CHAPTER - III

METHODOLOGY
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PROBLEM STATEMENT: Do deaf children differ from the normal children in their perceptions of parental behaviour, perspective taking ability, and cognitive functioning? Further, do institutionalisation and multiple birth of deaf children make any difference to their performance on these variables and academic achievement?

ASSUMPTIONS: Since the deaf were at a disadvantage than their normal counterparts in utilising the cues in their environment, it was assumed that,

I. Deaf children may differ from the normal on crucial growth and performance indicators like;
   a) The perceptions of parental behaviour;
   b) Perspective taking ability, and;
   c) Cognitive functioning.

II. Since all the deaf did not have the same growth conditions, it was assumed, that
   a) Institutionalised deaf may differ from the non institutionalised deaf, and;
   b) Single deaf children may differ from the multiple deaf siblings on growth and performance indicators such as,
      i) The perceptions of parental behaviour;
ii) Perspective taking ability;

iii) Cognitive functioning, and;

iv) Academic achievement.

III. It was assumed that cognitive functioning among deaf and normal children may relate to perceptions of parental behaviour, perspective taking ability, cognitive functioning and educational grade.

IV. It was assumed that academic achievement among the deaf and normal may relate to teachers' ratings.

V. It was assumed that different background and psychological variables may combine differently in predicting academic achievement and teachers ratings in deaf and normal children.

OBJECTIVES OF THE STUDY: This research had been undertaken with quite a few objectives in view. These may be listed as below:

I. To compare the normal and the deaf of the same educational grade in terms of,
   a) perceptions of parental behaviour;
   b) perspective taking ability, and;
   c) cognitive functioning.

II. To compare the institutionalised deaf with the non
institutionalised deaf in terms of
a) perceptions of parental behaviour;
b) perspective taking ability;
c) cognitive functioning, and;
d) academic achievement.

III. To compare the single and the multiple deaf children on
a) perceptions of parental behaviour;
b) perspective taking ability;
c) cognitive functioning, and;
d) academic achievement.

IV. To examine the relationship between cognitive
functioning and perceptions of parental behaviour;
perspective taking ability, academic achievement and
educational grade in the normal as well as deaf group.

V. To examine the nature of relationship between academic
achievement and teachers' ratings in normal and deaf
groups.

VI. To examine the nature of contribution of different
background and psychological variables among deaf and
normal children to their academic achievement and
teachers' ratings.

HYPOTHESES:
The above objectives were translated into following
testable hypotheses:

I) Deaf children will differ significantly from the normal children on
   a) perceptions of parental behaviour;
   b) perspective taking ability, and;
   c) cognitive functioning.

Comparisons on the above variables for the two groups were also made by work status of the mother and family type.

II. Institutionalised deaf children will differ significantly from the non-institutionalised deaf children on:
   a) perceptions of parental behaviour;
   b) perspective taking ability;
   c) cognitive functioning, and;
   d) academic achievement.

[Comparisons were also made by sex and group membership].

III. Single deaf children will differ significantly from the deaf children having multiple deaf sibling on:
   a) perceptions of parental behaviour;
   b) perspective taking ability;
   c) cognitive functioning, and;
   d) academic achievement.

[Comparisons were also made by sex and group membership].
IV. The cognitive scores will relate significantly to perceived parental behaviour, perspective taking ability academic achievement and educational grade in the deaf as well as the normal children.

V. Academic achievement will relate significantly with teachers' ratings for normal as well as deaf children.

VI. Different background and psychological variables will predict the academic achievement and teachers' ratings for deaf and normal.

RATIONALE FOR THE FORMULATION OF HYPOTHESES

HYPOTHESES 1: Deaf children will differ significantly from normal children on

a) perceptions of parental behaviour;
b) perspective taking ability, and;
c) cognitive functioning.

Rationale:
The above hypothesis had three sub-hypotheses. The rationale for each sub-hypothesis was derived from the research literature. These are discussed below:

a. Available research evidence indicated that it was not unusual that the discovery of a hearing impairment caused a crisis in the affected family (Mindel &
Vernon, 1971). Parents did not willfully have a handicapped child. Each parent in the family had to make an adjustment to the new realities that were thrust upon him/her. Kauffman and Hallahan (1981) observed a feeling of guilt and shame on the part of hearing parents over the fact that they had a deaf child. These feelings could thus affect the acceptance of the child and act as a negative determinant to his growth.

