A SURVEY ON THE COMMON DIFFICULTIES FACED BY VISUALLY IMPAIRED IN ACCESSING TAYLOR FRAME

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Abstract

This study examines the difficulties faced by visually impaired students while using Taylor frame. Globally, at least 2.2 billion people have visual impairment or Blindness and it is mostly affected above the age of 50. Visual Impairment reduced the sense of the sight caused by eye disease, accident or eye condition present from birth. Some conditions can be treated or corrected to improve vision. When a child has visually impaired, it can be delayed in developing their skills. Children who are visually impaired they need to learn how to use those tools like Braille, Taylor frame, Abacus and slate and stylus. By touching, tasting, listening and smelling they can able to do their works or activities. For the children with visually impaired they need assistance as their parents, friends, care giver and special educator.

Key words: Visual Impairment, Taylor frame, Arithmetic learning.

Introduction

Need for Education and its utility in one's life are obvious. The government of India's flagship programme for achievement of universalisation of Elementary Education (UEE) this programme's aim is to give free and compulsory education to the children between 6-14 years age group. The equal opportunities and right of person with disabilities act 1995, emphasize "Education for all" including person with disability.

In 19th century, an England Mathematician Rev. William Taylor developed a device to teach mathematics to the blind or visually impaired (VI) students. He is a first superintendent, nearly hundred years ago, of the Wilberforce of Memorial School, York and later one of the founder of the college, and blind son of Gentlemen at Worcester. He is remembered in school for the blind today as the inventor of Taylor arithmetic frame. In the year of 1918 he is one who introduced the algebra in mathematics with the use of Taylor arithmetic frame.

Learning mathematics is an important primary step for education. Brook Taylor is a person who invented the tool which is used solving arithmetical problems. Taylor Frame is a mathematical teaching aid, which is useful for the children with visually impaired, but teaching mathematics to the blind students is a challenged one. In India some special schools are using Abacus for primary level but some special schools prefer Taylor Frame for teaching arithmetic. Through the Taylor frame the children they can able to do the mathematical calculations with the use of tactile types of various functions of mathematics with different orientations of pegs. The Surface of the Taylor frame is made up of plastic, aluminium and it consist star shaped eight holes with eight angles. We can place the pegs in different position according to the concept. It is very useful for visually children to do mathematical concepts like sighted children.

Taylor frame, which can increase the competence of visually impaired children, it enables the level of the visually impaired children as his counterpart. Without anyone's help they may do the calculation by an Individual. The classic five senses are sight, smell, hearing, taste, and touch. The organs that have to do these things are eyes, nose, ears, tongue and skin, which can equipped the person. Without having any of these senses, they may feel difficult to do the activities. Children without sense of sight they can able to identify by hearing, tactile, smell and touch. For visually impaired children the government was adopted the education system through touch and tactile method.

Key words

Visual Impairment- Visual Impairment or vision loss is reduced or decrease the sense of the sight they don't have to access glass or contact lens. Visual impaired person's eye cannot be corrected to a normal level.

Taylor Frame- Taylor Frame is an arithmetic teaching aid which is used for the children with visual Impairment.

Arithmetic learning- Arithmetic Learning can increase the ability of the children with Visual Impairment.

Objective of the study

- To study the visually impaired student learning arithmetic, this is the basic for calculation
- To study an interest makes the visually impaired student to solve the problem in mathematics
- To study the visually impaired students to do mathematics by individuals like sighted person

Questionnaire

1. Is the Taylor frame is difficult to access for children with visually impaired?
2. Does the number concept is difficult?
3. Is it very abstract for visually impaired children?
4. How do they find difficulty to carry over?
5. Does the mathematical concept is difficult for visually impaired children?
6. How do they find difficult to calculate?
7. Do they feel difficulty to arrange the pegs?
8. Is it possible for teaching every mathematical technique through Taylor frame?
9. Do they feel difficult to perceive?
10. How to insert the peg symbols in Taylor frame?
11. What are all the techniques used in Taylor frame during calculation?
12. What difficulties does the student have to represent mathematical symbol?
13. Do you think, if they feel difficult to identify the different orientations of pegs?
14. Does the slightly embossed peg which helps in identify the orientation of visually impaired student?
15. Which direction makes the student to feel comfortable to use the Taylor frame?

Table of Content

S.no	Name of the student	Name of the Disability	Additional disability	Average age
1	Abilesh	Blind	No	6
2	Aradhana	Low vision	No	6
3	Bhargavi	Blind	No	7
4	Riha	Blind	No	6
5	Sruthi	Low vision	No	6
6	Sugan	Low vision	No	9
7	Suganesh	Low vision	No	7

Figure: 1 Student's Identification

S.no	Name of the student	Answer	Process	Time taken (in mins)
1	Abilesh	Right	Right	4.24 mins
2	Aradhana	Right	Wrong	5.78 mins
3	Bhargavi	Wrong	Right	7.53 mins
4	Riha	Right	Wrong	5. 43 mins
5	Sruthi	Right	Right	2. 76 mins
6	Sugan	Right	Right	4.09 mins
7	Suganesh	Right	Right	5.35 mins

Figure: 2 Time taken by the student while doing calculation with help of Taylor Frame.

