Dyslexia and Mathematics Fact Sheet

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Mathematics can be an area of difficulty for people with dyslexia.

Mathematics has its own distinct language and symbols. Mathematics also has a heavy reliance on processing speed and working memory. There is also a high incidence of dyscalculia as a comorbidity with dyslexia.

Mathematics anxiety is a well researched area and can have a significant impact on kids struggling to cope with the extra demands learning difficulties place upon them everyday in school. Mathematics, as taught in the curriculum, gives children the belief that they are either right or wrong and leaves little room for creativity.

The fundamental principles *of the remediation of mathematical difficulties are*:

- *Teach concepts and understanding in a hands on way.*
- *Mastery of basic facts and concepts is essential.*
- *Focus on students area of weakness.*
- *Variety and repetition until automaticity of essentials.*
- *Play games and make relevant to life.*

Specific Learning Disorder Mathematics

"5. Difficulties mastering number sense, number facts, or calculation (e.g. Has poor understanding of numbers, their magnitude, and relationships." *Diagnostic and Statistical Manual of Mental Disorders: DSM-5*. Washington: American Psychiatric, 2014. Print.

"There is a high co-morbidity rate for children with developmental dyscalculia and dyslexia. Between 60% and 100% of dyslexics have difficulty with certain aspects of mathematics (Miles, 1993 & Joffe, 1990).""Dyslexia and Mathematics." Dyslexia Help at the University of Michigan. Web. 20 Feb. 2017.

Affects & Adjustments

Mathematics	Affect	Adjustments
Working Memory	- Difficulty learning and recalling number facts, formulae and vocabulary. - Difficulty with process and multiple steps. - Responds poorly to rote memorisation of basic facts like timetables	- Teach concepts with the use of manipulatives. - Allow use of memory aides so student can keep up with class concepts that rely on recall of arithmetical facts. - Break into steps - Allow student to develop and use own strategies. - Provide scrap paper for working. - Allow mastery before moving on to next concept.
Language	- Confuses maths language. - Difficulty with word problems. - Difficulty reading information from tables and graphs.	- use maths dictionaries for terminology. - Enlarge graphs, tables and drawings. - Highlight maths signs
Processing speed	- Increases anxiety. - Reduces output.	- Allow extra time - Focus on accuracy and understanding not amount
Anxiety	- Impacts working memory and processing speed.	- Focus on mastery of basic concepts and facts. - Enable success through appropriate level of questions. - Use maths games.

Dyscalculia

"Dyscalculia is a condition that affects the ability to acquire arithmetical skills. Dyscalculic learners may have difficulty understanding simple number concepts, lack an intuitive grasp of numbers, and have problems learning number facts and procedures. Even if they produce a correct answer or use a correct method, they may do so mechanically and without confidence. Dyscalculia and dyslexia occur both independently of each other and together. The strategies for dealing with dyscalculia will be fundamentally the same whether or not the learner is also dyslexic." "Dyscalculia." British Dyslexia Association. Web. 10 Feb. 2017.

"One of the biggest problems for learners who are dyscalculic and/or who have trouble in learning mathematics is retaining facts and procedures in long term memory. The best way of addressing these problems is to develop understanding of those maths facts and procedures. " Chinn, Steve. "The 'Maths Explained' Video Tutorials." Steve Chinn | About Me . Web. 31 Mar. 2017.

Sources of further information

Steve Chinn and Ronit Bird produce outstanding resources and books for math difficulties.

http://www.stevechinn.co.uk/maths-explained.html

http://www.ronitbird.com/

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