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This chapter aims to deal with the title of the problem, meaning of the terms used in this study, objectives, hypotheses, scope, need and delimitations of the study.

3.1. Title of the Problem

"A Study on Divergent and Convergent Thinking of Visually Impaired Children in Secondary Schools."

3.2 Meaning of the Terms Used in the Study

Divergent Thinking:

According to Dictionary of Psychology (1992), Divergent Thinking means an individual's ability on utilizing novel frameworks more readily than those with more conventional style of cognition.
According to Guilford, J.P (1967) "Divergent Thinking is a kind of mental operation in which we think in different directions, sometimes searching, sometimes seeking variety". Divergent production leads to novel responses to the given stimuli. The unique feature of divergent thinking is that a variety of responses are produced.

As far as this study is concerned, divergent thinking refers to a kind of thinking applied by a student, in seeking as many correct solutions as possible to the given problem. This may involve inventiveness, creativity or transfer of learning.

Convergent Thinking:

According to Guilford, J.P, (1967), 'convergent Production is in the area of logical deductions or at least the area of compelling inferences. Convergent production is the prevailing function when input information is sufficient to determine a unique answer'.

As far as this study is concerned, Convergent Thinking refers to a kind of thinking applied by a student in seeking a single correct solution to a given problem. It may involve reflective, analytic or inductive reasoning.

Visually Impaired:

According to the American Medical Association (1934), "Visually Impaired person is said to be one who has visual acuity of 20/200 or less in the better eye even with correction (e.g. glass) or whose field of vision is so narrowed that it's widest diameter subtends an angular distance no greater than 20 degree. The fraction 20/200 means that the person sees at 20 feet what a person with normal vision sees at 200 feet (Normal vision acuity is thus 200/200)".
As far as this study is concerned visually impaired individuals are those who are so severely impaired that they can not read printed materials and must be taught to read by braille.

**Totally Blind:**

According to Jill keeffe(1992), Totally Blind refers to a person's unableness to detect the direction of light, identify the shapes or has no vision at all. In this study, severely impaired individuals who can not perceive information in visual form and can only follow information by the use of tactile(touch) sense are considered as totally blind.

**Low - Vision:**

According to Jill keeffe(1992), an individual who has visual acuity less(worse) than 6/18 or visual field less than 10 degrees in diameter after best correction (treatment or with spectacles) is considered as low-vision. A person with low-vision can use vision for learning about the world for planning and doing tasks that need vision.

In this study, an individual who can't read normal print letter even after all sort of corrections but can read large prints and braille is considered as low-vision child.

**Integrated Education Programme:**

According to Krik Horton(1988), Integrated Education Programs are programs where visually impaired children attend a regular school in their home community. The visually Impaired Children(VIC) live at home and go to the same schools as their sighted brothers, sisters and friends. They study in the regular classroom with the regular class teacher but receive extra help or "support services" from a Special Education Teacher who has been trained to work with visually impaired children.
Special School Programme:

According to Kirk Horton (1988), Special Schools are Schools where all
students are visually impaired children. Often these schools are residential
schools where the visually impaired children live and study during the school year
and return home on weekends and /or during school vacations.

3.3 Objectives of the Study

1. To develop tests to measure the divergent and
   convergent thinking of visually impaired children.

2. To develop mental ability test for visually impaired children.

3. To findout the divergent thinking and convergent thinking ability of the
   visually impaired children.

4. To findout the mental ability of the visually impaired children.

5. To findout the significant differences if any, in the convergent
   thinking of visually impaired children due to variations in their sex
   (Boys and Girls), nature of residence (rural/urban), type of
   school programme (Integrated/Special school), parent's income
   (Below 10,000 and 10,000 and above), parent's educational
   status (illiterate/literate), and family size (1 to 4/ 5 and above
   members).

6. To findout the significant differences if any, in the divergent thinking
   of visually impaired children due to variations in their sex (male and
   female), nature of residence (rural/urban), type of school
programme (Integrated/Special school), parent's income (Below 10,000 and 10,000 and above), parent's educational status (illiterate/literate), and family size (1 to 4/5 and above family members).

