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“Neuroqueering” Early Childhood Education through Teacher Training

“Neuroqueerizzare” l’educazione della prima infanzia attraverso la formazione insegnanti

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ABSTRACT

This theoretical-conceptual essay reflects on the need for teacher education to contribute to the deconstruction of normalizing practices in early childhood education and care. So-called “difficult children” and their “challenging behaviors” are reframed here as possible signs of unmet needs linked to neuroatypical sensory, communicative and relational functioning. Drawing on the neurodiversity paradigm and the neuroqueer perspective, through an intersectional lens that also considers gender issues, the article argues that inclusion should not aim to correct or normalize children, but rather to transform educational contexts so that different ways of functioning, expressing oneself, learning and relating can coexist and be recognized. The article thus calls for teacher education oriented toward neurodiversity-affirming and gender-affirming pedagogical postures.

Keywords: early childhood education, difficult children, neurodiversity paradigm, neuroqueer, teacher education.

RIASSUNTO

Il presente contributo teorico riflette sulla necessità che la formazione docente contribuisca alla decostruzione delle pratiche normalizzanti nei servizi educativi per la prima infanzia. I cosiddetti bambini “difficili” e i loro “comportamenti problema” vengono qui riletti come possibili segnali di bisogni non riconosciuti, connessi a funzionamenti neuroatipici sul piano sensoriale, comunicativo e relazionale. A partire dal paradigma della neurodiversità e dalla prospettiva neuroqueer, attraverso una lente intersezionale che considera anche le questioni di genere, l’articolo sostiene che l’inclusione non dovrebbe mirare a correggere o normalizzare i bambini, ma piuttosto a trasformare i contesti educativi affinché modi differenti di funzionare, esprimersi, apprendere e relazionarsi possano coesistere ed essere riconosciuti. Il contributo invita quindi a orientare la formazione docente verso posture pedagogiche neurodiversity-affirming e gender-affirming.

Parole chiave: educazione della prima infanzia, bambini difficili, paradigma della neurodiversità, neuroqueer, formazione docenti.

1. INTRODUCTION

In recent years, teacher education has been increasingly called upon to respond to transformations that cannot be reduced to technical adjustments or to the acquisition of operational skills. Social, political, relational, cultural and technological changes have made the educational profession more exposed to complexity and vulnerability. Within early childhood education and care, this complexity becomes visible in everyday relationships with children whose ways of communicating, learning, regulating themselves and inhabiting the group do not fit the implicit expectations of the school context. These children are often described, in the language of practice, as “difficult”. This paper takes that expression as a starting point, not in order to confirm it, but to displace it.

The theoretical proposal is that some of the children who are considered “difficult” may be neuroatypical, that is, children whose cognitive functioning is atypical in the ways they process internal and external stimuli and in their relational, communicative, sensory and learning modalities. When these specific ways of functioning are not recognized or are interpreted only through the lens of disobedience, provocation, lack of limits or attention seeking, educational practices risk unintentionally producing vicious circles that worsen the well-being of the child, the peer group and the teachers themselves.

The aim of the article is therefore to propose a different gaze on “difficult” or neuroatypical children in early childhood education – moving from the individualizing language of problematic/challenging behavior toward a contextual and relational understanding of needs – and to argue that initial and in-service education should include the critical deconstruction of normalizing practices and the development of neurodiversity-affirming and gender-affirming pedagogical postures. In this respect, the neurodiversity paradigm and the neuroqueer perspective are offered as critical lenses through which teacher education can rethink inclusion, responsibility and the meaning of educating today¹.

¹ Some parts of this article expand and rework content that is being published almost simultaneously in *Bambini*, a journal for ECEC practitioners. The present contribution should nonetheless be considered original, as it adds the perspective of

2. “DIFFICULT CHILDREN” OR “EDUCATIONAL DISCOMFORT”?

“Difficult children” is an expression widely used across ECEC services. The decision to use this expression in the present contribution is not intended to label children, but to include a wide range of situations in which adults experience an educational impasse, in a way that echoes Bertolini’s use of the expression “difficult adolescents” (Bertolini & Caronia, 1993). In this article, the expression “difficult children” is not used to refer to an intrinsic characteristic of the child, but to indicate the difficulty experienced by adults and institutions when they encounter ways of functioning that challenge ordinary routines, spatial arrangements, relational styles and rules of participation. In this sense, the difficulty is not located in the child, but emerges in the relationship between the child and the educational context, as the Social Model of Disability and the Neurodiversity Paradigm also suggest (Bocci, 2022; Bellacicco et al., 2022; Marocchini, 2024), perspectives that will be further developed in Section 3. In this sense, it is very close to what Nicolodi (2008) calls “educational discomfort”², which does not refer to the child’s distress, but to the discomfort experienced by the educational figure who accompanies the child. However, educational discomfort should not be understood merely as the individual teacher’s operational difficulty or emotional reaction: rather, it is a systemic and relational condition that emerges from the interplay between the characteristics of the child, educators’ beliefs and expectations, institutional cultures, organizational constraints, available resources, and the normative assumptions that shape educational practices. From this perspective, children are “difficult” because, involuntarily, they expose the tensions, limits and contradictions of educational systems, bringing to light the extent to which contexts are – or are not – prepared to accommodate diversity.