Daniels et al. (1985) observed that differential treatment experienced by siblings originated from the same family environment.

Unrealistic approach to handle deaf child initially could result in delaying or disrupting the development of positive efforts to help the child (Kristensen, et al., 1987).

b. The deaf child with little language must rely more on facial expression and gestures for interpreting others' responses. Bryan (1974) reported that learning disabled children had difficulty in understanding subtle affective cues. Maurice and Charles (1983) observed that the development of the handicapped and non handicapped children in the social and affective domains was considered as a potentially important yet
presently neglected aspect. Cunninghaum and Odom (1986) had reported social interaction as important in identifying facial expressions.

c. Myklebust's (1960) organismic shift hypothesis would make one believe that deaf children differed from the normal in their intelligence. Furth (1964) agreed with the manifest backwardness of the deaf children in certain areas of conceptual development in the preadolescent period and insisted that it was the general experiential impoverishment which operated in diminished success. Some researcherers disagreed profoundly with the language deficit thesis and adopted Piagetian position on the peripheral role of language in thinking.

Oleron (1977a) reviewed numerous studies of cognitive skills in deaf children and found general support for varying degrees of retardation. Oleron argued that language deficit was the significant causal factor.

**HYPOTHESIS 11:** Institutionalised deaf children would differ significantly from the non-institutionalised deaf children on:

a) perceptions of parental behaviour;
b) perspective taking ability;
c) cognitive functioning, and;
d) academic achievement.

HYPOTHESIS 111: Single deaf children will differ significantly from the deaf children having multiple deaf sublings on:

a) perceptions of parental behaviour;
b) perspective taking ability;
c) cognitive functioning, and;
d) academic achievement.

The rationale for hypotheses 2 and 3 are discussed together.

Rationale:

The above two hypotheses were formulated with the objective of identifying the mainstreaming effects, if any, on perceptions of parental behaviour, perspective taking ability, cognitive functioning and academic achievement.

The term mainstreaming represented in the literature an almost limitless variety of practices intended to provide to the handicapped and disadvantaged children such as greater exposure to the 'normal' learning environment. One of the most compelling justifications for mainstreaming stemmed from social learning principles and the related researches.

It emphasized the importance of providing handicapped children with both vicarious and direct experiences, with
their normally developing peers. According to the social learning perspective, children profited by observing and subsequently imitating their peer models who displayed normative social behaviour and slightly more advanced social competencies (Ferguson, 1965 and Hartup & Lougee, 1975). The opportunity for social interaction with the normally developing peers benefited the handicapped children in that it provided them with an experiential context in which to develop, elaborate, modify, and regulate the expression of various interpersonal behaviours (Hartup, 1976 and Furman, Rahe & Hartup, 1979).

The essential conditions for 'normal' socialisation according to this view, included vicarious experience (i.e., observation) and direct participation with normal peers. Conversely, the absence of one or both of these conditions could be seen as a constraint that was likely to result in substantially altered developments. Gresham (1982) reviewed 40 studies dealing with the social skills of mainstreamed handicapped children and found that the mainstreamed handicapped children were in reality put under more restrained conditions. The evidence also indicated that deaf children may be rejected more by normal class-mates than children with other handicaps, such as learning disabilities or orthopaedic difficulties (Devoney et al., 1974; Force, 1956 and Synder, 1977).
Johnson and Griffith (1985) suggested that the priorities of participants in mainstreaming programmes can be different and competing and this might have some detrimental impact on the handicapped child and for that teachers have to be prepared.

The available evidence did not lead to the conclusion that mainstreaming had negative effects. Vandell et al. (1982) suggested that additional research was needed to evaluate different approaches to mainstreaming. Better results could emerge if the mainstreaming occurred in a less 'forced' setting.

Since the usual educational mainstreaming (the experimentally controlled) might negatively affect deaf children's psychological growth, the present study had as one of its objectives, the study of natural mainstreaming effects on growth and development of deaf children.

