



SURVEY STUDY ON DYSCALCULIA SUPPORT IN SCHOOLS

Deepa Sikand Kauts¹, Ph.D. & Ms. Kirti Dadwal²

¹Professor and Dean, Department Of Education, Guru Nanak Dev University, Amritsar

Email id: kdeepasikand@gmail.com

²M.Ed Student, Department Of Education, Guru Nanak Dev University, Amritsar

Email id: kirtidad123@gmail.com

Paper Received On: 25 JULY 2022

Peer Reviewed On: 31 JULY 2022

Published On: 1 AUGUST 2022

Abstract

In this study, an attempt was made to analyze it's a survey method of an educational support process that helps pupils with dyscalculia. In this study, we assessed the support provided by Private and Government Schools to dyscalculia students in Amritsar District. The survey method has been used for the study and random sampling technique has been adopted to select a sample of 30 Schools and self-developed tool was used to measure school support and teachers' awareness of dyscalculia. The result revealed that there is little gap between school support and teachers' awareness of dyscalculia regarding the type of schools. The important fact to be recorded is that teachers in private schools provide extra support to students with dyscalculia to help them stay on track in mathematics class, handle homework and deal with tests in the classroom and use cooperative learning method for students with dyscalculia compared to government teachers.

Key words: *Dyscalculia, Awareness, support and School Teachers*



Scholarly Research Journal's is licensed Based on a work at www.srjis.com

Introduction

Each person should be helped to grow the fullest according to his/her unique nature and needs. This concept is in line with the modern ideals that seek optimum development by providing appropriate educational facilities to all children: gifted, emotionally, socially and educationally malnourished and physically and intellectually handicapped. Opportunities need to be providing to promote the full development of their ability. To this extent our Government of India is

investing heavily in the education of its young. The government today provides free and compulsory education to the children.

Inclusive Education (IE) is a new approach towards educating the children with disability and learning difficulties along with normal children under one roof. It brings all students together in a classroom and community, regardless of their strengths or weaknesses in any area, and strives to maximize the potential of all students. It is one of the most effective of promoting an inclusive and tolerant society.

In 1994 (Salamanca, Spain), the principle of inclusive education was adopted at the “World Conference on Special Needs Education: Access and Quality”. The Statement called on governments to give top priority to inclusive education system and to adopt the principle of inclusive education as a policy.

Inclusion in education refers to a model in which students with special needs spend most or all of their time with students with non-special needs. Inclusion disallows but still provides access to special schools or classrooms to separate students with disabilities from students without disabilities. Schools with inclusive classrooms do not believe in separate classrooms. They do not have their own separate world, so they have to learn how to work with students, while teachers are less focused due to the high student ratio. The inclusive education begins its journey with special education that deals with isolation by integrating children with special needs (CWSN).

Disability is any condition of the body or mind that makes it more difficult for the person with the condition to perform certain activities (activity limitation) and interact with the world around them. There are many types of disabilities such as Vision, Movement, Thinking, Remembering, Learning, Communicating, Hearing, Mental health, Social relationships disability.

Learning Disability

Learning disabilities are disorders that affect the ability to understand or use spoken or written language, perform mathematical calculations, coordinate movements, or paying attention directly.

Although learning disabilities occur in very young children, the disorders usually not recognized until the child reaches school age. The term ‘Learning Disability’ was first coined in 1963 by Dr. Samuel Kirk, a psychologist, while delivering a speech at an education conference in Chicago.

Types of Learning Disabilities

Learning disabilities are often grouped by the skill set of the school sectors. If your child is in school, the types of learning disorders that are most pronounced usually revolve around reading, writing, or mathematics. The different types of learning disabilities are:

Dyslexia - Area of difficulty- Processing language

- Symptoms include trouble with- Reading, Writing, and Spelling.
- Example-Confusing letter names and sounds, difficulties combining sounds into words, slow reading speed, reading text trouble remembering later.

Dyscalculia - Area of Difficulty- Mathematics skills

- Symptoms include trouble with - Computing, Remembering math facts, Conceptualizing time and money.
- Example - Difficulty learning counting by 2s, 3s, 4s, poor mental math skills, Problems with spatial directions.

Dysgraphia - Area of Difficulty – Trouble with Written expression

- Symptoms include trouble with - Handwriting, Spelling, and Composition;
- Example - Fuzzy handwriting, difficulty in organizing ideas for writing.

