

INNOVATIVE MODELS AND INCLUSION: HOW TO USE NEURODIDACTICS TO TEACH LANGUAGES TO NEURODIVERGENT STUDENTS

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ABSTRACT: Nowadays, language acquisition has become increasingly vital for academic and professional success, prompting a surge in interest in foreign language education in universities all around Mexico. This trend is particularly significant as it pertains to neurodivergent students, who may face unique challenges in traditional classroom settings. Neurodivergence encompasses a range of cognitive differences, including dyslexia and autism, which can affect how students process information, connect with people and adapt to new learning environments. Consequently, conventional or traditional teaching methods may not adequately support these learners, necessitating the implementation of adaptable teaching

strategies, and activities to foster inclusivity and support. Understanding the diverse needs of neurodivergent students is essential for creating effective learning environments. Professors usually find new methods and techniques to incorporate them into a nice or functional class but that is not enough. These students often struggle with executive functioning skills such as planning and organization, which can hinder their ability to engage with language learning effectively. Professors could focus on their students' strengths—such as creativity and unique problem-solving abilities, educators can tailor their approaches to better suit these learners. Besides, they can capitalize all their efforts with the use of techniques like multisensory teaching methods and visual aids, including mind mapping, have proven beneficial in enhancing comprehension and retention among neurodivergent students. Moreover, fostering an inclusive atmosphere requires educators to remain committed to ongoing professional development. By understanding neurodivergence and its implications for language acquisition, teachers can better guide their students through the complexities of learning a new language. This commitment not only benefits neurodivergent learners but also

enriches the classroom experience for all university students. Ultimately, adapting teaching strategies to accommodate neurodivergent perspectives is crucial for promoting an equitable educational landscape where every student could thrive in their language learning journey.

KEYWORDS: Learning, language, inclusion, neurodidactics and teaching

INTRODUCTION

Learning and speaking other languages is now essential for expanding opportunities in the academic and professional world. Consequently, interest in foreign language education has increased, with both educators and students motivated to raise their language skills. However, this learning process can present unique challenges, for many different reasons, but this article focuses particularly on the complications that neurodivergent students may present inside the classroom. Their different ways of processing information can lead to a more complex process of adaptation into new environments, where traditional teaching methods may not fully meet their needs. This article explores the challenges these students face and highlights the importance of adaptable teaching strategies to create a supportive and inclusive learning atmosphere.

For that reason, understanding and accommodating neurodivergent perspectives into the classroom is fundamental to foster inclusive learning environments, especially as language teachers. If one really pays attention to the students' needs, it would help teachers to create supportive classrooms and make the process of adaptability as easy as possible for them. Neurodidactics play an essential role in language teaching, helping to tailor instruction to diverse learning styles. As educators, keeping in constant learning and being prepared to guide and accompany the students through the process of improvement is a duty. However, before exploring strategies to achieve this objective, it is necessary to understand what neurodivergence stands for and how it impacts different models of language acquisition, which can vary significantly among students.

DEFINITIONS

Neurodiversity is a broad category conformed by two subcategories: neurodivergent and neurotypical people. It was conceived by the sociologist Judy Singer in the late 1990's. It seeks to promote the understanding of the huge diversity that exists concerning how people's brains work and process information, and instead of leading to discrimination, seeks to treat all of those differences simply as the diversity that characterizes all human beings. Specifically, the first subcategory centers on the description of a brain that generally functions and has behaviors and reactions that enters into what the majority considers or classifies as "standard".

On the other hand, individuals with neurodivergent minds are characterized because of the distinct manners in which they usually process and learn new information. Initially, the term “neurodivergent” was specifically applied to individuals with autism. However, its usage has significantly expanded over the years. Nowadays, according to Fenton and Krahn “high-functioning autism spectrum disorder, Asperger’s syndrome, attention deficit disorder, dyslexia, bipolar disorder and developmental dyspraxia” (as cited in Coffey & Lovegrove, 2023) have been incorporated into this concept. Therefore, now neurodivergence encompasses any consistent, structured deviation in brain functioning compared to the majority. It denotes individuals whose brains operate differently from what is known as “standard” or “typical”. Moreover, it usually manifests in various ways, ranging from subtle differences that often go unnoticed by most people to more pronounced variations that result in behaviors diverging from societal norms.

