

Using Brain Based Learning Approach for Teaching Children with Intellectual Disability

Mr. Dhananjay V. Deshmukh

Assistant Professor, Department of Education, Lady Irwin College, University of Delhi

Abstract:

As psychology says, "Every individual is unique in his/her style." Every individual is different from others in many aspects i.e. learning styles, capabilities, abilities, cognitive abilities, physical fitness, ways of thinking, and perception. In spite of knowing these differences, we tend to use the same teaching strategies, teaching principles methods, formulas and other techniques for all. Brain-Based Learning considers these differences. Brain-Based education is learning in accordance with the way the brain is naturally designed to learn. It considers how the brain learns best. The brain does not learn as per the demands of the school's rigid or flexible schedule, formal provided by research, and other techniques. Brain learns best in its own way. Brain-based education is best understood in three words: engagement, strategies and principles. Brain-Based Learning is the engagement of strategies based on the principles derived from an understanding of the brain.

In this concept paper, the researcher will explain the usefulness of Brain-Based education or Learning for Children with Intellectual Disability (CwID). Brain-Based Learning has strategies, approaches, principles to implement in education for Children with Intellectual Disability.

Key words: BrainBased Learning (BBL), and Children with Intellectual Disability (CwID).

Introduction

The World Health Organization (WHO) had defined the terms '**Impairment**', '**Disability**' and '**Handicap**' in 1980 through the publication of the International Classification of Impairments, Disabilities and Handicaps (ICIDH), which is a manual of classification relating to the consequences of diseases. The ICIDH proposes the concepts and definitions of Impairment, Disability and Handicap, and discusses the relation between these dimensions. It is based on a linear model (Figure 1) implying progression from disease, impairment and disability to handicap.

According to the ICIDH, **Impairment** is any loss or abnormality of psychological, physiological or anatomical structure or

perform an activity in the manner or within the range considered normal for a human being, generally taken to be at the level of the individual. Disability denotes the consequences of impairment in terms of functional performance and activity by the individual. A person who has an optic nerve or retinal damage would have limitations in performing those tasks that require the use of eyesight.

The ICIDH defines **Handicap** as a disadvantage for an individual, resulting from an impairment or disability, which limits or prevents fulfilment of a role that is normal (depending on age, sex and social cultural factors) for that individual. There are so many acts which define the different types of Impairments, Disabilities and Handicap.

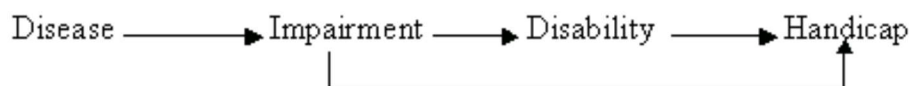


Figure 1: ICIDH Model (WHO 1980)

functions, generally taken to be at organ level. It is any damage to tissues due to some disease or trauma. A person who has poor or no vision due to damage to retina or optic nerve may be said to have a visual impairment.

Disability has been defined as any restriction or lack of ability (resulting from an impairment) to

Latest one is Right of Persons with Disabilities 2012, which defines '**specified disability**' as (i) autism spectrum disorder; (ii) blindness; (iii) cerebral palsy; (iv) chronic neurological conditions; (v) deaf blindness; (vi) haemophilia; (vii) hearing impairment; (viii) intellectual disability; (ix) leprosy cured; (x) locomotor

disability; (xi) low vision; (xii) mental illness; (xiii) muscular dystrophy; (xiv) multiple sclerosis; (xv) specific learning disability; (xvi) speech and language disability; (xvii) thalassemia and (xviii) multiple disabilities. RPwD 2012 includes 18 disabilities. The focus of this paper is Intellectual Disability.

Intellectual disability is a disability characterised by significant limitations, both in intellectual functioning and in adaptive behaviour, which covers many everyday social and practical skills. This disability originates before the age of 18. (American Association on Intellectual and Developmental Disabilities (AAIDD) 2009.)