An attempt was made to study the most natural mainstream effects (ex-post facto mainstreaming) by comparing,

1. Institutionalised deaf with non-institutionalised deaf children.
2. Single deaf children with the multiple deaf siblings.

In the first category non-institutionalised deaf group was compared with the institutionalised deaf group. Children
in non-institutionalised deaf group, by virtue of their returning home after the school hours, had an advantage of being mainstreamed with their normal siblings and neighbourhood children in comparison to children in the institutionalised group, who remained in the school boarding house even after the school hours. The non-institutionalised group therefore got the status of the experimental group (mainstreamed group), whereas the institutionalised group was treated as a control group.

In the second category, a single non-institutionalised deaf child in a family of hearing people was constantly being mainstreamed in a very natural manner with his normal siblings and other normal surroundings. The single non-institutionalised group was thus treated as the experimental group. The controlled group in this case was comprised of the multiple deaf non-institutionalised siblings who remained relatively uninfluenced by their normal siblings because of obvious clique formation with other deaf siblings (Kannapell 1980). This group could be taken as the control group without a substantial mainstreaming component. (Comparisons under the above category were made only between those single and multiple deaf sibling who had the non-institutionalised status).

It was thought that the above design could reduce the
negative effects of educational mainstreaming for the following two reasons:

i. Normal siblings/neighbour were not expected to make fun of the deaf sibling/neighbour. They were rather expected to have an accepting and tolerant attitude towards the deaf since the deaf child was a natural part of the family/neighbourhood environment.

ii. Parental/monitoring of normal children's behaviour was expected to have a moderating impact on their behaviour towards the deaf sibling.

**HYPOTHESES IV:** Cognitive scores will relate significantly to perceived parental behaviour, perspective taking ability, academic achievements and educational grade in deaf as well as normal children.

**Rationale:**

The rationale for each relationship in this hypothesis was derived from researches discussed below in brief.

- Cognitive scores and parental behaviour

Child, caregiver and physical environment comprised a transactional network in which no element could be misused or left out if the child had to be properly understood. This transactional scenario in which the child influenced
and was influenced by the environment or agents in the environment (usually the mother) was very important for child's growth and development (Sameroff, 1979). The impact of care giver's expectations and relevant practices was found powerful to the extent that it even influenced the rate of neuromotor walking (Kearsley, 1979). So strong were these effects that Zelago's (1979) clinical experience led him to claim that "The child's development will not unfold according to schedule without proper stimulation."

- Cognitive scores and perspective taking ability:
The cognitive ability was positively and consistently related with measures of perspective taking (Kohlberg 1969; Chandler, 1973 and Damon, 1975). No study though tried to relate the affective perspective taking ability of deaf to their cognition and compared with normal children.

- Cognitive functioning and academic achievement:
Scores on intelligence did correlate with educational achievement (Butcher 1968). The value of correlation between these two variables itself varied. It was not a permanent fixed quantity. Cattell (1965) pointed out that the typical value of correlation between intelligence and academic achievement was around .50. Hirshoren et al. (1979) reported coefficient of correlation between intelligence on performance scales and school achievement in
case of deaf children ranging between .09 to .35.

Cognitive functioning and educational grade:
Bayley (1965), Bromley (1966), Owens (1966), Guilford (1967) and Butcher (1968) felt that intelligence kept developing till the age of 18 years or so. Since the sample under study was in the developmental age group it was assumed that cognitive scores and educational grade would be significantly related in both groups (educational grade being an age related concept).

HYPOTHESES V: Academic achievement would relate significantly with teachers' ratings in normal as well as deaf children.

Rationale:
 Pearson (1965), Kamat (1966), Picano (1966) Alisahovic (1973) and Krupczak (1973) found significant relationship between teachers estimates and students' academic performance. The present hypothesis tried to replicate the findings on normal as well as deaf children in Indian setting.