Neurodidactics, another key concept in this article, emerged as a nascent science in 1998 in Freiburg, seamlessly integrating insights from neuroscience, educational science, didactics, and psychology. This interdisciplinary field offers a profound understanding of brain-based learning and teaching methodologies that help to achieve an effective learning experience. Recent breakthroughs in neuroscience have revolutionized our approach to education, enabling a deeper comprehension of learners’ personalities and their drive to master foreign languages. Reaching the conclusion that the process of becoming an expert in a language is totally individual, since there is no specific way to learn or teach it. Furthermore, the background of each individual influences their brains, and as a result, the formation of their learning styles which causes the process of acquiring new information to be distinct in every aspect. In the words of Leo Anders (as cited in Apakina, Denisenko, Denisenko, Chistyakov, & Zetkina, 2020) “Neurodidactics is the art of organizing and improving education based on knowledge of brain structure and its functions, sensory preferences, differences in brain hemispheres, learning styles, reactions to stressful situations, and different types of memory [...]” Besides contributing with this understanding, it incorporates multiple sensory modalities in language instruction, such as utilizing both the left and right hemispheres of the brain simultaneously, with which individuals enhance their ability to absorb new vocabulary. For instance, verbal instruction targets the left hemisphere, while accompanying visualizations will engage the right hemisphere. Moreover, when various emotions are intertwined with the language learning process, specific language structures are formed in the brain, facilitating the creation of linguistic patterns. This dynamic approach not only accelerates vocabulary retention but also guards against forgetting, thereby optimizing the language learning experience.

IMPORTANCE OF APPLYING NEURODIDACTICS TO SUPPORT NEURODIVERGENT LEARNERS

It is important to be aware that the term *neurodiversity* is not an attempt to whitewash the suffering undergone by neurodiverse people or to romanticize what many still consider to be terrible afflictions. Rather, neurodiversity seeks to acknowledge the richness and complexity of human nature and of the human brain.

The work of Nobel Prize-winning biologist Gerald Edelman supports “The brain is in no sense like any kind of instruction machine, like a computer. Each individual’s brain is more like a unique rainforest, teeming with growth, decay, competition, diversity and selection” (as quoted in Cornwell, 2007). The use of ecological metaphors suggests an approach to teaching as well. After all, regular classroom teachers are far more likely to want a “rare and beautiful flower” in their classroom than a “broken” or “problem” child.

Nevertheless, it is impossible to deny the existence of it. In fact, research made by the professor and multi-award winning Kirby suggests that “one in six people are neurodivergent, and even with the increasing understanding and prevalence of neurodiversity within our global communities, it still marginalizes those who identify as neurodivergent from the rest” (2021, LinkedIn). Then, it can be inferred that although the term is increasingly known, neurodivergent people have struggled over the years to fit into a society that has often discriminated against them for being outside the ‘neuro-normative’ world. It also underscores the need for increased awareness, empathy, and understanding in all social spheres, including education. Hence, implementing new strategies that support not only neurodivergent students but also create a universally accommodating classroom, educators can foster a more inclusive atmosphere where every student feels valued. These efforts contribute to building a stronger foundation for positive educational experiences, promoting success for all learners.

CHALLENGES FACED BY NEURODIVERGENT STUDENTS IN THE CLASSROOM

Neurodivergent learners often encounter unusual challenges in regular classroom environments due to differences in sensory processing, and communication. As an example, autistic individuals might have difficulties at maintaining concentration or participating during lessons caused by the overwhelming feelings that crowded spaces, or loud noises can trigger. Similarly, those with sensory sensitivities may find classroom lighting, visual clutter, or unexpected sounds highly disruptive, impacting their ability to engage fully. Executive functioning challenges are also common, especially for those with ADHD, who may struggle with maintaining focus, or organizing their time for tasks. These challenges can be categorized into several key areas. Some of the said key areas are: mismatched expectations, social interaction difficulties, negative past school experiences, lack of

teachers' understanding, and low motivation/self-esteem. Recognizing these areas allows educators to develop more effective support strategies, making learning environments more inclusive for all students.

Traditional classroom teachers might have assumptions about how the activities should unfold, the way students are going to approach tasks, or certain behavioral expectations. When neurodiverse students don't align with these expectations, it can lead to misinterpretations or even sanctions, as teachers may view their actions as noncompliance or lack of effort. This is called *the hidden curriculum*. Alsubaie (2015), defines it as “a term used to describe the unwritten, unofficial, unintended, and undocumented life lessons and virtues that students learn while in school.” (quoted in Sulaimani and Gut, 2019). Nevertheless, neurodiverse students do not always understand or catch these unspoken rules. In classes, it translates to difficulties at comprehending lessons, the way they are expected to relate to their peers and how they should express themselves according to these “rules.” For neurodiverse students, navigating this hidden curriculum can lead to feelings of isolation, frustration, or confusion, making it essential for educators to explicitly clarify expectations and promote an inclusive environment that values diverse ways of thinking and interacting.