Dyspraxia - Area of Difficulty - Fine motor skills

- Symptoms include trouble with - Coordination, Manual dexterity
- Example - Trouble with scissors, buttons and drawing

Dyscalculia

Dyscalculia is difficulty in learning or understanding arithmetic such as difficulty in understanding numbers, learning to manipulate numbers and learning math's facts. It is commonly seen as a specific developmental disorder such as dyslexia. Dyscalculia is a mathematical learning disorder in which a person's age, intelligence, and mathematical ability for education are much lower than expected.

The word Dyscalculia is derived from the Greek word- dys (difficulty) and the Latin word- calculia. Calculus - A small stone or pebble used for calculation. Essentially it describes a difficulty with numbers which could be a developmental cognitive condition, or an acquired difficulty as a result of brain injury.

Mathematics can be a very interesting and fun subject for learners who can really enjoy their learning. Conversely, mathematics can also be a frustrating subject for many children who have problems with calculations and applications. Dyscalculia is one of the learning difficulties that students may face like Dyslexia, Dyspraxia but it is rarely known by teachers and parents.

Some young learners may not recognize numbers, may not make sense of number, and have difficulties relating numbers to magnitudes. Dyscalculia students may face some routine problems in their daily life. For example, they cannot recognize numbers, count backwards and count in steps, difficulty in understand direction, confusion on the left and right, cannot perform simple arithmetic for currency exchange and on the clock time can be read. Still, this inability may influence their future life because when they grow up, they will be the part of this community and they also need to deal with numbers in their regular life like buying stuff, reading time and date. And As a result, it becomes a hindrance for them in getting a good job in their future.

Therefore, it is important for schools to provide support facilities to students and teachers with dyscalculia, helping them to master basic math's skills and knowledge so that they can cope with his potential and later in their daily lives and uses them to make sense of simple mathematics.

Literature Review

Kunwar and Sharma (2020) stated that the teachers were found to have inadequate knowledge regarding dyscalculia. The study revealed 6.8 percent of students were dyscalculia. Therefore, the concerned authority is recommended to improve teacher knowledge regarding dyscalculia for the proper identification, guidance, and intervention of the dyscalculia learner.

Lahrichi (2019) conducted case study was in a small international American school in order to assess the effectiveness of a support session designed for dyscalculia students. He performed some research into the nature of the learning disability, its causes and how to tackle it in an effective manner. The case methodology consisted of gathering both qualitative and quantitative data from different sources including observation Development of learning. As a result of data analysis, he concluded that the support session is helping the pupils to progress but in a slow rate. According to him, Allocating more than half an hour per week for the support, Designing support session, Plan support sessions, Communicate to parents are used by teachers for supporting the dyscalculia students.

Albina (2019) stated that there is no significant difference in their Awareness level towards Dyscalculia with respect to gender and years of experience of the Primary School Teachers. The fact to be recorded is that the Dyscalculia Awareness level of Government School Teachers is revealed to be more than that of Private School Teachers.

Jeya and Albina (2019) stated that the study revealed 9% students of the primary school were found to be dyscalculia. Hence identifying the dyscalculia students and giving them the necessary intervention programs to improve their learning difficulties in Mathematics and it is the need of the hour.

Jaya and Geetha (2009) conducted the research on teachers awareness of learning disabilities among children and concluded that; teacher take the learning disable children as problem children , educationally backward , slow learner by, children with low IQ, learning disable and handicapped exceptional children . The possible causes of learning disability were, poor teaching in school, lack of early stimulation, lack of awareness on causes and discouragement by parents.

Objectives of the Study

- To study the awareness of schools teachers regarding dyscalculia.
- To study how schools support dyscalculia students
- To study how school teachers manage dyscalculia students with other students.
- To find the difference in awareness on dyscalculia among School Teachers with respect to type of schools

Research Questions

1. What is the difference in the awareness on dyscalculia among Government and private schools?
2. What is the difference in the support system in Government and Private schools?

Research Methodology

A Survey research design was used for the study. For survey, Data was collected from randomly selected 15 private schools and 15 government schools of Amritsar city. A survey was conducted by phone, mail. A Self-constructed questionnaire in the form of two likert scale (Yes/ No) was used to measure school support and teachers' awareness of dyscalculia in schools (Private schools and Government Schools). Questionnaire for survey was prepared by investigator. 30 questions (in 5 parts) were prepared by the investigator. Based on these questions, the investigator assessed the dyscalculia support in schools. Responses of the schools were recorded

through Google form developed by the investigator. For analysis of data, Percentage analysis has been used.

Sample

A sample of 30 schools (15 private schools and 15 Government schools) selected for the purpose of study.