HYPOTHESIS VI: Different background and psychological variables will predict the academic achievement and teachers' ratings for deaf and normal.
Rationale:

Deaf children were more vulnerable to problems of adjustment than hearing adolescents, Feinstein and Lytle (1987) and Harvey and Dym (1987) taking the ecological view of deafness argued that many psychosocial levels influenced the development of deaf persons. It was assumed that the contribution of background and psychological variables to academic achievement and teachers' ratings would be different for the normal and deaf children.

DESIGN AND SAMPLE OF THE STUDY

The present study fitted into an ex post facto (Kerlinger 1973) matched group design as the independent variables had already occurred and were studied in retrospect for possible relations to and effects on the dependent variables. The groups under comparison, viz, normal and deaf in the first part of the study and institutionalised Vs. non-institutionalised as well as single Vs. multiple in second part of the study were matched on educational grades and sex. Matching on some background variables was also done for normal and deaf subjects (Table III.1)

It may be pointed out that matching on grades ordinarily corresponded to matching on age as well. But in the present study the normal and deaf groups were almost five years
apart on age for the same educational grade. The rationale for grade matching in the present study rather than age matching evolved out of the thesis grounded in social reality that a deaf child remained at a lower level of attainment because of his inadequate utilisation of all available cues. Keeping in view this limitation, in India the schools for deaf admitted a deaf child at the age of 4 to 5 years to pre-school and provided him/her pre-school training geared towards linguistic promotion. By the time this child attained 9 years of age yet he/she had to go into grade one in the special school for the deaf, while a normal child of only 5 years was competent to go to grade one. The very system of special education for the deaf thus put deaf child behind the normal child by about four to five years in the very first grade. Thereafter depending upon their scholastic achievement the deaf were promoted to higher classes. This gap remains more or less constant in subsequent years.

Despite this pre-school training the deaf child failed to function at par with the normal child. These differences became relatively more apparent as the child moved on to higher grades. A closer association of the researcher with deaf children revealed that their communication within their own group, between normal and deaf, and even between teachers, who had been teaching over decades, and their deaf
pupils was never realised to the core. During the pilot study when the investigator tried to interview deaf children with simple questions it was found difficult to communicate with the deaf even with the help of their teachers. Though, sign language was considered a remedial step towards such problems. Detailed observations indicated that even sign language must be used with caution, as with the signs for objects, places, actions and persons it still remained quite difficult to convey an integrated idea to the child. Hoemann (1972) and Moores (1978) also reported such observations.

It was thus realised that grade matching of normal and deaf children rather than the age matching should lead to more meaningful findings. Matching on age would have contaminated the findings because of two strong reasons namely a) the basal differences between the two groups and b) cumulative deficit in the deaf group because of unequal interactions of deaf and normal groups with their respective environments. Alongwith grade and sex matching the deaf and normal groups were also observed for matching on means and standard deviations on some demographic variables such as socio-economic status of parents, family size and birth order for understanding of results from broader perspectives. The family related information for the two groups is shown in Table III.1 below.
### TABLE III.1
**SUMMARY OF FAMILY INFORMATION USED IN MATCHING OF NORMAL AND DEAF**

<table>
<thead>
<tr>
<th>Variables</th>
<th>NORMAL (N = 156)</th>
<th>DEAF (N = 119)</th>
<th>t</th>
<th>Significance</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>for mean</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>S.D</td>
</tr>
<tr>
<td>S.E.S.</td>
<td>1.98</td>
<td>.91</td>
<td>2.30</td>
<td>.88</td>
<td>.32</td>
</tr>
<tr>
<td>Family Size</td>
<td>4.11</td>
<td>1.07</td>
<td>4.30</td>
<td>1.67</td>
<td>.95</td>
</tr>
<tr>
<td>Birth order</td>
<td>2.72</td>
<td>1.67</td>
<td>2.54</td>
<td>1.37</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* NS is for not significant

The study included 156 normal and 119 deaf children of grades IV to VIII. Deaf children were from a special school for the deaf situated in Delhi and run by the government. Only hard of hearing subjects, i.e. the functionally deaf, with varying degrees of deafness were in the sample. Profoundly deaf children were not included as they generally had more integration difficulties (Reich et. al 1977). Normal children were also taken from municipal schools in Delhi.