Connected to that, neurodivergent students might face social barriers, thanks to differences in communication styles as they are often less attuned to the unwritten social rules their peers naturally follow. Therefore, there can be misunderstandings or exclusion from their peers and even teachers in some cases. These challenges make it difficult for neurodivergent students to build rapport, engage fully with activities, or feel comfortable participating in lessons. Even if we make every effort to include each of our neurodiverse students, they might feel skeptical at first because of their past negative experiences. Whether it is for a lack of educational support, or overly strict educational expectations, neurodiverse students might have already developed a negative perception of school and face internal barriers that make engagement more challenging.

When all of these factors are repeatedly unmet, it can contribute to low self-esteem and therefore low motivation. Research, such as Jane Coffey's study at Curtin University, has demonstrated that neurodivergent students often adjust their academic and career expectations downward because of these factors. Additionally, the need to “mask” or hide their neurodiverse traits to conform to neurotypical norms can further contribute to a sense of isolation. This masking may involve suppressing natural behaviors, adapting communication styles, or downplaying their needs, which can be emotionally exhausting. Over time, it can lead students to withdraw socially and disengage from expressing their struggles, prioritizing blending in over seeking support. This cycle underscores the importance of fostering environments where neurodivergent students feel safe to be themselves and encouraged to pursue their full potential without compromising their identity.

HOW TO IMPROVE IT

Integrating inclusive practices for neurodiverse students in regular education classrooms is crucial to provide them with proper learning opportunities. Acknowledging neurodiversity as any other type of human diversity is a way of stimulating acceptance towards learners. Just as differences in culture, language, and other aspects of life are accepted across the world, neurodiversity should be welcomed and appreciated since it brings plenty of unique perspectives and strengths to the educational environment. Valuing these differences not only benefits neurodivergent students but also fosters a more inclusive classroom culture where all students can learn from each other's experiences and viewpoints, enhancing empathy and collaboration.

To be able to create an inclusive classroom environment, establishing a strong connection and positive relationship with neurodiverse students is essential. According to research conducted by Ker and Van Gorp (2023), learners tend to feel more comfortable and secure when they have a real and meaningful relationship with their teachers. Additionally, they appreciate when teachers show understanding and consideration for their individual needs. Building such a bond with them could help not only to provide them with a safe space to be themselves, but also helps educators gain insights into the unique challenges and needs of each student. By creating these relationships, teachers can create a foundation for trust and support that enables neurodiverse students to succeed academically, socially and emotionally in the classroom. This foundation encourages students to participate more actively, take risks in their learning, and feel valued as part of the classroom community.

Incorporating neurodidactics principles and techniques into ESL classrooms can remarkably improve inclusion of neurodiverse students by adapting the teaching approaches selected to line up with a wide range of cognitive processing styles. Neurodidactics encourages the use of multisensory learning strategies, which can involve incorporating visual aids, hands-on activities, auditory materials, and structured routines into lessons. By engaging multiple senses, educators can create a more dynamic learning environment that accommodates diverse neurological needs, ultimately enhancing the language acquisition process. This approach not only helps neurodiverse students grasp new concepts more effectively but also fosters a sense of belonging and participation within the classroom. Furthermore, by tailoring instruction in this way, teachers can cultivate a richer learning experience that benefits all students, regardless of their learning styles.

USEFUL TOOLS

The practice of differentiating instruction for the neurodiverse brain will be referred to as *positive niche construction*. This is an extraordinary tool that could help language teachers become more aware of all the aspects needed to achieve inclusiveness in the

classroom environment. The term *niche construction* is used to describe an emerging phenomenon in the understanding of human evolution.

