



Neurodiversity and Special Needs: How to Support a Positive Learning with Students.

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Abstract

The complex phenomenon defined as Neurodiversity related to Special Needs has found a plurality of intense theoretical interpretations, different experiences of research, advice for school and orientation.

By focusing on good practices rather than labels, a neurodiversity perspective leads us to develop better ways of helping students with special needs. Progress at school is compromised because of the disorders so it is important to construct a positive learning environment, focusing on ecological and dynamic paradigm to improve cognitive functions and strengths. A deep knowledge of a student's abilities and a functional profile of the student help teacher to take charge of him and his personal situation, creating key learning strategies necessary to support study method.

It is presented an analysis of the approach adopted as a whole student intervention involving the school.

Starting from a cognitive development activity, a practical guide is presented to support learning:

- *clinical observation*
- *organization of school space*
- *strategies and methods.*

Introduction

Today, there is a growing interest in the brain functions and how teachers can promote an active learning despite the difficulties.

Rather than talking about separate disability categories, education can be inspired by an *ecological approach* [1], to differentiate learning and help students succeed in the classroom with *good practices* applied to all functions of human behaviour: language, perception, motor coordination.

Through the lens of human diversity, the concept of neurodiversity is described from the neurology perspective and personhood of people with Special needs.

Brain diversity

In the early 1950s, the first approach to special education and the discussion around the Special Needs was under the view of a *disability discourse*[2]. Many students, in those years, were labelled as special education students as they had difficulties in the classroom, putting in evidence their suffering and not how they can improve in their life.

Starting from the complex of human behaviour, today it is well applied the concept of neurodiversity because of brain diversity.

This has had many important implication in education as the concept allow us to consider not what kind of label could be applied but, which kind of strengths have students with Special needs in learning.

In the last years, there has been a change of paradigm in terms of complexity oriented towards a more recent neurobiological approach. The dynamic and complex vision of cognitive processes in general moves towards an important global approach that we will define in the next chapter as *ecological approach*,

Taking into consideration the different manifestations of syndromes, it is necessary to take into consideration important aspects of the phenomenon such as:

- The sense of the complexity of the phenomenon.
- The multi – components, nature of human functions
- The importance of cognitive function.



- The reference to the executive functions and the related cortical system.
- The reference to automatic neuro – psychic functions.
- The partial pervasiveness of some disorder

These multiple interests in Special Needs whose mapping is not always easy, even for the partial overlap that the phenomenon manifests from conceptual viewpoint, has revealed a great interests among researches and studies. A more homogeneous scientific platform, more oriented to neuro-cortical systems related to executive functions, which can be traced back to learning difficulties.

The 'Neurologically Different urges to discuss brain diversity in terms of positive strengths about human diversity.

The sense is a global assumption of learning environment respective the uniqueness of our brain. So as Thomas Armstrong, underlines in his book, that regarding these students as suffering from deficit, disease, or dysfunction, the neurodiversity suggests that we speak about their strengths.

In this sense the knowledge of brain functions is strictly linked to neurological development as a normal human difference. For this reason the term neurodiversity refers not only to groups that are identified as disability categories, but also including learning disabilities, intellectual disabilities, ADD/ADHD, and mood disorders (see, for example, Antonetta, 2007; Baker, 2010; Hendrickx, 2010; and Pollock, 2009). There is a wide literature on brain-function and how it is related to teaching and learning. The connections is often between the connections of biology and human brain[3].

Our brain is very complex and we tends each time to organize, changing structure or physical structure and the knowledge that we hold.

Recent studies also indicate that the brain seems to exhibit *plasticity*[4].. As a result of rich experience through active, personal and engaging learning

Activities, the brain has the ability to change during our life at each age.

An Ecological Approach in the classroom

The quality of instruction for all students are going towards a new decade thanks to advancements in neurological science and the growing understanding of the interconnectedness of the brain and mind.

How students learn, process and store knowledge is crucial for teachers and for this reason good practices must be applied using area such as Learning Styles under the view of an ecological approach.

In reference to the " Bio-Psycho-Social Structure", or the last variation "**Bio-Psycho-Active Structure**" (A. Fabi, P. Crispiani[1]) it is necessary to have a global vision that proceeds from body dimension to the psychic one to access, then, to executive dimension of the person, according to the **Ecological Taking Charge** that belongs to the culture and the **clinic**, governed by the basic indicators[1].:

- a. Individuality.
- b. Empiricism.
- c. Ecology.

The term Individuality refers to the uniqueness of the person while Empiricism means that we have to observe from direct experience, close to the individual's life, in an empirical way. The last, ecology refers to the whole person (ecology of the first level) and to the different contexts of life (ecology II level) [1].

These indicators are an important platform supported by strategies and methods that differ from standardization.

It is evident that the presence of different learning styles indicates the need to create opportunities for diverse learning experiences through sensory information, perception, spatial-temporal activities.

This means to engage students in multiple pathways by using language, motor activities, music and motor coordination[5]

Memory, for example, is reassembled from many locations in the brain[6] and the main information are developed through where (dorsal) and what (ventral) pathways. This indicates that we can talk about strategies for a better memory and not simply if we have or not.



Conclusion

A positive learning environment significantly contributes to the way students learn. Teachers need to apply multiple strategies and opportunities for oral communication (talking, listening, reading) as well as written ways of communication (reading and writing) [7]. Teachers must understand the theories, continue to study them, reflect upon them, and make appropriate applications for their own students and their own situations [8].

Numerous differences exist in autistic people, for example and under the viewed neurodiversity model, they are often described as individuals who possess a blend of cognitive strengths and weaknesses in the following core domains such as language, Communication, Social Interaction, Sensory Processing (environmental input), Motor Skill Execution.

In the academic and professional literature [9], researchers who adopt the neurodiversity perspective often specifically emphasize the strengths, gifts, and talents of people with difference learning.

Moreover recent research in learning styles examines the different ways in which individuals learn and process information and acquire new skills. Clearly, the concepts of right and left hemisphere processing are also relevant to these theories of learning [10]. For this reason it is important an ecological approach integrating learning styles in terms of quality of life[11] in different learning context.

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