Deaf children were further sub divided in terms of their institutionalisation and non-institutionalisation status.
and single deaf and multiple deaf siblings status.

Single and multiple deaf were from non-institutionalised deaf group of children. A detailed tabular description of the samples included in the study is shown below (Tables III.2, III.3 and III.4).

**TABLE - III.2**

**TOTAL SAMPLE N = 275**

**GROUP-WISE BREAK-UP OF THE TOTAL SAMPLE**

<table>
<thead>
<tr>
<th>Grades</th>
<th>Deaf Sample N=119</th>
<th>Normal Sample N=156</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Grade : IV</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Grade : V</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Grade : VI</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Grade : VII</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Grade : VIII</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
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<table>
<thead>
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<tbody>
<tr>
<td>60</td>
<td>59</td>
<td>76</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

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TABLE - III.3
DEAF SAMPLE N=119
SEXWISE BREAKUP OF THE DEAF SAMPLE BETWEEN INSTITUTIONALISED AND NON-INSTITUTIONALISED GROUPS

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Institutionalised</td>
<td>12</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td>2. Non-Institutionalised</td>
<td>48</td>
<td>44</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>119</td>
</tr>
</tbody>
</table>

TABLE - III.4
NON-INSTITUTIONALISED SAMPLE N = 72
SEXWISE BREAK-UP OF MULTIPLE AND SINGLE GROUPS

<table>
<thead>
<tr>
<th>Status of Deaf</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Single</td>
<td>37</td>
<td>35</td>
<td>72</td>
</tr>
<tr>
<td>2. Multiple</td>
<td>11</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>92</td>
</tr>
</tbody>
</table>

After identifying the school for the selection of normal children, the random stratified approach was adopted to attain a sample strength of 15 boys and 15 girls by using the random number tables. Such an approach was not
appropriate for the selection of deaf children because of their limited population. Thus the quota cluster sampling technique was used to get the sample. Inspite of using the quota cluster sampling procedure, which amounted to the sampling of almost all children present in the class, the target of 15 males and 15 females in each class and grade could not be reached owing to their limited number.

VARIABLES:

The measured and classifactory variables were defined as below:

- **Perceptions of Parental Behaviour:**
  Perceptions of Parental Behaviour were defined as the child's experiences of maternal behaviour in terms of parental warmth or rejection.

- **Perspective Taking Ability:**
  In this study only the affective perspective taking ability was included because the cognitive perspective taking had a high degree of common variance with cognition. Secondly, the work done on affective perspective taking was quite insignificant. Maurice and Charles (1983), observed that affective perspective taking ability of handicapped children was potentially important yet a neglected area of study. Additionally, it was widely known that the deaf children acquired a
lot of information and learnt through the emotional responses of people rather than the verbal communication. For affective perspective taking ability the instrument used for the study was designed for the purpose.

Affective Perspective Taking Ability was defined as the ability of an individual child to assess another person's emotional state expressed through facial expressions.

- **Cognitive Functioning:**
  Cognition was taken as the ability to deal effectively with concrete situations or problems.

- **Academic Achievement:**
  Academic Achievement was defined as the child's average scholastic achievement over the last two years in school.

- **Teachers' Ratings:**
  Average of the ratings regarding the overall performance of all teachers teaching the child in that particular year.

- **Institutionalised and Non-institutionalised:**
  These variables were used only for deaf children. The term 'Institutionalised' was used for those deaf
children who had been staying in the school hostel for more than three years. The term non-institutionalised was used for those deaf subjects who had never stayed in the school hostel.

- **Single and Multiple Deaf Siblings:**
  For this group of deaf children only non-institutionalised deaf were taken. Single deaf was taken as that child who did not have any other deaf sibling. Multiple deaf concept was used for those children who had one or more deaf siblings.

**RAPPORT FORMATION**

For any testing situation one important requirement is that a comfortable and unconstrained relationship of mutual confidence between the persons' involved (tester/s and testee) be realised before starting any sort of data collection. This was maintained for the present study in letter and spirit for deaf as well as normal children. Incase of normal children it was achieved easily. While with deaf children the investigator had to be extra cautious especially in light of the finding that the deaf children did not easily mix with the hearing world (Kannapell, 1980).

