

The Impact of Multiple Intelligence(s) Theory on Children with Autism and Aphasia

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Abstract : The functioning of brain plays a major role in language acquisition and communication disorders such as Autism and Aphasia may hinder the language skills of a child. The theory of Multiple intelligences by Gardner has great impact on how individuals learn or process information given to them and helps children learn language using the intelligences they possess. Each child with ASD has different sets of intelligences and if these intelligences are utilized in a proper way with different interventions the child can excel in his personal and social life.

Keywords- Brain, language learning, Multiple intelligences, Autism , Aphasia

Language learning is the way human beings use words to express their ideas and feelings. Such conversations are processed and understood by the functioning of brain. Much of the language function is processed in different association areas. There are two well-identified areas that are considered vital for human communication:

Wernicke's area

Broca's area

These areas are located in the dominant hemisphere and are considered the most important areas for language processing. Cortical thickness, participation of prefrontal areas of the cortex, and communication between right and left hemisphere also help in language learning.

Wernicke's Area:

Wernicke's area was first identified by Carl Wernicke, a German Neurologist in 1874.

This area is usually located in the back part of the temporal lobe which is on the left side of the brain. This part of the brain is responsible for the comprehension of language and the ability to communicate coherent ideas, whether the language is spoken or written.

Broca's Area:

Broca's area is located in the frontal lobe of the brain, which follows Wernicke's area in the left hemisphere of the brain. This area is named after Pierre Paul Broca. This area is greatly involved in the production of speech.

Neurobiologist Dr. Lise Eliot writes: "the reason language is instinctive is because it is, to a large extent, hard-wired in the brain. Just as we evolve neural circuits for eating and seeing, so has our brain, together with a sophisticated vocal apparatus, evolved a complex neural circuit for rapidly perceiving, analyzing, composing, and producing language" (Eliot, 1999).

Aphasia

Shelby Fritz (2017) expressed that Aphasia is a communication disorder that results from damage to the parts of the brain that contain language (usually in the left half of the brain). Aphasia may cause difficulties in speaking, listening, reading, and writing skills of a person. However it does not affect the intelligence of the person. According to the National Aphasia Association (2011), "aphasia is an acquired communication disorder that impairs a person's ability to process language, but does not affect intelligence" (para. 2)

.The location and extent of brain damage shows the severity of aphasia. Damage to the front part of the brain may have non – fluent speech, but can understand what the talk is about. Damage to the posterior regions of the brain often have fluent speech i.e the rate and the rhythm of the speech may sound normal, but their speech may contain the wrong words or made – up words.

The aphasia's listed below are examples of acute aphasias which can result from brain injury or stroke.

Expressive Aphasia:

This language disorder is present when injury or damage occurs to or near Broca's area. Individuals with this disorder have a hard time reproducing speech, though they understand language. They frequently omit small words in their spoken language. Individuals with expressive aphasia are usually aware of their language disorder and get frustrated unable to rectify themselves.

Receptive Aphasia:

Individuals with receptive aphasia can produce speech without a problem. However, most of the words they produce lack coherence and also they cannot understand fully what others try to communicate. Receptive aphasia happens when damage occurs to the Wernick's area and these individuals are usually unaware of their own mistakes.

Primary Progressive:

This aphasia is usually uncommon and occurs when branches of the arcuate fasciculus are damaged. Conductive aphasia is characterized by poor speech repetition where auditory perception is partially intact and speech generation is maintained. Individuals with this disorder are unaware of their errors.

According to Autism society

Autism spectrum disorder (ASD) is a complex developmental disability; signs typically appear during early childhood and affect a person's ability to communicate, and interact with others. ASD is defined by a certain set of behaviors and is a "spectrum condition" that affects individuals differently and to varying degrees

The common symptoms of autism include delayed spoken skills where there is a slow learning of language or repetitive use of language. Children with Autism often find it difficult to make eye contact or cannot hold on a conversation for a longer time as they display least interest in maintaining relationship with others . These kids often show repetitive mannerisms such as continuous handshake or twirling the objects.. Again, a person on the spectrum might follow many of these behaviors or just a few,.

According to Raising Children Network,

To communicate effectively, children need to:

- understand what other people say to them (receptive language)
- express themselves using words and gestures (expressive language)
- use their receptive and expressive language skills in socially appropriate ways.

However, children with ASD usually communicate only to get something and not for sharing information or striking a conversation with others since these kids are not very good with their receptive or expressive language skills.

As quoted by Beth Sagers (2016)

Internationally, around 1 in 68 children are now diagnosed with an autism spectrum disorder (ASD). [ASD](#) is a developmental disability that can cause significant social communication and behavioural challenges.

She further added that

Challenges experienced interacting socially and communicating with others are common among students on the spectrum, and will have an impact on every aspect of their lives.

These challenges can lead to levels of stress, anxiety and depression that are much higher than for other students. Up to 72% of students on the autism spectrum have additional mental health needs.

Multiple Intelligences:

In the traditional framework of learning in the mainstream education system, only learners with strong linguistic, mathematical and spacial abilities are accepted, whereas learners with different intelligences which cannot be measured by standard psychometric tests based on behaviorist paradigms are rejected as unable to learn (Weber, 1992; Armstrong,2000).

This difference in the education system is caused by psychometric tests of general intelligence, which are supposed to be the accurate way of finding out the overall academic ability. Since these tests are based on testing linguistic, mathematical and logical abilities, their scope remains limited and much of learner's potential remains untapped, leading to many number of dropouts from mainstream academics at all levels.

This general concept of intelligence called 'g', has faced much criticism from within the system by psychologists, psychometricians as well as by teachers who see its drawbacks with reference to measuring real world abilities and those lying outside the range of the traditional item (Cronbach & Snow,1977; Armstrong,2000).