Analysis and Interpretation of Data

Table 1: Analysis of Awareness of Teachers and Support Given By Schools to Dyscalculia Students

| Questions | Government Schools | Private Schools |
|--|--------------------|-----------------|
| 1. Awareness of teachers' towards Dyscalculia | | |
| i. Awareness towards' the word dyscalculia | 50% | 50% |
| ii. Awareness towards the definition of dyscalculia | 43% | 46% |
| iii. Awareness towards the symptoms of dyscalculia | 27% | 27% |
| 2. Extra support to help them stay on track in math class, handle homework and deal with tests. | | |
| | 10% | 33.33% |
| 3. Different methods used by school Teachers such as use a chart, Give more space to write, Use objects such as blocks or base ten sticks, use Interactive methods, audio-visual aids, allow extra time on tests, option to record lectures, play math games, Supporting children on the playground, Use Intervention Strategies | | |
| | 42 % | 44% |
| 4. Cooperative method used by school teachers. | | |
| | 16.67% | 40% |
| 5. Support Given by School teachers by arranging games regarding math's like quiz, math's club, math's fair etc., supportive tool like calculator, Graph paper ,pre-set phone reminders, by providing dry-erase boards. | | |
| | 28% | 26% |

6. Help given by schools teachers to dyscalculia students by simplifying the study material, motivating them & with Love and care, with help of Audio-Visual aids, communication with parents and by Giving attention & more time. 49% 49%