The researcher's frequent visits to the school for deaf even before the pilot study lent the deaf children a feeling of
familiarity with the researcher. During these visits itself the investigator started being friendly with the deaf children in order to make her future visits more fruitful. Thus, even before starting the data collection the investigator adopted the policy of spending extra time with the deaf in order to know more about them and gain their confidence. In the process the deaf students started becoming free and wanted to know more about the investigator-her family and her whereabouts. On learning that the investigator too had a deaf brother whom she was really fond of, it appeared, that the deaf children drew emotionally close to her. It was empathizing with the deaf students that paid off in formation of rapport.

Since the sign language was not a big problem with the investigator she was comfortable with deaf children. By now a smooth stage for comfortable sailing for data collection had been set. Even during the data collection stage the investigator continued the practice of being with the deaf children for informal talks after the data collection. However, the actual data was collected under controlled conditions. Individual testing was done on each subject in three different sittings in case of deaf and one sitting with adequate rest pauses for normal children. For administering the Parental Behaviour Inventory on deaf subjects the investigator also took the help from some of
the teachers of the deaf with whom the students appeared quite close.

INSTRUMENTS USED:

Instruments included in the study comprised of quantitative as well as qualitative measures. Classificatory and background information was obtained through office records and a simple fact gathering interview. The following instruments were used for collecting data.

- Parental Behaviour Inventory consisting of 20 statements was developed to collect information on perceptions of parental behaviour (Appendix A).

- Perspective Taking Ability: Facial Expression Test was constructed to evaluate the affective perspective taking ability of children (Appendix B).

- Kohs Block Design Tests and Alexander Pass along Test were used for assessing the recognition of children.

- For the Academic Achievements the school records were used.

- Teachers' ratings were noted from their diary records and information supplied by them.

Out of the above five techniques two were basically of qualitative nature. A combination of quantitative and
qualitative techniques was attempted.
Quantitative techniques had always been the predominant research methodology employed in special education. The research subjects were seen as passive reactive organisms similar to basic matter in the hard sciences and the researcher was viewed as the objective scientist who manipulated the external environment and observed the effects on the subjects. Beyond doubt, researches utilising quantitative methodology had contributed considerably to the knowledge base in special education (Hallahan and Kauffman, 1982; Mann & Sabatino, 1980; Sailor & Guess; 1983; Strain, 1982; Ysseldyke & Alozzine, 1982). However, there had been a growing awareness and recognition from within and outside that this approach had limitations.

Quantitative methodology had been criticised for being primarily confirmatory or verification oriented, particularistic and ill suited for addressing the social and educational relevance of research efforts. Cook & Reichardt, (1979); Le Compte & Goetz, (1982) and Smith, (1983) argued that all research paradigms had limitations. The quantitative researchers had thus begun to advocate that educators should broaden their research perspectives to consider other methodologies. One methodology that had been employed with increasing frequency to offset some of the limitations of quantitative methodology is the qualitative
techniques (Rist, 1980). In fact in certain cases only the qualitative technique could help in collecting meaningful data.

DESCRIPTION OF INSTRUMENTS USED IN THE FINAL STUDY:

**Parental Behaviour Inventory:**
An interview inventory was used. It consisted of 20 questions (10 negative and 10 positive) relating to parental approval towards child's needs and behaviour. The investigator interviewed each child personally on these questions and scored according to a pre-designed Lickert type procedure (Appendix A).

**Perspective Taking Ability: Facial Expression Test**
The instrument used for the study was designed for the purpose. Initially the investigator started with a pool of 30 pictures displaying different emotional moods. Some pictures were neutral. Some had models in different poses which could stimulate emotional responses. These pictures were presented to 15 artists, 15 psychologists, 15 school teachers and 15 college students for them to decipher and comment on the emotional make up of the characters in pictures. A total of 15 pictures on which all the 60 judges agreed closely, based upon chi square values were selected for inclusion into the test. The scoring system was
developed based on inter rater agreement. The selected pictures were administered to 30 school children at two time periods. The subjects were asked to match the pictures with predetermined responses. The test-retest reliability was .67 (Appendix B).

