Chapter-6

SUMMARY AND CONCLUSIONS
6.1 Summary

This study is summarised as follows:

- The study aimed to examine the efficacy of ITPE in children with LDs.

- This study was a pre-test and post-test with crossover, and comparative intervention research study.

- The independent variable in the study was ‘ITPE’, dependent variables were ‘EF Scores’, and subject variables were age, gender, and grade.

- The total sample size was 15 consisting of both gender. 10 cases were allotted for experimental group and five cases for control group.

- The final sample included 12 boys and three girls in the age range between 11-13 years after they were formally diagnosed as LD and/or SDDSS as per ICD-10/DCR criteria (WHO, 1993).
The sample was drawn from the Department of Clinical Psychology, AIISH, under Ministry of Health & Family Welfare, Government of India, located at Mysuru (Karnataka).

There were three points of assessment: pre-intervention, post-intervention and re-assessment without intervention. Initially, experimental group A was given training while experimental group B participants were not given any training. After a period of one month, experimental group B was given training while experimental group A was rested. Control group has not received any training and participants of this group were in waitlist.

EFs tests were administered such as DSF and DSB; VWM and SWM subtest of WRAML-2, CCTT-1&2, SCWT-CV, and WCST.

The ITPE was administered on each subject of both the experimental groups through 20 hourly training sessions spread across 4-8 weeks with a fixed interval between sessions.

A pilot study was conducted on four children to find out the feasibility of the individualized training employed and it was found that the activities employed were found to be feasible, adequate and effective to improve EFs in children with LDs (Gupta & Venkatesan, 2014b).

Improvement was observed in all the ten cases of the experimental group A and experimental group B as compared to the control or waitlist group.

The findings of the study point out that ITPE is effective in improving the EFs or skills such as span of attention, motor speed, shifting set and visual scanning; inhibition control, verbal working memory, symbolic working memory, and abstract ability in children with LDs.
1.2 Conclusion

Findings of this study suggested that there is clinically significant improvement in EFs of children with LDs in the areas of span of attention, motor speed, shifting set and visual scanning, inhibition control, verbal working memory, symbolic working memory, and abstract ability and calling for further research in this area.

The findings also highlight the need and importance of early identification, screening and assessment of EFs and planning for early intervention to achieve optimum benefits for such children to prevent what is described as ‘Matthew Effect’ (Stanovich, 1986). This therapeutic module also appears to be cost effective, practical, handy, suitable and feasible for implementation under Indian conditions in home, school or clinical setting in comparison to expensive computer based training programmes. In view of above findings, future treatment regimen should also incorporate strategies to improve EFs in children with LDs.
6.3 Implication of the Study

Research evidence suggested that children with LDs have poor EFs in terms of poor planning, poor time management, decision making and self-monitoring though executive functions play a very important role in academic as well as daily life. Present study highlighted that individualized training on EFs would help such children to improve EFs. Thus, both assessment and training on EFs would help them in managing better plans and academic accommodations. Children with LDs may be given individual or one to one training to build connection between their EFs and academic performance. The findings of the present study have implications for future educational curricula aiming at improved academic performance stemming from an enhanced executive function based intervention.
6.4 Utility of the Study

Focus on EF skills in the early school years may help children to reach their potential and improve academic performance. Parents/caregivers must encourage their children to develop executive functioning skills through systematic and structured training activities. Awareness among parents and teachers about the role of EFs skill in the academic performance and beyond is also need of the hour. Training activities may help children to develop ability to plan, solve problems, make decision, complete and monitor academic tasks. These activities can be tailored as per the strength and weakness, and needs and interests of children. These activities can be used in the increasing level of difficulty. Feedback about the performance can be given to children. Reinforcements can be used to motivate and involve children in further activities. Considering high neuroplasticity or brain plasticity in children and the relation between executive functions and academic performance, if one uses ITPE with them, it is highly likely that this training may enhance the executive functioning of children and thus, potentially improve their academic performance (Gupta & Venkatesan, 2014a).
6.5 Limitations

Following limitations are observed:

- This study was done only on 10 children with LDs hence finding of this small sample size may be generalized with caution.

- More studies are required to establish the efficacy of ITPE in children with LDs, durability and generalizability of the acquired therapeutic gains and its theoretical basis.

- Since the study employed a test-retest method for assessment, the possibility of the children remembering certain responses and marking them out again in the post-intervention and re-assessment without intervention evaluation cannot be rule out.

- LD is a heterogeneous disorder and subtype of LD should be clearly defined. Training module can be more focused as per the need of particular difficulty in LD like-dyslexia, dyscalculia or social/behaviouralphonological issues in LD.
6.6 Future Research Directions

Following future directions are recommended:

- Further studies may be carried out on a larger sample size with comparable representation of both the gender and long term follow up at school or clinical setting.

- ITPE kit or workbook can be develop for the benefit of children with LDs.

- Computer-assisted ITPE can also be used in such children.

- Efficacy of ITPE can be studied with fMRI or ERPs.

- Neural correlates of ITPE in LDs can be investigated.

- Efficacy of ITPE can be checked and correlate with academic performance of children with LDs.

- Parents’ or teachers’ opinion about the child’s present executive functioning skills can be taken before and after the training to avoid the subjectivity.

- Comparative study can be done with other population like ADHD.

- Efficacy of ITPE can be studied in other clinical population such as Autism, ADHD, MR and Schizophrenia.