The attempts of psychology to find out aptitude constructs including affective factors are supported by findings of neurobiology on the functions of the brain and the lateralization of particular cognitive functions (Caramazza 1991). Studies on Multiple Intelligence by Howard Gardener (1983), and contemporary parallel research on learning styles and brain-based education (Kolb,1974; Owen Wilson;1998) recognize individual differences from a wholly new perspective, focusing particularly on the intellectual functioning of individuals in the educational context.

Gardner (1993) proposed a view of natural human talents that is labelled as "Multiple Intelligences Model." This model is one of a variety of learning style models that have been proposed in general education and have subsequently been applied to language education (Christison 1998). Gardner (1993) claims that his view of intelligence(s) is culture-free and avoids the conceptual narrowness usually associated with traditional models of intelligence (e.g., the Intelligent Quotient [IQ] testing model). Gardner (1993) posits eight native "intelligences", which are described as follows:

1. Linguistic: the ability to use language in special and creative ways, which is something lawyers, writers, editors, and interpreters are strong in.
2. Logical/mathematical: the ability to think rationally, often found with doctors, engineers, programmers, and scientists.
3. Spatial: the ability to form mental models of the world, something architects, decorators, sculptors, and painters are good at.
4. Musical: a good ear for music, as is strong in singers and composers.
5. Bodily/kinesthetic: having a well-coordinated body, something found in athletes and craftsperson.
6. Interpersonal: the ability to be able to work well with people, which is strong in salespeople, politicians, and teachers
7. Intrapersonal: the ability to understand oneself and apply one's talent successfully, which leads to happy and well-adjusted people in all areas of life
8. Naturalist: the ability to understand and organize the patterns of nature.

The theory of Multiple Intelligence(s) propose(s) a great transformation in the way schools run. It suggests that teachers should be trained to present their lessons using music, cooperative – learning, art activities, multimedia, role – play, field trips etc., to match with MI.

Armstrong (2005) explained that

Language teachers have to be aware that students have different strengths, learning styles and even learning potentials but with Multiple intelligence theory we can teach students effectively in different ways. It is a good idea to give the students a Multiple Intelligence test to see in which intelligence they are outstanding. Then the teacher can create a learning environment that is suitable for each student. By observing the students and keeping track of how they react to different activities, it is possible to improve the teaching by appealing to the student's strength. As long as teachers use a range of different activities according to the intelligence they possess there will always be a time during day of a week when students have their highly-developed intelligence activity involved in learning. (p. 51)

Thus, the theory of Multiple Intelligences implies that educators should recognize and teach to the broader range of talents and skills. Rather than functioning as a prescribed teaching method, curriculum, or technique, MI theory provides a way of understanding intelligence, which teachers can use as a guide for developing classroom activities that address multiple ways of learning and knowing (Christison, 1999b).

Multiple intelligences theory have great impact on how individuals learn or process information given to them and helps children with autism and Aphasia often have great opportunities in learning a language using the different intelligences possessed by the child.

Observing children with ASD in many environments and gaining feedback from family members, teachers, and those closest to them is helpful in determining their multiple intelligences and learning style strengths (McCabe, 2015).

As mentioned by Eleanor L. Gustafson(2016) The most common intelligences in ASD are spatial (visual) intelligence and bodilykinesthetic intelligence (McCabe, 2015). He further expressed the opinion of Chen, Rogers, and Mc Conachie (2008) Individuals with autism will most often have more skill in visual spatial processing and rote memory skills. Learning through pictures is a major strength for children with ASD as they comprehend the pictures well. The musical intelligence also plays a prominent role in language acquisition among those with ASD. These children show interest in other intelligences also, however least focus or interest is shown for intrapersonal intelligence.

According to Gardner(2006)

The autistic child is a prototypical example of an individual with impaired intrapersonal intelligence; indeed, the child may not even be able to refer to himself. At the same time, such children may exhibit remarkable abilities in the musical, computational, spatial, mechanical and other non-personal realms. (p. 22)

Few techniques to help the non-verbal child speak:

1. Encouraging play and social interaction :
Children learn through play, and that includes learning a language. Playful activities like building blocks, ball catch promote social interaction. Singing, reciting nursery rhymes and also gentle rough housing also helps in improving the language skills.
2. Imitating the child:
Mimicking the child's sounds and play behavior will encourage more vocalizing and interaction. It also encourages the child to copy the adults and take turns.
3. Focusing on nonverbal communication:
Gestures and eye contact can build a foundation for language. We should encourage the child by modeling and responding to these behaviours. Parents or tutor can teach them by using gestures along with speech like clapping, opening hands, reaching out arms etc.
4. Leave ' space ' for the child to talk:

It is important to give Autism or Aphasia kids lots of opportunities to communicate, even if he isn't talking. Even when a question is asked or when we see that the child needs something, pausing for several seconds and looking at him expectantly can prompt him to respond. This promptness helps the child feel the power of communication.

5. Simplify the language at home:
Simplifying our language helps the child to imitate our speech easily. Using phrases with one more word than what the child uses, gives more opportunity for the child to understand the sentence.
6. Follow the child's interest:
Focusing on child's interest rather than interrupting his focus is crucial point for language learning.
Ex:
If a child is playing with a shape sorter, we can teach him different shapes, words such as 'in', 'dump' etc.
7. Using assistive devices and visual supports:
Visual supports and apps with pictures can foster the development of the autism child. These apps produce words upon touching and evoke the interest of the child.

Conclusion

With ever growing importance given to the theory of Multiple intelligences, the children with Autism and Aphasia can be benefitted. Using the intelligences they possess, these children learn social skills, emotion regulation, and to balance change in the social environment and eventually become more confident in learning a language.

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