Kohs Block Design Tests:
These were the Performance tests standardised by Kohs to measure intelligence. They had been purposely devised to eliminate the factor of language. Thus the instructions could be given entirely through pentomime.

The test material consisted of sixteen cubes of one inch dimension. All were painted as below:
One side red
One side blue
One side white
One side yellow
One side red and white (divided diagonally)
One side yellow and blue (divided diagonally)

In all there were seventeen designs to be made using these cubes. Designs were printed on different cards in appropriate colours. Cards were presented in ascending order.

For the first nine designs only four cubes were given, for the 10th and 11th designs five more cubes were added making it nine. From 12th to the 17th design all cubes (16) were
given to the subject. While giving the cubes only 25% of the right colour to make the design was presented at the top of the cubes, the remaining cubes showed the wrong colour at the top.

Instructions were given to the deaf children in pentomime and by means of gestures after making sure that they were not colour blind. Normal children were given normal standardised instructions.

Administration was done according to the directions in the manual. A count of time and moves was strictly kept. Scoring was done as prescribed by the author of the test.

Alexander Pass along Test:
The test comprised of four trays, each containing a number of small blocks, one of which was coloured red (in two cases), while the other were coloured blue. One end of the box was red, one end was blue, and the other two sides were white. The problem in each case was to move the red block to the red end of the tray (the subject was presented red blocks towards the blue end of the tray). The subject had to move the blocks within the limited space left in the box without actually lifting the box. The blocks had a definite size space relationship and the combination of blocks varied in each box. The problems varied in complexity in an increasing order as the subject moved from one problem to
the other. The first box presented a problem which was simple enough to be successfully completed by a five year old child. The last problem was sufficiently complex as tested superior adult intelligence. The boxes were so arranged that each succeeding problem constituted preparation for the next. Thus the test measured the ability to profit by experience as well as it measured the insight with which the child reacted to a novel situation.

In this case too, deaf children were given pentomime instructions with gestures and normal children were given normal instructions. The test was administered and scored according to the prescribed instructions.

**Academic Achievement:**
School records on child's performance over the last two years were added together and averaged.

**Teachers' Ratings:**
Teachers ratings were descriptions of children classified as low, average, or high performance converted from the diary records maintained by teachers.

**RATIONALE FOR INSTRUMENTS USED:**
**Perception of Parental Behaviour Inventory:**

To begin with, it was felt that a valid standardised
instrument should be used to assess the parental behaviour. Trials with some standardised inventories like Rohner's indicated that since the data were to be collected on deaf children it was not possible to make use of any standardised projective or non-projective instrument because of the obvious language deficit. The investigator thus undertook the task of developing a new inventory for this research. The inventory contained questions regarding the behaviour of mother mainly because there was research evidence suggesting that fathers may interact less frequently than mothers with the handicapped children (Jordon, 1962). Fathers of deaf children seemed to experience more difficulty in learning the sign language. Also the meanings of handicap differed for mothers and fathers (Schlesinger & Meadow 1972). Importance of maternal behaviour in child's development and cognition was shown by Chen and Kazuo (1984).

Researches also indicated that fathers were less likely to encourage the child's development and mastery over the environment (Parker, 1983). Since the deaf child was under the close supervision of mother and spent most of his/her time with mother than with the father, the perceptions of her behaviour were thought to be directly relevant.

Though one did not choose to have a handicapped child, once the child arrived in the family, the reaction of the members
of family could vary from being frustrated to being sympathetic. The actual responsibility of raising the child fell on the mother. As such no mother would like to hurt a handicapped child but the demands of work or even an overprotecting outlook of the mother toward her deaf child might result in some behaviour which the child may perceive as falling anywhere between the bipolar dimensions of parental acceptance (i.e. warmth) and rejection. There might not always be one to one relationship between the intentions of the mother as expressed through her behaviour and its perception by the child, e.g., a good intentioned act of mother might be perceived as rejecting or hostile by the child and vice versa. It was important to note that while it might not be always easy to make the normal child understand intentions of parents, it was next to impossible to do so for the deaf child. Reasoning failed with deaf children. One had to try and act harder and harder. In the final analysis it was the child's perception of the parent's behaviour which had an impact on him rather than the mother's self-evaluation of her behaviour towards the child. Emphasis was placed in this research on understanding the child's perceptions of mother's behaviour and its impact on his development.