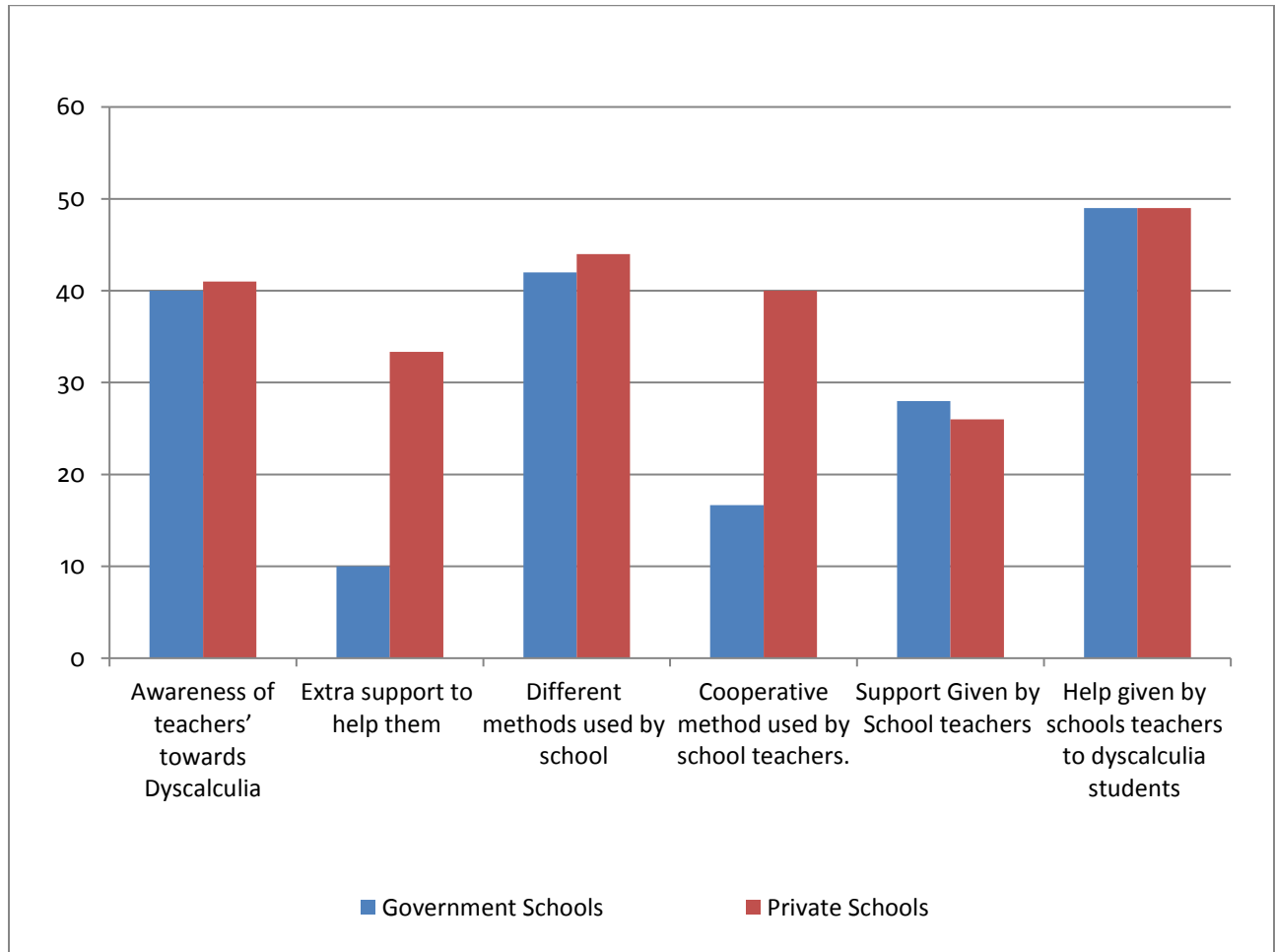


Figure 1: Percentage Analysis of Awareness of Teachers and Support Given By Schools to Dyscalculia Students

As shown in the above table 1, all the teachers from both Private (50%) and Government (50%) educational institutions are aware of the term that dyscalculia is a mathematics related learning disability. As an evident from the collected data, 43% of Government teachers and 47% private school teachers knew the correct definition of the term dyscalculia and same number (27%) of government as well as private school teachers knew about the symptoms of dyscalculia. From

the above graph and table 1 representations, if we compare the result, we got to know that the private school teacher (33.33%) strongly agree that dyscalculia students need extra support in math class as comparison to government schools teachers (10%). From the above graph and table representations, 42% of government and 44% of private school teachers agree that they use different approaches (Use a chart of math facts or multiplication tables, Give more space to write problems and solutions, Use objects such as blocks or base ten sticks, use Interactive methods, audio-visual aids, allow extra time on tests, option to record lectures to teach students with dyscalculia in the classroom. From the above table representations, if we compare the result, we got to know that private schools teacher (40%) strongly agree that they use cooperative learning method to teach students with dyscalculia more effectively than government school teachers (16.67%) do. From the above table 1 representations, if we compare the result, we got to know that 28.33% of government and 26% of private educational institute agree that they are supporting dyscalculia student by arranging games, by using supportive tool, and they have math's resource room and counselor teachers in school for dyscalculia student. From the above table representations, if we compare the result, we got to know that Approximation 49% both government and private educational institute's teachers help dyscalculia students by simplifying the material, with the help of audio video aids and by giving them more attention and time.

Result and Discussion

It is clear from the above explanation that there is no difference in the awareness of dyscalculia among the teachers of government and private schools regarding dyscalculia. If we compare the result, we find that private schools give extra support to dyscalculia students as compared to government teachers to help them stay on track, handle homework and take tests in math's classroom.

There is little difference between government and private schools regarding the use of different approaches in the classroom. Teachers in both public and private schools use different method to teach dyscalculia students in the classroom.

Teachers in private schools use cooperative learning methods more to teach students with dyscalculia in the classroom than teachers in government schools

From the above results, we find that government and private school teachers support dyscalculia students by using assistive devices and resource room and both government and private schools

teachers support students with dyscalculia by simplifying content and using audio visual aids we do.

Conclusion

In this study, an attempt was made to analyze the effectiveness of an educational support process that helps pupils with dyscalculia. In this study, we assessed the support provided by Private and Government Schools to dyscalculia students in Amritsar District. The result revealed that there is little gap between school support and teachers' awareness of dyscalculia regarding the type of schools. The important fact to be recorded is that teachers in private schools provide extra support to students with dyscalculia for staying on track in math class, handle homework and deal with tests in the classroom and use cooperative learning method for students with dyscalculia compared to government teachers.

