

CONTRIBUTIONS OF THE NEURODIVERSITY PARADIGM TO THE LEARNING AND INCLUSION OF NEURODIVERGENT STUDENTS

CONTRIBUIÇÕES DO PARADIGMA DA NEURODIVERSIDADE NA APRENDIZAGEM E INCLUSÃO DE ALUNOS NEURODIVERGENTES

APORTACIONES DEL PARADIGMA DE LA NEURODIVERSIDAD AL APRENDIZAJE Y LA INCLUSIÓN DE ALUMNOS NEURODIVERGENTES

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ABSTRACT

This article deals with the neurodiversity paradigm and its contributions to promoting inclusive education in Brazil, and seeks to analyze how this perspective has contributed to the inclusion of neurodivergent students in educational environments. A bibliographic analysis was carried out to understand the origin of the term neurodiversity and the theoretical basis of the neurodiversity paradigm, as well as its influences in the field of education. The analysis showed that the neurodiversity paradigm offers a holistic and inclusive approach to the learning and inclusion of neurodivergent students. By recognizing and valuing this diversity, schools can create more inclusive educational environments where all students have the opportunity to develop their potential.

Keywords: Neurodiversity. Education. Inclusion. Neurodivergents.

RESUMO

Este artigo trata do Paradigma da neurodiversidade e suas contribuições para promoção da educação inclusiva, no Brasil, e procura analisar como esta perspectiva tem

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colaborado para inclusão de alunos neurodivergentes em ambientes educacionais. Foi realizada análise bibliográfica para compreender a origem do termo neurodiversidade e a fundamentação teórica do paradigma da neurodiversidade, assim como suas influências no campo da educação. A análise evidenciou que o paradigma da neurodiversidade oferece uma abordagem holística e inclusiva para a aprendizagem e inclusão de alunos neurodivergentes. Ao reconhecer e valorizar essa diversidade, as escolas podem criar ambientes educacionais mais inclusivos, onde todos os alunos tenham a oportunidade de desenvolver seus potenciais.

Palavras-chave: Neurodiversidade. Educação. Inclusão. Neurodivergentes.

RESUMEN

Este artículo aborda el paradigma de la neurodiversidad y sus contribuciones a la promoción de la educación inclusiva en Brasil, y busca analizar cómo esta perspectiva ha contribuido a la inclusión de alumnos neurodivergentes en ambientes educativos. Se realizó un análisis bibliográfico para comprender el origen del término neurodiversidad y las bases teóricas del paradigma de la neurodiversidad, así como sus influencias en el campo de la educación. El análisis mostró que el paradigma de la neurodiversidad ofrece un enfoque holístico e integrador del aprendizaje y la inclusión de los alumnos neurodivergentes. Al reconocer y valorar esta diversidad, las escuelas pueden crear entornos educativos más integradores en los que todos los alumnos tengan la oportunidad de desarrollar su potencial.

Palabras clave: Neurodiversidad. Educación. Inclusión. Neurodivergentes.

1 INTRODUCTION

The term neurodiversity was popularized by Judy Singer (1998; 2016), an Australian sociologist, in the 1990s. Initially it was associated with autism, it gained strength among autistic communities, as a form of social identity representation, in the search for the guarantee of essential rights. But it then expanded to encompass a variety of neurological conditions, including Attention Deficit Hyperactivity Disorder (ADHD), dyslexia, Tourette's syndrome, and more.

Neurodiversity is a recent concept, which has gained repercussion among autistic activists, who saw in this perspective the possibility of being accepted by society and better understood in their neurological diversity. As a paradigm, neurodiversity is anchored in the notion of difference as opposed to the notion of disability or deficit associated with neurodiverse conditions such as autism, promoting a positive and inclusive view of neurodivergent people, recognizing their unique talents, abilities, and contributions (Walker, 2025; Wu; Brito, 2023).

The neurodiversity paradigm proposes an approach that highlights cognitive differences as a natural expression of human diversity, challenging traditional conceptions about disability. In the field of education, it has positively influenced the learning and inclusion of neurodivergent students, as it seeks to highlight their potential.