7. To find out the significant differences if any, in the Mental ability of visually impaired children due to variations in their sex (male and female), nature of residence (rural/urban), type of school program (Integrated/Special school), economic status of parents (Below 10,000 and 10,000 and above), parent's educational status (illiterate/literate), and family size (1 to 4/5 and above family members).

8. To find out the significant differences if any, in the convergent thinking ability of different types of visually impaired children (Born totally blind, Born low-vision, Acquired totally blind, Acquired low vision).

9. To find out the significant differences if any, in the divergent thinking categories (fluency, flexibility and originality) of children with different types of visual impairments (Born totally blind, Born low-vision, Acquired totally blind, Acquired low-vision).

10. To find out the significant difference if any, in the mental ability of different types of visually impaired children (Born totally blind, Born low-vision, Acquired totally blind, Acquired low-vision).

11. To find out the correlation between divergent thinking and mental ability, convergent thinking and mental ability of different types of
visually impaired children (Born Totally Blind, Born Low Vision, Acquired Totally Blind and Acquired Low Vision) and categories as whole.

### 3.4 Hypotheses of the Study

On the basis of the above objectives, the following hypotheses are framed for testing:

1. There is significant difference in the convergent thinking of visually impaired boys and girls.

2. There is significant difference in the convergent thinking of visually impaired children from rural and urban residence.

3. There is significant difference in the convergent thinking of visually impaired children from special schools and integrated schools.

4. There is significant difference in the convergent thinking of visually impaired children due to variations in their parent's income (Below Rs. 10,000 and Rs. 10,000 and above).

5. There is significant difference in the convergent thinking of visually impaired children with illiterate and literate parents.

6. There is significant difference in the convergent thinking of visually impaired children with 1 to 4 family members and 5 and above family members.

7. There is significant difference in the divergent thinking of visually impaired boys and girls.
8. There is significant difference in the divergent thinking of visually impaired children from rural and urban residence.

9. There is significant difference in the divergent thinking of visually impaired children from special school and integrated school.

10. There is significant difference in the divergent thinking of visually impaired children due to variations in their parent's income (Below Rs. 10,000 and Rs. 10,000 and above).

11. There is significant difference in the divergent thinking of visually impaired children with illiterate and literate parents.

12. There is significant difference in the divergent thinking of visually impaired children with 1 to 4 family members and 5 and above family members.

13. There is significant difference in the mental ability of visually impaired boys and girls.

14. There is significant difference in the mental ability of visually impaired children from rural and urban residence.

15. There is significant difference in the mental ability of visually impaired children from special school and integrated school.
16. There is significant difference in the mental ability of visually impaired children due to variations in their parent’s income (Below Rs. 10,000 and Rs. 10,000 and above).

17. There is significant difference in the mental ability of Visually impaired children with illiterate and literate parents.

18. There is significant difference in the mental ability of visually impaired children with 1 to 4 family members and 5 and above family members.

19. There is significant difference among different categories of visually impaired children (Born totally blind, Born low-vision, Acquired totally blind, Acquired low-vision) in convergent thinking.

20. There is significant difference among different categories of visually impaired children (Born totally blind, Born low-vision, Acquired totally blind, Acquired low-vision) in divergent thinking.

21. There is significant difference in the fluency score among different categories of visually impaired children (Born totally blind, Born low-vision, Acquired totally blind, Acquired low-vision).

22. There is significant difference in the flexibility score among different categories of visually impaired children (Born totally blind, Born low-vision, Acquired totally blind, Acquired low-vision).
23. There is significant difference in the originality score among different categories of visually impaired children (Born totally blind, Born low-vision, Acquired totally blind, Acquired low-vision).

24. There is significant difference in the mental ability among students with different types of visual impairments (Born Totally Blind, Born Low Vision, Acquired Totally Blind and Acquired Low Vision).

25. There is significant relationship between the divergent thinking and mental ability; convergent thinking and mental ability of each type of visually impaired children (Totally Blind and Low Vision; Born Blind and Acquired Blind) and categories as a whole.

3.5 Scope of the study

Visually impaired children are enrolled in different educational programmes in India. They are endowed with cognitive potentialities like others in the society. Their potentialities can be developed to the optimum level by means of appropriate educational programmes. For this, psycho-educational assessments are considered rather essential to understand one’s potentiality.

