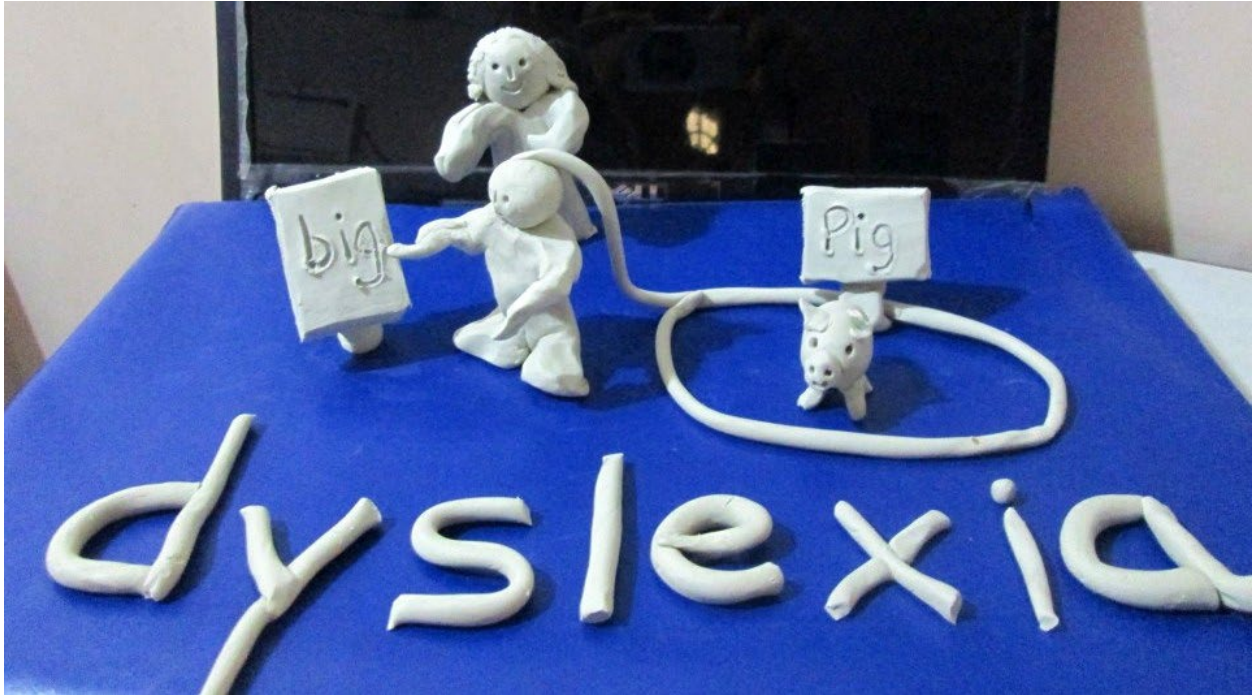# Visual Processing in Literacy

By Priti Venkatesan

From 2014 to 2018, I worked with almost two hundred fifty students in the age group of five to fourteen years, to find out the root cause of literacy and numeracy issues in them. From my work, I observed:

- Firstly, two-dimensional learning is a developmental milestone and is mastered at different times by children.
- Secondly, the criteria for introducing two-dimensional learning to children lies in their ability to perceive with accuracy the shapes and symbols.
- A focus on building a strong foundation for two-dimensional learning can prevent learning difficulties in most of the children and help make them functionally literate.

The sensory pathways for basic vision and hearing are the first to develop in an infant. Infants recognize persons in their life by their voice and by looking at them. As they grow older, they start to identify and name the three-dimensional objects that surround them. Children learn independently by exploring, touching, and even tasting the three-dimensional objects that they come across.

Parents and other adults do not notice any problem in these inquisitive toddlers as they accumulate experiences and learn by observing their environment without any difficulty. But something goes wrong for some of these bright and inquisitive learners when they enter school. The initial reluctance to attend school is usually considered as anxiety on account of being separated from the parents and the familiar home environment. The initial signs of anxiety disappear within a few weeks in most of the children. But, for a few others, the anxiety increases with time. Children who show increasing reluctance to go to school also demonstrate difficulty in learning the letters/numerals and their sounds or names.