This article aims to analyze how the neurodiversity paradigm has contributed to the learning and inclusion of neurodivergent students. As the approach to neurodiversity gained repercussion only at the end of the twentieth century and the beginning of the twenty-first century and this study is of a bibliographic nature, scientific productions on the neurodiversity paradigm from that period onwards were prioritized for analysis purposes.

This article is structured in order to understand the origins and theoretical foundations of the neurodiversity paradigm, as well as its influences in the field of education; to analyze how the neurodiversity paradigm has collaborated to create more inclusive educational environments and practices, promoting the academic and social development of neurodivergent students.

2 METHODOLOGY

The research followed a qualitative approach. To obtain the information, a bibliographic research was carried out, with a survey of articles and books in the Google Scholar database.

We sought to conduct a comprehensive review of the academic literature related to the paradigm of neurodiversity in education, identifying the state of the art, case studies, experiences and best practices.

In the bibliographic search in the Google Scholar database, for the descriptor "Neurodiversity Paradigm" for the 'title' of articles and books, only two articles were found: one published in 2023, entitled "Autism and the neurodiversity paradigm in educational research" and another in June 2025, entitled "The recognition and definition of veiled ableism in the neurodiversity paradigm". For the descriptor "neurodiversity", 96 references were found in the 'title'. A time frame for bibliographic research was not closed, because as it was a relatively small number of articles and books related to the theme, the articles that met the objectives of the research were selected and later they were read and analyzed.

For the analysis of the material, the methodology of narrative or traditional literature review was used, as proclaimed by Batista and Kumada (2025), in which a more open methodological procedure is adopted for the analysis of bibliographic productions, considering the interpretations and critical analyses made by the authors.

3 LITERATURE REVIEW / STATE OF THE ART

3.1 ORIGINS AND THEORETICAL FOUNDATIONS OF THE NEURODIVERSITY PARADIGM

Before we talk about the neurodiversity paradigm, we first need to understand what the term neurodiversity is and how it came about. We also need to clarify terms such as neurotypical, neurodivergent and neurodiverse, which are immersed in this discussion and are sometimes used erroneously, causing great semantic confusion, attracting criticism and dividing opinions on the subject.

The origin of the concept of neurodiversity is strongly related to autism, in particular the clinical and pathological opposition of autism, which began in the 1990s, led by autistic activists who sought to review their place in society. The essay "Don't Regret for Us" published by Sinclair in 1993 is a driver of this movement. In it, the author "appeals to parents to understand and embrace the differences of their autistic children, seeking new ways of perceiving autism, which overcome the vision and feeling of tragedy" (Wuo; Brito, 2023, p. 2). The text had a positive impact and gained popularity on social networks and communities of autistic people and activists, who began to take another look at the diagnosis of autism.

It is in this context that the term neurodiversity was coined by Australian sociologist and autistic activist Judy Singer, in the late 1990s, in partnership with journalist Harvey Brume. Since 1997 Brume has already made reference to neurological pluralism and in 1998 he published an article in The Atlantic newspaper, entitled *On the neurological underpinnings of geekdom*, where he states that "[...] neurodiversity can be as crucial to the human race as biodiversity is to life in general" (Wuo; Brito, 2023, p. 2). That same year, Judy Singer publishes the essay "Why can't you be normal once in your life? From an unnamed problem to the emergence of a new category of difference", where he uses the term neurodiversity.

The creation of the term neurodiversity is given to both Judy Singer and Harvey Brume. However, the two from the beginning talked about the term. Brume presented neurological plurality and Singer considered it more interesting to use neurodiversity. So he used this term in his final paper for the Sociology Course, entitled "The birth of community among people on the autistic spectrum: a personal exploration of a new social movement based on neurological diversity", in 1998. Subsequently, with the repercussion of the term neurodiversity, he published his thesis, renamed "Neurodiversity: the birth of an idea" (2016), where he states that "We are all neurodiverse inhabitants of the planet, because no two minds in this world can be exactly alike" (Singer, 2016; Abreu, 2022).