But psycho-educational assessment tools for visually impaired children in India are hardly available obscure the real problems in this field. Thus it is an urgent need for research in this area. So, the present study is focused towards the development of psychological tools for visually impaired children and to study their Divergent thinking, Convergent Thinking and Mental Ability.

Divergent thinking and convergent thinking are considered as vital aspects in solving problems of academic tasks. There is a great need to cultivate
these abilities among school children in general and visually impaired in specific. This study envisaged to develop convergent thinking test and divergent thinking test for visually impaired children in braille form (raised dots).

It also aims to develop mental ability test in raised figures to assess mental ability of visually impaired children. Finally, the study aims to find out the influence of variable like sex, degree of visual loss, onset of blindness, parent's income status, parent's educational status, family size, type of school programme and locality in the above said areas of psychological variables such as convergent thinking, divergent thinking and mental ability with special reference to visually impaired children.

3.6 Need and Importance of the Study

According to the National Sample Survey (1982), there are 3.4 million visually impaired persons in India. The need for the study can easily be seen when 1.55 lakh visually impaired children are in school age. All of them have unique physical and psychological needs. Many of them may be highly intellectual and creative in nature and yet share common withdrawal symptom. They have a right to undergo an education, as every child, and they have a right, as does every human being, to be received and accepted with dignity in our society. The need for this study is reflected in the need to understand and accept these children and their potentialities.

In order to improve the quality of educational programs, it is necessary to understand potentialities of the visually impaired children. Unfortunately, psychological assessment tools are hardly adapted for visually impaired children in India. A beginning has just been made on trial and error basis. According to NPE 1986, research on developing psycho-educational tools for Visually impaired children are conspicuously missing due to little involvement of the Universities
and also dearth of research supervisors in this area. Thus it is an urgent need for research in this area.

Divergent thinking ability is considered as one of the vital aspects in solving problems of academic tasks. There is a great need to cultivate divergent and convergent thinking abilities among school children in general and visually impaired in specific. Most of the classroom tasks in schools are set to develop convergent thinking rather then divergent. Children are taught in classrooms, how to solve problem, each having a single correct answer. Teachers rarely present a problem which can be solved by many ways or a problem having many correct answers.

They rarely present the various approaches of solving problems in academic tasks. The curriculum and the examination system make teachers give much importance to convergent thinking. A study of this kind may yield fruitful information to improve quality of educational systems and effect a change in the customary mode of teaching strategy. So, the investigator was interested in conducting study on convergent and divergent thinking of visually impaired children.

The present study is the outcome of the felt need of the Special Educators and teachers working with the visually impaired children in different school programs. Even though experienced teachers and special educators may know how to identify highly divergent thinking visually impaired children, more exact and scientific method of investigation would yield fruitful results. Hence, studies which attempts to develop and adapt psychological tools meant for visually impaired children are warranted. The present study purports to develop divergent thinking test, convergent thinking test and mental ability test to assess the performance of visually impaired children on the same aspects. The results would help to develop appropriate thinking strategy pertaining to academic tasks.
for visually impaired children in different educational programs. The study would also provide some useful information regarding the capabilities and limitations of visually impaired children in different types of thinking tasks. The analysis of data with regard to variables such as sex, degrees of visual impairment, onset of blindness, socio-economic status might be useful for the teachers in planning appropriate learning experiences for the visually impaired children. Therefore, the study has its own implication for program development, instructional strategies and counselling.

3.7 Limitations of the Study

The study has different ramifications. Due to the limitation of time and resources, it is limited in the following respects.

1. The divergent thinking is a broad area. This study is limited to the divergent thinking dimensions viz. (a) fluency (b) flexibility and (c) originality, only.

2. The study could cover the students at different educational levels, but the present study is confined to the secondary school level only.

3. Considering the diversities of language, the study is confined to the Tamil speaking visually impaired children only.

4. Visually impaired children are usually scattered in very large areas. The identification is also a problem when they spread over a large geographical area. Therefore, the study is confined to the visually impaired children in Tamilnadu only.