Children develop the capacity to perceive two-dimensional shapes and symbols with accuracy, at differing times in their developmental stage. Kids usually imitate the shapes that they see by drawing or copying them, based on their visual perception. After some time, they start to draw the shapes by recalling them from their visual long-term memory. A child has to be able to copy a vertical line, horizontal line, right and left-slanting line, cross, square, triangle, circle, etc., before he can be introduced to letters and numerals. Accurate perception of these shapes, and being able to reproduce them on paper with accuracy, is an essential pre-writing skill.

Just like their ability to crawl, stand, walk etc., children acquire the ability to perceive and make sense of two-dimensional shapes and symbols at their own individual pace. But, do parents, educators, and schools wait for the children to acquire these skills? Age, rather than the skill, is the criterion for starting school in most of the developing countries of the world.

When a structure of concrete is being constructed, we focus on building a very strong foundation, but when the foundation of literacy is being laid, we give a little child only one academic year to complete the curriculum. The irony of the education system is that we focus more on course completion within rigid timelines, rather than on building a strong foundation in literacy and numeracy.

Repeated confusion often results in stress. Every mistake is followed by an increasing pressure to write correctly. When repeated practice does not bring down the number of mistakes, the child slowly begins to dislike reading/writing sessions. The child then starts associating stress to letters, symbols, or numerals.

In India, children are sent to school as early as two and one-half years of age. They are usually introduced to letters and numerals without ensuring their readiness for two-dimensional learning. In order to perceive two-dimensional letters/symbols/numerals with accuracy, the child must be able to perceive diagonal lines and corners with accuracy. The child must also be taught to get focused and perceive the symbols from only one specific angle. A child who has yet to learn to differentiate between three-dimensional objects and the two-dimensional symbols will not be able to differentiate between 'b,' 'd,', 'p,' 'q,' etc.

Regular practice helps children to successfully memorize the alphabet and numerals in sequence, but they continue to have difficulty in random identification, or writing of, individual letters or numerals. Confusion often leads to stress, and when a child is stressed, he cannot focus on his task. It is believed that brains subjected to toxic stress have under-developed neural connections in those areas of the brain that are most important for successful learning to happen. Two-dimensional learning completely stops when a child is stressed and unable to focus.

Repeated mistakes and inability to name and write with accuracy often impact the confidence level of the children, and they grow up to believe that they are not as smart as the other kids. Children struggling with two-dimensional learning start to associate words like "failure," "mistake," "stress," or "problem" to reading, writing, the classroom and, ultimately, the school.

Visual processing issues are usually not recognized as learning disabilities on their own, but if these issues are not addressed at an early age, children usually start to show the signs of dyslexia as they grow older. It is easy to influence a young child's brain, by giving him an accurate perception of the symbols that are the foundation of both literacy and numeracy in an adult.

Davis® Learning Strategies, researched and developed by Sharon Pfeiffer, have proved to be an effective way for identifying and addressing the visual processing issues in children, and have been applied at Lalaji Memorial Omega International School, Chennai (India). These strategies follow a whole classroom approach and can be combined easily with the existing curriculum.

Children use white plasticine clay to copy given shapes. After the children master the shapes, they are introduced to individual letters. This is followed by alphabet mastery. A similar procedure is followed for word mastery and concept mastery. This strategy not only optimizes the potential of every child, irrespective of his learning style, but it also helps in identifying the visual processing issues and distorted perceptions at a very early stage.

Every child has the inherent urge to succeed. They only need the confidence and the skills that would help them execute their task.   It is the duty of every adult to help the child master the basic skills to such an extent that the child is able to control them independently, to shape their own unique learning experience. The child is then able to learn independently, without further anxiety or fear of failure.

This post is an excerpt from a longer article entitled <u>Creating Independent Learners: A whole school approach</u>.

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