Neurodiversity comprises the variety of neurological compositions that encompasses all human beings. The concept of neurodivergency, coined by Singer (1998; 2016) points out that the mind can function in different ways, and that these differences are just natural variations of the human brain. This difference should not be understood pathologically, but rather as a characteristic that reinforces human diversity (Marques, 2021; Ortega, 2009).

The concept of neurodiversity takes into account all types of minds. Therefore, it considers both neurotypical ones, which include those who do not have 'mental disorders' or 'mental deficiencies', and neurodivergent ones. Neurodivergent, therefore, is cognitive functioning different from expectations considered typical by society. Thus, neurodivergent people can be understood as: people with Autism Spectrum Disorder (ASD), people with Attention Deficit Hyperactivity Disorder, people with High Abilities/Giftedness, among others (Alencar, 2022).

Walker (2025), since 2014, has been calling attention to the confusion that has been made with the terms neurodiversity, neurodiverse, neurodivergent, neurodiversity paradigm, neurodiversity movement. Neurodiversity, according to the author, is the diversity of human minds, the infinite variation in neurocognitive functioning within our species, it is a concept

that affects the collective. Neurodivergent refers to the person (acts in the individual) and means having a mind that functions in a way that significantly diverges from the dominant social patterns taken as 'normal'. Neurotypical is a person who has a neurocognitive functioning that fits the dominant social patterns considered as 'normal' and Neurodiverse refers to a group of people in which multiple cognitive styles are represented. The opposite of the neurotypical is the neurodivergent; there is no neurodiverse person, but a neurodivergent person, the author clarifies (Walker, 2025).

The concept of neurodiversity works in the social arena, therefore in the collectivity, while neurodivergence operates at the individual level, describing people with neurological conditions that affect their development and well-being (Singer, 2016; Beni *et al.*, 2025)

The neurodiversity movement has its origins in the movement for autistic rights, in the 1990s, which began with the work of Sinclair and his organization and represented a response to the treatment given to autistic people, victims of lifelong processes of exclusion and bullying. The movement has expanded, reaching not only autistic people, but also those with ADHD, dyslexia, and other divergent people. Currently, it is a social, collective movement, formed by several people in different places, without centralization, who fight for social justice, who seek civil rights, equal access, respect, and full inclusion for neurodivergent people (Abreu, 2022; Walker, 2025).

As for the neurodiversity paradigm, it refers to a specific perspective on neurodiversity or approach that summarizes the following principles: 1) neurodiversity refers to a natural and valuable form of human diversity; 2) the idea that there is a 'normal' or 'healthy' type of human brain or mind or 'correct' style of neurocognitive functioning is a culturally constructed fiction and; 3) the social dynamics that manifest themselves in relation to neurodiversity are similar to the social dynamics that manifest themselves in relation to other forms of human diversity, such as diversity of ethnicity, gender or culture. These dynamics involve inequalities of social power and also the dynamics by which diversity, when valued, acts as a source of creative potential (Walker, 2025).

The paradigm of neurodiversity is based on the notion of difference, as opposed to the notion of disability and deficit associated with neurodiverse conditions (autism, ADHD, dyslexia and other learning disorders). Therefore, this paradigm proposes a critical reflection on the concept of disability and considers that these are not injuries, but different ways of seeing the nuances of the world (Wuo; Brito, 2023).

3.2 NEURODIVERSITY AND INCLUSIVE EDUCATION

Neurodiversity goes hand in hand with the perspective of inclusive education, as the latter comprises a contemporary teaching-learning conception that aims to guarantee the right of all, with or without disabilities, to education. Inclusive education comprises an educational practice based on respect for human differences, with regard to the ethnic, social, cultural, economic, intellectual, physical, sensory, gender and personal diversities of the students, as enunciated in the Salamanca Declaration (1994), where it was postulated

[...] accommodate all children regardless of their physical, intellectual, social, emotional, linguistic conditions [...]. It should include disabled and gifted children, street and working children, children from remote origins or nomadic populations, children belonging to linguistic, ethnic or cultural minorities, and children from other disadvantaged or marginalized groups (Brasil, 1994, p.6).