**Perspective Taking Ability:**

In this study only the affective perspective taking ability
was included because the cognitive perspective taking had a high degree of common variance with cognition. Secondly, the work done on affective perspective taking was quite insignificant. Maurice and Charles (1983), observed that the affective perspective taking ability of handicapped children was potentially important yet a neglected area of study. Additionally, it was widely known that the deaf children acquired a lot of information and learnt through the emotional responses of people rather than through the verbal communication. For affective taking ability the instrument used for the study was designed and developed for the required purpose.

Generally two types of tests were in use. One in which stimulus character was congruent with the affective tone of the story narrative, and the other in which the stimulus character was discrepant with the tone of the story narrative. The later procedure appeared to be a more accurate evaluation of the child’s affective perspective taking ability. Since a correct response had to be generated by the child’s focusing on the affective reactions of the stimulus character the child himself had to be narrative (Chandler et al. 1973; Kurdek & Rodon, 1975).

In the present study since deaf children were the subjects, narration by telling or getting verbal responses was not
possible. It was decided, to have facial pictures displaying different emotional expressions designed as material. This enabled to rule out the language factor. The response consisted of just sorting out and matching of these pictures to different alternative responses.

It was believed that pictures contained rich information. Traditionally pictures were used to convey the meaning of written words and phrases, teaching reading to deaf as well as hearing children (Reynolds, 1976; 1978). Pictorial information was advantageous because it provided iconic representation requiring little or no decoding or interpretation by subjects. Verbal information on the other hand must be decoded and interpreted in order to derive meaning, a process requiring additional time and introducing distortions in case of deaf children. While working with the deaf, problems associated with language and comprehension posed difficulties (Sigel, 1964).

Facial expression tests had been used for the interpretation of reflected emotions (Odom, et al. 1973). Because of the large communicative deficit researchers and a good number of parents and deaf children limited their communication topics to visual references (Schlesinger 1972). Drawings and pictures were extensively used to gathering data on deaf subjects for many different purposes (Gibson, 1954; Craig,

Kohs Block Design & Pass along test:
Studies on the cognitive development of deaf children were susceptible to the numerous pitfalls of the administration of tests. The problem was inherent in the role of language as the confounding factor. When deaf children were presented with tests, which contained linguistic elements, whether verbal or non-verbal, the measurements obtained were found to be indicators of language deficiency, rather than specific measures of cognitive functioning. Intellectual assessments made by using words could not be relied upon as measures of cognitive functioning of children, and more especially of deaf children. Most intelligence tests were standardised on hearing children and relied heavily on the verbal element which made them quite unsuitable for use with deaf children.

Some of the tests of intelligence which had been used in the past with deaf children had done little more than demonstrate a considerable language deficit. Even if the tasks were constructed that seemed relatively free of linguistic ability, the problem of administration remained serious because of the problem of communication and instruction. A child lacking in linguistic skills seemed to
have additional problems in that he/she became so preoccupied with the effort to understand the message underlying communication, that he/she could not register the intellectual task. Thus most of the intellectual assessment instruments were discriminatory to the deaf (Bragman, 1982). It had been repeatedly observed that sometimes task failure might be due to lack of verbal communication skills rather than the lack of conceptual understanding or thinking. What was a needed then was a test of cognition that would make either no use of language or have a minimum verbal saturation. It was with this logic that Kohs Block Design & Pass along Tests were considered good choice for assessing intelligence. Both the tests could be administered by giving instructions through liberal use of signs, gestures and pentomime.

**Academic Achievement**

In the absence of any other reliable and valid tool for the deaf sample for measuring academic achievement the average of school results over the last two years was taken as the measuring index for academic achievement.

**STATISTICAL ANALYSIS :**

2x2x5 Analysis of variance, t-test, Mann-Whitney U-test, Step wise multiple regression and tests of difference between two r coefficients were used as techniques for analysis of data.