CHAPTER 6

SUMMARY AND CONCLUSIONS
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Assessment of memory development has been the focus of memory research for almost two decades now. Research has established that global as well as specific areas of the memory development have implications in formulating various strategies to enhance development in different areas. Intervention strategies for children with poor memory are largely based on evaluation of memory functioning. Thus there is a growing body of literature on scales which assess different aspects of memory. There is a growing demand for reliable and valid scales, in this field. Especially in the Indian context, the increasing interest in the field and clinical requirements of children with memory failure calls for the development of context-appropriate assessment of memory functioning.

The objective of the present study was to develop a scale for assessing memory functioning, covering various aspects of memory functioning, relevant to the Indian context, and to study its utility in the clinical setting with children having possible memory problems. The steps taken to accomplish these objectives were as follows.

An attempt was made to scrutinise the available existing empirical tools on various aspects of memory. Those aspects of memory functioning that were considered important in understanding the clinical population, along with key
concepts used in the literature were considered. Items were selected from the tools that tapped memory abilities and they were examined carefully to eliminate overlapping items, those that were not culturally relevant and those that were ambiguous or vague. An attempt was made to modify certain subtests to be used with children. As a result 18 subtests were retained. A set of subtests for assessing verbal and visual areas of both meaningful and non meaningful items with immediate and delayed recall and recognition subtests tapping various aspects of memory development were thus arrived at.

Based on the pilot study of 18 subtests initially selected, 12 were retained after suitable modifications. Rutter's Scales—Form A and Form B were used to screen children for any behavioural disturbances. The Coloured Progressive Matrices was used to screen out children with mental handicap. It took about 60 to 90 minutes to complete the test. The test was administered to those children who scored above the 5th percentile rank on Coloured Progressive Matrices.

For the main study, 714 normal children of the age range 7 - 11 years were screened, 573 were administered the scale and norms were developed. The sample selected was matched with respect to age and gender.
A clinical sample of 75 epileptic children of 7-11 year olds presented at the Neurology Outpatient Department, National Institute of Mental Health and Neuro Sciences, Bangalore, with a history of two or more years of epilepsy and on antiepileptic medication were tested.

The performance on subtests Mental Control, Story Recall Delayed, Delayed Response learning, Cattell's Retentivity test and Total Memory Score indicated that the mean scores increased linearly. But on subtests such as Personal Information, Sentence Repetition, Story Recall Immediate, Digit Backward and Word Recall Non Meaningful, Picture Recall, Benton Visual Retention test and Paired Associate learning test though the scores increased consistently with age there were few discontinuities in between. The groups differed significantly with respect to their means and except for the subtests namely Word Recall Meaningful, Digit Forward the F-values were not significant. Findings of the above mentioned tests showed that they are sensitive enough to measure the developmental increments across the age groups. Where as the three subtests: Word Recall Meaningful, Digit Forward and Digit Backward have failed to show any developmental trends indicating that this ability has been acquired for the age groups studied. It could also mean that this memory development occurs little later in the developmental process. It is clearly evident, the memory is a
descriptive term for a collection of cognitive processes. Memory development, in turn, is composite of change in each of several components of memory. In this way information to be remembered is thought to be equally familiar, comprehensible and so on for children of different age groups (or at least approximately equal). However, this study has enlightened us the developmental changes in ordering reflect the growth of certain operations. Hence age-wise norms for each subtest was estimated.

Gender differences were evident on few subtests. The 7 and 8 year old girls were superior to boys. On verbal ability among the 9, 10 and 11 year old children, the boys performance was better than girls. On subtests of verbal memory and visuo spatial ability, the findings are not consistent across the age group it could be a incidental finding or it could be an artifact.

A significant positive correlation was found between the RCPM and all the subscale scores and total Memory Score with CPM total score.

The intercorrelations of subtests with total Memory Scores for the group, revealed that most of the subtests scores correlated significantly with their respective similar memory ability. Except for subtests Digit Forward, Digit Backward, Delayed Response learning the intercorrelations were not significant and this suggests
relative independence of these subtests from the other subtests.

The percentile ranks were computed for total Memory scores across 7-11 year subjects. The distribution of mean memory scores in each age group approximate the normal curve.

The test retest reliability over six weeks period was found to be stable. The content validity was established using procedures for item generation and item retention for the initial item universe. The test was found to have good construct validity, it demonstrated with the help of factor analysis, memory as a unidimensional construct. To establish clinical validity the epileptic group was compared with the normals. The clinical group's performance was significantly poorer on most of the subtests.
CONCLUSIONS

1. The Memory scale thus developed is a comprehensive battery of 12 subtests, measuring different aspects of memory and employing different methods of recall in children.

2. All subtests separately as well as the full test are found to be stable.

3. The construct validity of this battery accounted for a unidimensional factor. The clinical validity of the scale was reflected in the scale's ability to differentiate the clinical and the normal samples.

4. The raw scores could be converted into percentile ranks for each subtest, for the age group between 7-11 years.

5. Profile analysis on all subtests for the normal children as well as children with epilepsy, indicates adequate clinical application.
1. A longitudinal approach, still continues to be the best approach for studying memory.

2. Selecting a broader age range may facilitate these trends to be studied in a more detailed manner.

The range of training techniques, the selection of appropriate methods according to the nature of the problem, the generalisation of training from specific tasks to daily life and the evaluation procedures used in different settings and with different client groups - all offer plenty of scope for further investigations.

4. The Tests of Memory is recommended for future research to find out the pattern of memory deficits of different homogeneous clinical groups, such as ADD-H, specific learning disabled and other organic conditions other than epilepsy.

5. The stability and replicability of the factors across samples need to be examined in future.

6. Memory development could be explained as the development of increasingly flexible and more general memory strategies.

Realistic and interesting models of motivational factors as determinants of memory should fuel research directed at understanding how motivation affects memory.