The following are components of positive Niche Construction:

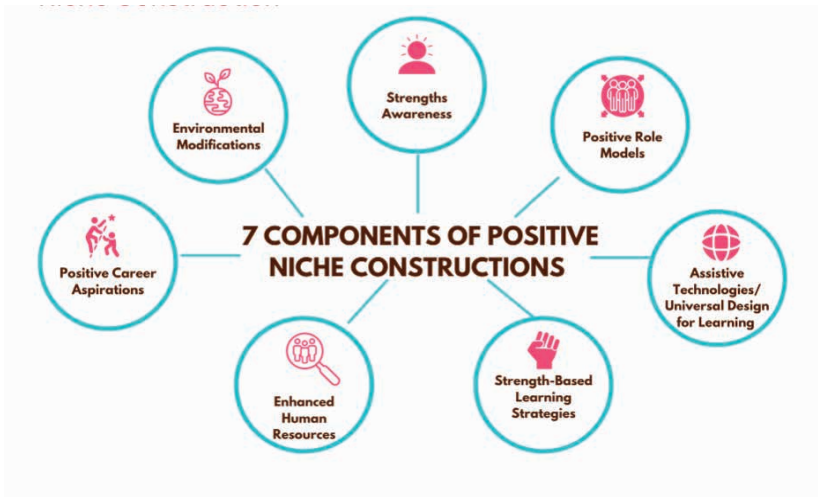


Image 1. (Stoner, J., 2023)

Strength awareness: Perhaps the most important tool we can use to help build a positive niche for the neurodiverse brain is our own rich understanding of each student’s unique strengths. By recognizing and celebrating these individual talents, educators can create an environment that promotes confidence and fosters a sense of belonging. The positive expectations that we carry with us significantly contribute to enriching a student’s “life space,” encouraging them to engage more fully in their learning experiences. This awareness not only empowers students to embrace their abilities but also helps them navigate challenges with resilience.

Positive role models: Children are influenced by the adults they see in their daily lives. Scientists suggest that this may be due to the existence of “mirror neurons.” Students with learning disabilities ought to learn about the lives of people who also had learning disabilities and became successful in their chosen careers, such as inventor Thomas Edison.

Assistive Technologies and Universal Design for Learning: The vast expansion of emerging technology over the past few decades has provided teachers with many innovative tools for differentiating instruction for students with special needs. These tools allow students to derive knowledge and engage in activities previously inaccessible to them. Assistive technologies cover a wide range of devices and methodologies, including wheelchairs, grab bars, text-telephones, large-print and Braille reading materials, sign language, hearing aids and so on.

Strength-Based Learning Strategies: There are multiple learning strategies that may be helpful for students with emotional and behavioral disorders. Some of them

comprise the frequent use of praise which encourages students to keep participating, give feedback constantly and hold up positive behavior. Furthermore, instructors should provide enough tools that help students to evaluate themselves during the course. At the end, these actions will demonstrate an improvement in their academic and social performance.

Enhanced human resources: One of the most essential parts of the positive Niche Construction is to build a community where students can feel supported and accompanied by their teachers. It is important that instructors establish from the beginning what they expect students to do, whether it be related to behavior, communication, rewards or consequences. Sometimes, it would be necessary to seek support from outside the classroom, with specialists on the topic that could contribute to the purpose, such as: mental health professionals, administrators, the school nurse, and the students' families. Whenever teachers implement this in their courses, they are developing what Suter and Bruns called "*wraparound*" which is an "approach to meeting the unique needs of each individual student." (Armstrong, T., 2012)

Positive Career Aspirations: It is crucial to guide students through the process of choosing a profession. According to several studies, a great quantity of people with behavioral disorders tend to drop out of school or get jobs with lower salaries than the rest of the population. For that reason, giving them appropriate tools and guidance to develop and strengthen their own abilities will help them to follow what feeds best for each one of them.

Environmental modifications: A school that is organized, well-structured with a positive and predictable environment will provoke in people with emotional disorders a sense of confidence that is important for them to focus and hence to learn easier.

CONCLUSION

This text aims to understand the importance of teaching languages to neurodivergent students to promote the same possibilities of learning for any person. Fostering an inclusive educational environment for neurodiverse students is not just a moral imperative, but a vital necessity for enriching the learning experience for all. By acknowledging the unique strengths and challenges that neurodivergent learners face, educators can create a classroom culture that promotes understanding, empathy, and collaboration. Also, it helps to visualize all the situations that neurodivergent students deal with, and how to help them to make their academic path easier. Through this writing, the authors try to give enough information to teachers in order to improve their techniques and ways to approach this diversity of students while teaching them. As we attempt to break down barriers and create supportive niches within our classrooms, we not only empower neurodiverse students to grow academically and socially, but also cultivate a richer, more diverse educational landscape. We need to keep in mind the diversity of skills to appreciate differences and prepare them for an inclusive society.

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