References

- Albina, A. P. (2019). *Assessment of awareness of dyscalculia among school teachers*. ADALYA JOURNAL, 8(12), 602-608. <https://adalyajournal.com/gallery/56-dec-2457.pdf>
- Bird, R. (2017). *The dyscalculia toolkit: Supporting Learning Difficulties in Maths (3rd ed.)*. London: SAGE Publications Ltd. <https://www.waterstones.com/book/the-dyscalculia-toolkit/ronit-bird/9781529744323>
- Butterworth, B. (2003). *Dyscalculia screener: Highlighting pupils with specific learning difficulties in maths*. London, UK: Nelson Publishing Company, 1(1), 1-57. http://sebastien.brunkreef.com/dyscalculie/Dyscalculia_Screener_Manual.pdf
- Chinnamma, M. B., & Reddy, B. G. (2008). *A Study of Children with Dyscalculia effiaccy 'Of Intervention [Master's Thesis, Sri Venkateswara University]*. Sri Venkateswara University, Tirupati. <http://hdl.handle.net/10603/185147>
- Cicerchia, M., & Freeman, C. (n. d.). *Different types of dyscalculia*. Touch-type read & spell. <https://www.readandspell.com/different-types-of-dyslexia>
- Compton, D. (2012). *The cognitive and academic profiles of reading and mathematics learning disabilities*. Journal Of Learning Disabilities, 45(1), 79-95. <https://doi.org/10.1177%2F0022219410393012>
- Christophe, M., Mejias, S., & Noel, M. (2010). *Symbolic and Nonsymbolic number comparison in children with and without dyscalculia*. Cognition Publication, 115(1), 10-25. <https://doi.org/10.1016/j.cognition.2009.10.006>
- Fuchs, D., & Fuchs, L. S. (2005). *Responsiveness-to-intervention: A blueprint for practitioners, policymakers, and parents*. Teaching Exceptional Children, 38(1), 57-61.
- Help Guide. (2020, November). *Learning disabilities and disorders*. <https://www.helpguide.org/articles/autism-learning-disabilities/learning-disabilities-and-disorders.htm>
- Hudson, D., & English, J. (2016). *Specific learning difficulties: what teachers need to know*. London: Jessica Kingsley. <https://www.perlego.com/book/952948/specific-learning-difficulties-what-teachers-need-to-know-pdf>

- Henderson, A. (2013). *Dyslexia, dyscalculia and mathematics: a practical guide*. London: Routledge. <https://www.routledge.com/Dyslexia-Dyscalculia-and-Mathematics-A-practical-guide/Henderson/p/book/9780415683111>
- Jaya, N., & Geetha, T. (2009). *Primary School Teachers' Skills to Help Dyscalculic Children*. Kalpaz Publications. <https://www.amazon.com/Primary-School-Teachers-Dyscalculic-Children/dp/8178356899>
- Jeya, A., & Albina, P. (2019). A Study of Students with Dyscalculia and Their Mathematical Abilities at Primary Schools in Karaikudi. *International Journal of Social Sciences*, 4(3), 1533-1542. <https://dx.doi.org/10.20319/pijss.2019.43.15331542>
- Jaya, N., & Geetha, T. (2009). *Primary School Teachers' Skills to Help Dyscalculic Children*. Kalpaz Publications. <https://www.amazon.com/Primary-School-Teachers-Dyscalculic-Children/dp/8178356899>
- Kunwar, R., & Sharma, L. (2020). Exploring Teachers' Knowledge and Students' Status about Dyscalculia at Basic Level Students in Nepal. *EURASIA Journal of Mathematics, Science and Technology Education*, 16(12), 1-12. <https://doi.org/10.29333/ejmste/8940>
- Lahrichi, A. (2019). *Case Study on Dyscalculia Support in Schools [Master's Thesis. University Of Sunderland]*. university of sunderland. https://www.researchgate.net/publication/333809374_Case_Study_on_Dyscalculia_Support_in_Schools
- Mazzocco, M. M., Feigenson, L., & Halberda, J. (2011). Impaired acuity of the approximate number system underlies mathematical learning disability (Dyscalculia). *Child Development Publication*, 82(4), 1224-1237. <https://dx.doi.org/10.1111%2Fj.1467-8624.2011.01608.x>
- Michaelson, M. T. (2007). An overview of dyscalculia: Methods for ascertaining and accommodating dyscalculic children in the classroom. *Australian Mathematics Teacher*, 63(3), 17-22. <https://eric.ed.gov/?id=EJ776577>
- Pandey, S., & Agarwal, S. (2016). *Development and Use of Intervention Module for Children with Dyscalculia [Master's Thesis, Babasaheb Bhimrao Ambedkar University]*. Babasaheb Bhimrao Ambedkar University (A Central University), LUCKNOW. <http://hdl.handle.net/10603/259921>
- Jaya, N., & Geetha, T. (2009). *Primary School Teachers' Skills to Help Dyscalculic Children*. Kalpaz Publications. <https://www.amazon.com/Primary-School-Teachers-Dyscalculic-Children/dp/8178356899>
- Staake, J. (2018, October 19). What Teachers need to know about dyscalculia. *We are teachers*. <https://www.weareteachers.com/understanding-dyscalculia/>
- Shamir, A., & Baruch, D. (2012). Educational e-books: a support for vocabulary and early math for children at risk for learning disabilities. *Educational Media International*, 49(1), 33-47. <https://doi.org/10.1080/09523987.2012.662623>
- Singh, Y., & Agarwal, A. (2011). Teaching addition to children with dyscalculia through CAI. *Indian Streams Research Journal*, 1(1), 1-7.