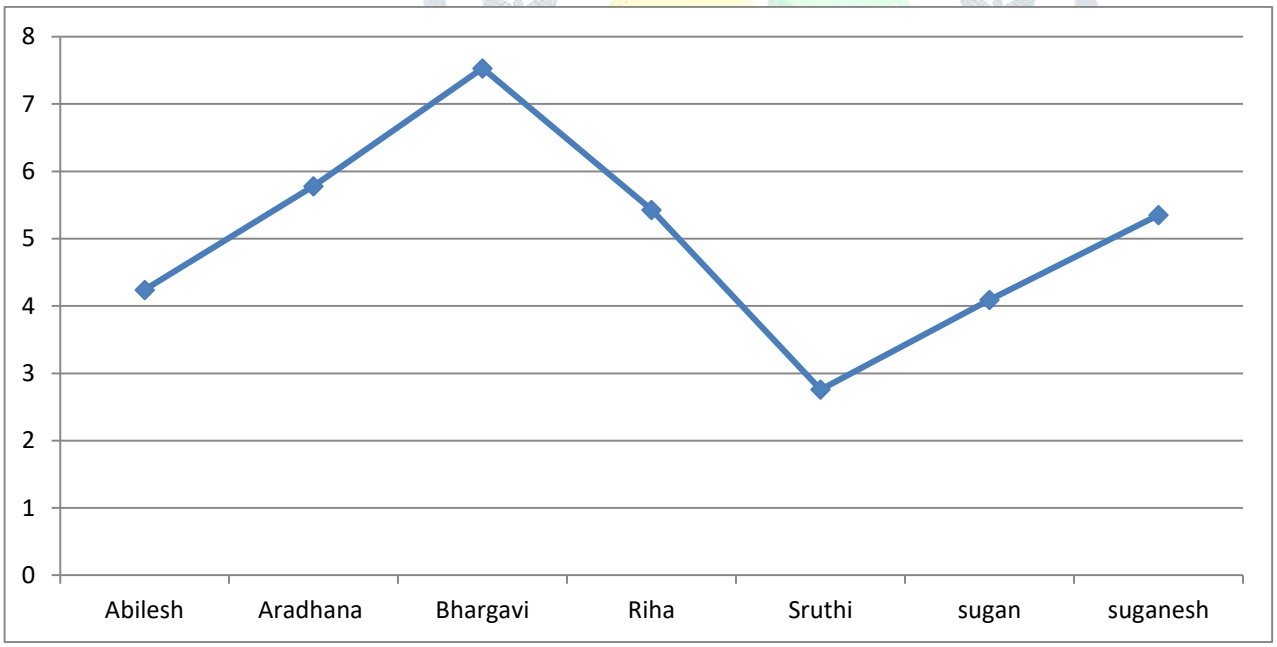

Figure: 3 Student's participation in Arithmetic learning (Taylor frame)

Figure: 4 Aluminium Taylor frame

Figure: 5 Vinyl Plastic Taylor frame

Peg Orientation	Keyboard
◇	+
□	-
◇	*
□	/
□	/
◇	.
□	=

Peg Orientation	Keyboard
◇	1
◧	2
◇	3
□	4
◇	5
◨	6
◇	7
□	8
◇	9
□	0

◖	(
◗	)
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Figure: 6 & 7 Symbols of Taylor frame

Results

Figure: 1 Represents all about the special education student with different types of disability with different age of students but they were all primary school student. Those students are not having any other additional disabilities. The students are ranged between 6 – 9 years old. According to their disability their educational system was provided to an individual student.

Figure: 2 Represent, providing an information regarding their outcomes, how they perform in that area (Taylor frame) and explain that how many of them are given right answer and right processing while doing arithmetic calculation. Some of them are given right in answering and processing in a right way, some of them are given wrong in both. This tabulation is also explaining about time taken by the students while doing arithmetic calculations, according to their ability they are doing calculations. Some of them are doing calculation in few minutes, some students were taken extra minutes to do the calculations, because of their own ability they are doing calculations.

In the term low vision means it can describe as visual impairment that can be corrected fully with glass or lens. A person with low vision is one who has impairment in visual functioning even after the treatment (Example) an operation or standard refractive correction. Visual acuity is less than 6/18 to light perception. Visual field is less than 10 degree from the point of fixation. So that the low vision child can took less time to do the arithmetic calculation. Blind means unable to see and they had lack the sense of sight, so that the blind student took much more time to do the arithmetic calculation.

Conclusion

This type of research was descriptive one, in which the data collection of special education student and how they feel difficult and what are the entire problem faced by Visual impairment student, while doing mathematics. Visual impairment student had some obstacles in their thinking ability and they had low understanding of the concept of studying mathematics this makes the students feel difficulties while understanding mathematics.

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