Thus, we observe that the Salamanca Declaration recommends "a single regular school, capable of serving all children" (Arruda; Dikson, 2018, p. 216), regardless of their origin or socioeconomic and cultural condition, with or without disabilities. This "idea of inclusion is based on a philosophy that recognizes and accepts diversity in life in society [...]" (Arruda; Dikson, 2018, p. 216) respecting the different ways of learning, as well as the singularities of the learners. The Salamanca Declaration represents an international milestone and a guide, directing the process of implementing inclusive education in several countries and in Brazil.

In Brazil, inclusive education was legally strengthened with the approval of the Brazilian Law for the Inclusion of Persons with Disabilities, Law 13.146 of July 6, 2015, which ensures in article 27 that

Education is the right of people with disabilities, ensuring an inclusive educational system at all levels and lifelong learning, in order to achieve the maximum possible development of their physical, sensory, intellectual and social talents and abilities, according to their characteristics, interests and learning needs (Brasil, 2015).

And it postulates as a duty of the public power...

Article 28. It is incumbent on the public authorities to ensure, create, develop, implement, encourage, monitor and evaluate:

I - inclusive educational system at all levels and modalities, as well as lifelong learning;

II - improvement of educational systems, aiming to ensure conditions of access, permanence, participation and learning, through the provision of accessibility services and resources that eliminate barriers and promote full inclusion;

III - pedagogical project that institutionalizes specialized educational service, as well as other services and reasonable accommodations, to meet the characteristics of students with disabilities and ensure their full access to the curriculum under equal conditions, promoting the achievement and exercise of their autonomy (Brasil, 2015).

With the approval of this Law, there was a wide need, on the part of schools, according to Miranda (2019), to rethink teaching methods, giving priority to forms of teaching according to the singularities of each learner, since each one has a learning process and a way of being.

However, due to social inequalities, as analyzed by Góes and Laplane (2022), the inclusion of special students in regular schools assumes a peculiar condition. Our system is aligned with international legislation regarding social rights, but the implementation of inclusive policies is still limited. The difficulties are of various orders, ranging from a linear view of the inclusion engendered in our society to the misunderstanding of teachers, who are at the tip of the spear of the educational process, of how to promote the inclusion of special students, with disorders or with difficulties in the teaching-learning process.

Social inequalities are engendered in our country, consequently reverberating in the situation of poverty, hunger and misery in which a large part of the population finds itself. Brazil is one of the ten most unequal countries in the world. In the context of international politics, in 2015, the 2030 Agenda for sustainable development was signed and agreed, which places poverty as one of the greatest challenges to be overcome by humanity.

Inclusive education, according to Miranda (2019), therefore, involves a certain adaptation of educational institutions to the demands presented by students, assuming a decisive role in the lives of these subjects. However, this has been a great challenge for the Brazilian educational system, especially with regard to the universalization of basic education and the development of a unified education. School inclusion represents a path that is being built, in the process of consolidating a fairer, more solidary society that is able to guarantee the rights of the people who live in it.

The basic principle of school inclusion, according to the Salamanca Declaration, is that schools perceive and recognize the most diverse needs of learners and respond to them, ensuring them a quality education, which provides learning through an appropriate curriculum and organizational changes, teaching and learning strategies, as well as the instruments to measure this learning (Miranda, 2019).

However, we observe that inclusive education, despite being understood in its conception and having legal support, still faces several obstacles in terms of its implementation in education systems from north to south of the country. One of these obstacles concerns the unpreparedness of schools and, consequently, teachers to deal with neurodivergent students.

The inclusive education paradigm considers that all people can learn and that, for this, schools need to welcome the diversity of their students. In this aspect, it is not neurodivergent students who need to adapt to the needs of schools. On the contrary, it is the schools that must understand and value the differences that exist in society (Mantoan, 2003 *apud* Alencar, 2022).

For this reason, pedagogical resources and strategies must be made more flexible by teachers to allow all students to learn, fully develop and actively participate in society (Alencar, 2022; Arroyo, 2012).