This definition focuses on two main aspects of Intellectual Disability, which are:

Intellectual functioning, also called intelligence—refers to general mental capacity, which includes learning, reasoning, problem solving, and so on. One criterion to measure intellectual functioning is an IQ test. Generally, an IQ test score of around 70-75 indicates a limitation in intellectual functioning. Standardised tests can also determine limitations in **adaptive behaviour**, which comprises three skill types: **Conceptual skills**— Language and literacy, money, time, and number concepts, and self-direction; **Social skills**— Interpersonal skills, social responsibility, self-esteem, gullibility, wariness, social problem solving, and the ability to follow rules/obey laws and to avoid being victimized; **Practical skills**— Activities of daily living (personal care), occupational skills, healthcare, travel/transportation, schedules/routines, safety, use of money, use of the telephone.

Background

All learning is connected to the brain in some way, then what is meant by a Brain-Based Learning? Brain-based education is best understood through three words: engagement, strategies and principles. Brain-Based Learning is the engagement of strategies based on principles derived from an understanding of the brain. This type of education is learning in accordance with the way the brain is naturally designed to learn. It considers how the brain learns best. The brain does not learn on demands by a school's rigid or flexible schedule, formal provided by research, and other techniques; brain learns best in its own way.

Brain-based learning is in accordance with the way the brain is naturally designed to learn. It is a way of thinking about learning. A "Formula"

for it would be in direct opposition to the principles of brain-based learning. Every day learners are developing new skills and knowledge based on a brain compatible model of instruction, but Brain-Based Learning is an instruction model that integrates some simple discoveries about what facilitates accelerated learning, enrichment and reorganization of our cognitive system.

Definition: It's the purposeful **engagement** of effective **strategies** derived from **principles** of neuroscience.

Brain-Based learning is a comprehensive approach to instruction based on how current research in neuroscience suggests our brain learns naturally. This theory is based on what we currently know about the actual structure and function of the human brain at varying stages of development. This type of education provides a biologically driven framework for teaching and learning, and helps explain recurring learning behaviours. It is a meta-concept that includes an eclectic mix of techniques. Currently, these techniques stress allowing teachers to connect learning to students' real-life experiences. This form of learning also encompasses such educational concepts as:

- mastery learning
- learning styles
- multiple intelligences
- cooperative learning
- practical simulations
- experiential learning
- problem-based learning
- movement education

Brain-Based Learning Approaches Or Principles:

1. **The brain is a parallel processor:** The brain performs many tasks simultaneously, including thinking and feeling. Children with intellectual disability are not able to perform two or more cognitive tasks simultaneously because of their cognitive limitations, so we have to train them accordingly. Special education teachers should provide a single task at a time so that the child can perform better on that task.

2. **Learning engages the entire physiology:** The brain and the body are engaged in learning. Children with Intellectual disability have some physical problems because of which they are not able to concentrate on a task. Therefore, we have to check the physical fitness of the child before commencement of any activity or task. Children with intellectual disabilities have some associated conditions also like, Autism Spectrum Disorder, Down syndrome, Epilepsy, Cerebral Palsy and others. These conditions are diversion of mind for children with intellectual Disabilities. Before the teaching-learning

process, we have to implement all possible corrections or treatments for children with intellectual disabilities.

3. The search for meaning is innate: “The brain’s/mind’s search for meaning is very personal. The greater the extent to which what we learn is tied to personal, meaningful experiences, the greater and deeper our learning will be” (Caine and Caine 1994, 96). Children with intellectual disability have cognitive limitations because of which they are not able to tie learning with personal experiences, not able to transfer or use the learned skills in different situations. A Special Education Teacher has to teach every skill in real situation and wherever it is not possible they can use simulations for teaching. Every individual has their own point of view that we might not be able to understand.

4. The search for meaning occurs through patterning: “The brain is designed to perceive and generate patterns, and it resists having meaningless patterns imposed on it” (Caine and Caine 1994, 88).

