The blind and visually impaired population of Southern Illinois University - Carbondale was surveyed and research questions were
built to collect information in ten areas of inquiry. The data were divided into three categories two categories incorporated quantitative information and one non-quantitative. It was concluded that currently enrolled visually impaired and blind students benefitted more with the "Recreation and Sports Programme" than those who were enrolled much before and among them the females were more benefitted than the male counterparts.

Lundervold, Lewin and Irvin (1987) investigated on rehabilitation of visual impairments. In this study four non-surgical methods of treating visual impairments were evaluated, (1) Optical aids (2) Contrast effects (3) Vision stimulation, and (4) Vision training. It was concluded that the most successful and extensively researched approach to rehabilitation of vision is vision training through operant conditioning method.

Singh (1989) studied on education of blind and visually impaired children in India. The historical perspective of the progress of educational and rehabilitation services for visually impaired and blind subjects in India were looked at 2 major phases - services before independence, (1987 - 1947) and after independence, (1948 onward). The pre-independence period was marked by the tradition of special schools for the visually handicapped and people sponsored by European missionaries. In the post independence era, efforts shifted from mere institutional care in special
schools to the over-all development of visually handicapped children. In this period, the Indian government, State governments and voluntary organizations also became active. Researches relating to the psychological adjustment, education, training and rehabilitation of visually handicapped children were also brought into light.

Read (1989) investigated on an examination of social skills of blind kindergarten children. The goal of the investigation was to provide blind subjects with the tools to enhance their functioning in the regular class-room without imposing the values associated with sighted subjects on the blind subjects and measured the following skills: (1) participation in actions with others, (2) maintenance of relationships, (3) development of assertiveness, classroom and cafeteria skills from 3 blind kindergarten blind children. Findings were discussed in terms of broad methods of social skills training and in terms of the specific skills deficits experienced by each subject.

Lambert (1990) investigated on the use of dog guide. The purpose of study was to examine the psychological problems and joys for blind people of obtaining and using a dog guide for independent mobility. The issues like the role that anxiety, embarrassment, and the dependence - independence conflict play in dog guide use were discussed. The anxiety or resentment that may be produced by the pass or fail atmosphere of the dog guide training centre and stress factors related to dog guide bond were also brought into light.