From this perspective, it is necessary to understand that, in order to have an education that fosters the inclusion of neurodiversity, it is necessary to consider the different ways of being, thinking and acting of students. To this end, it is necessary to invest in diverse pedagogical practices, teaching and learning strategies that contemplate the diverse abilities of students and, based on social inclusion.

3.3 CONTRIBUTIONS OF THE NEURODIVERSITY PARADIGM IN THE PROMOTION OF INCLUSIVE EDUCATION

The creation of the term neurodiversity and its repercussion through the neurodiversity movement had a significant impact on the field of education. The principles defended by the neurodiversity paradigm have found a fertile field for their development in what is central to school environments throughout the country, in line with the perspective of inclusive education, as proclaimed by the Salamanca Declaration (1994).

Inclusive education aims to ensure that all students, regardless of their differences, have access to quality education in environments that welcome them and value their uniqueness. In this context, the neurodiversity paradigm emerges as a fundamental approach to promote the inclusion of people with different forms of brain functioning, such as autism, ADHD, dyslexia, among others, as we saw earlier.

In promoting inclusive education, the paradigm offers several significant contributions. Following the principles adopted by the paradigm (Walker, 2025), we list these contributions in the following table:

Table 1

Contributions of the neurodiversity paradigm in the promotion of inclusive education

NEURODIVERSITY PARADIGM (principles)	INCLUSIVE EDUCATION (contributions)
Acceptance of diversity	By recognizing and accepting neurobiological diversity, neurodiversity challenges the idea that there is a single pattern of cognitive and behavioral development that everyone must follow. This creates a more welcoming and respectful environment for neurodivergent students, reducing the stigma associated with neurobiological differences;
Valuing unique skills	Each neurodivergent student possesses unique skills and talents. While some may struggle in certain areas, they may excel in others. By adopting the neurodiversity paradigm, educators can identify and value these skills, helping neurodivergent students to develop their full potential;
Adaptation of the educational environment	By encouraging the creation of more flexible and adaptable educational environments, capable of meeting the needs of each student (neurotypical and neurodivergent). This can include adjustments to the curriculum, teaching methodology, assessment, and physical structure of the school, ensuring that all students (neurotypical and neurodivergent) have access to quality education;
Promoting empathy and understanding	By educating the entire school community about neurodiversity, it is possible to promote empathy, understanding, and respect for differences. This contributes to the construction of an inclusive school culture, where everyone feels valued and accepted, regardless of their individual characteristics;
Developing personalized learning strategies	Neurodiversity recognizes that there is no one-size-fits-all approach that works for all students. Therefore, educators are encouraged to develop personalized teaching and learning strategies, taking into account the individual needs and preferences of each neurotypical and neurodivergent student;
Preparing for real-world diversity	By promoting neurodiversity in education, we are preparing students to live in a diverse and complex world. The adaptive, resilient, and difference-accepting skills gained in school will be invaluable as students advance into adulthood and enter diverse work environments and communities.

Source: prepared by the authors, 2025.

Finally, the neurodiversity paradigm offers a holistic and inclusive approach to promoting quality education for all (neurodivergent) learners. By recognizing and valuing neurobiological differences, we can create fairer, more welcoming, and more effective educational environments where each neurodivergent student can reach their full potential and also contribute meaningfully to society.

4 FINAL CONSIDERATIONS

This article aimed to present the contributions of the neurodiversity paradigm in the field of education. When conducting the bibliographic survey, we found that there are few studies in Brazil that address neurodiversity in education. Although the term was coined in the late 1990s and became popular through autistic activists and the Neurodiversity Movement, it is only recently that attention has been given to the theme and constituted an object of research, with some dissertations and theses produced on the subject.

We found that the neurodiversity paradigm represents a fundamental shift in the way society perceives and approaches neurological differences. By recognizing and valuing the diversity of minds (Singer, 2016; Abreu, 2022; Walker, 2025), we can build more inclusive, just, and enriching communities for all its members. The adoption of this paradigm in education and other aspects of social life is essential to promote equal opportunities and respect for the rights of all people, regardless of their neurodiversity.

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