5. Emotions are critical to patterning: Our emotions are brain-based; they play an important role in making decisions. In the groundbreaking *The Emotional Brain*, Joseph LeDoux (1996) clearly explains how the emotional neural passageways (which originate in our amygdala) influence the neural passageways needed for academic and scholarly work. Daniel Goleman popularized it in 1995 in title of his book, *Emotional Intelligence: Why it can Matter more than IQ*. When IQ is low, then there is low development of SQ, DQ and EQ.

6. The brain processes parts and wholes simultaneously: The left and the right hemisphere have different functions, but they are designed to work together.

7. Learning involves both focused attention and peripheral perception: People hold general perceptions of the environment and pay selective attention to various parts of it.

8. Learning always involves conscious and unconscious processes: There is interplay between our conscious and our unconscious. “One primary task of educators is to help students take charge of their conscious and unconscious processing” (Caine and Caine 1994, 157).

9. We have at least two different types of memory: spatial (autobiographical) and rote learning (taxon memory). The taxon or rote memory systems consist of “facts and skills that are stored by practice and rehearsal” (Caine and

Caine 1994, 169). Spatial, or autobiographical, memory “builds relationships among facts, events, and experiences” (Caine and Caine 1994, 170).

10. Learning is developmental: Children, and their brains, benefit from enriched home and school environments.

11. Learning is enhanced by challenge and inhibited by threat: Students optimally benefit when their assignments are challenging and the classroom environment feels safe and supportive. Daniel Goleman (1994) expands upon the importance of eliminating threat from the classroom in the influential *Emotional Intelligence: Why It Can Matter More Than IQ*. Each brain is uniquely organized. When teaching, we need to consider how each student learns most effectively; each student has his or her own unique set of brain strengths and weaknesses.

The three instructional techniques associated with brain-based learning are:

1. Orchestrated immersion: creating learning environments that fully immerse students in an educational experience.
2. Relaxed alertness: trying to eliminate fear in learners, while maintaining a highly challenging environment.
3. Active processing: allowing the learner to consolidate and internalize information by actively processing it.

These principles help us to understand Brain-Based Learning.

Conclusion

Special educators must be not just dispensers of information, rather they must be active enhancers of memory by using brain-based education and other such techniques. Educators should be aware of research in effective instructional methods if they are to successfully implement the strategies to enhance student learning. In a nutshell, it is a new paradigm which establishes connections between brain function and educational practice. The core of brain-based learning rests in nurturing the development of neural network connections that foster learning. This field emerged and at least twenty years ago and came to be known as “brain-based” education. It is an approach that “connects the dots”.

Brain-based education says, “Everything we do uses our brain; let’s learn more about it and apply that knowledge.”

References

- Berger, R. (2003). *An Ethic of Excellence: Building a Culture of Craftsmanship with Students* . Portsmouth, N.H. : Heinemann.
- Caine, R. & Caine, G. (1994). *Making Connections: Teaching and the Human Brain*. Rev .ed . Menlo Park, Calif .: Addison-Wesley .
- Caine, R ., G . Caine, and Crowell, S. (1999). *Mindshifts: A Brain-Compatible Process for Professional Development and the Renewal of Education*. Tucson, Ariz: Zephyr Press .
- Caine, R ., Caine, G., McClintic, C., & Klimek, K.. (2009). *12 Brain/Mind Learning Principles in Action: Developing Executive Functions of the Human Brain*. Thousands oaks, Calif : Corwin Press.
- Chapman, C. & King, R. (2003). *Differentiated Instructional Strategies for Reading in the Content Areas*. Thousand oaks, Calif .: Corwin Press .
- Connell, D. (2005). *Brain-Based Strategies to Reach Every Learner*. New York
- Scholastic .d’Arcangelo, M. (1998). The Brains behind the Brain. *Educational Leadership* 56 (3): 20–25. Retrieved June 6, 2002, from <[http://www .ascd .org/ readingroom/edlead/9811/darcangelo .html](http://www.ascd.org/readingroom/edlead/9811/darcangelo.html)>