Who are these children in the everyday life of ECEC settings? They may be, for example, children who participate competently in proposed activities and then, apparently without reason, push or bump into other children, especially during transitions; children who cannot remain seated during conversation or storytelling unless they move continuously or manipulate an object; children who repeatedly misunderstand the intentions of peers and respond with anger when they believe they are being mocked.

The meaning of these behaviors can only be approached within the child’s developmental history, the quality of the educational relationship, the organization of time and space, the expectations embedded in the setting, and the resources made available to the child and to the adults who accompany them: drawing on Disability Studies and Critical Autism Studies, these examples of behaviors are understood as situated manifestations of a relational and institutional mismatch, in which children’s ways of functioning meet educational norms, spatial arrangements, adult expectations and unequal availability of support.

The reasons behind behaviors labelled as difficult are multiple and cannot be reduced to a linear cause located within the child, but require a broader pedagogical inquiry into the fit – or misfit – between the child’s ways of perceiving, communicating, moving and participating, and the expectations, routines, spaces and relational norms of the educational environment.

Nonetheless, in some cases it may be important to recognize and understand the possible presence of neurodevelopmental conditions – not in order to pathologize children, nor to delegate the situation to

neuroqueerness and focuses on the importance of teacher education, two dimensions that are not addressed in the other article.

² In Italian: “disagio educativo”.

healthcare professionals or support teachers, when available, nor to attribute the source of the difficulty to the child and their way of functioning. Rather, such recognition should help educators pay closer attention to needs and ways of functioning that may diverge from the statistical majority of students, while understanding that educational difficulties emerge from the interaction between the child and the relational, spatial, organizational and institutional environment. From this perspective, considering the possibility of neurodevelopmental conditions can be useful only insofar as it supports the creation of genuinely inclusive environments in which all children can feel well, be recognized in their specificities and participate actively.

In the early years, many of these conditions may not yet have been clearly identified: in this period, development proceeds at different rhythms and may require time to be monitored; in other cases, obstacles may arise in the collaboration with services, or parents may feel frightened and postpone assessment procedures. Thus, these conditions may be diagnosed late, may be misdiagnosed, or may remain undiagnosed (Ellis *et al.*, 2025). Some other children could even be in a sort of “grey area”: they may not present with severe distress, but they are not in full psychophysical well-being either. They may compensate for some difficulties thanks to personal or contextual resources, such as high cognitive abilities or supportive families and teachers, but often at the cost of emotional dysregulation, fatigue or relational tension.

Within this context, ECEC educators frequently find themselves in complex situations of “educational discomfort” without the resources that would be needed to address them effectively in a systemic way, as it would be needed. Thus, they may oscillate between the understandable need to find an external cause for the difficulties they encounter – the child’s family, the lack of resources, the poor effectiveness of health and social services, just to mention a few – and a strong sense of impotence and frustration generated by the feeling that no strategy works, despite solid educational competence and years of field experience.

A different perspective on this “educational discomfort” and on how to manage it comes from the neurodiversity paradigm, from recent research on neurodevelopmental conditions and from the neuroqueer perspective, which also applies an intersectional lens to these issues.

3. NEURODIVERSITY: A PARADIGM FOR REFRAMING DIFFERENCE

To explain neurodiversity, the comparison with biodiversity remains useful: just as biodiversity refers to the variety of forms of life on Earth, neurodiversity refers to the variety of ways in which human minds function. In itself, the term describes a biological fact: human beings do not process stimuli, communicate, learn or relate in a single way: within this broad range of functioning, some modalities are more frequent and socially expected; people whose functioning corresponds to these more common modalities are usually defined as neurotypical, while people whose cognitive functioning is less common, statistically atypical or outside dominant expectations may be described as neuroatypical or neurodivergent (the first term is more descriptive and closer to medical language; the second has a more political dimension) (Marocchini, 2024; Ellis *et al.*, 2025; Walker, 2025).

The term “neurodiversity” was popularized by Judy Singer and Harvey Blume in 1998 (Blume, 1998; Singer, 1998), although the concept was already circulating within autistic online communities (recent work has also emphasized the collective and community-based development of the neurodiversity concept: Botha *et al.*, 2024). In those contexts, the term did not merely have a descriptive value, referring to a biological fact; rather, it became a paradigm – the neurodiversity

paradigm – centered on the claim to equal rights and dignity for those who do not have a neurotypical mode of functioning. The neurodiversity movement, which advances this paradigm, stands in continuity with the social movements of disabled people that, since the 1960s, have fought for the right to independent living, for greater accessibility of everyday spaces, and for less negative and less pity-based representations of disabled people (Bellacicco *et al.*, 2022; Marocchini, 2024).

The reason for this brief historical and terminological excursus is that it is precisely thanks to the neurodiversity movement and to the movements of disabled and autistic people that research on these issues is now evolving; for a long time, indeed, research was conducted *on* disabled and neuroatypical people, but not *with* them, that is, without consulting them (Botha, 2021; Marocchini, 2024). This led to a limited or wrong understanding of certain modes of functioning, such as the erroneous interpretations of the causes of autism that long blamed so-called “refrigerator mothers” or the misunderstanding of main characteristics of certain neurodevelopmental conditions (Marocchini & Baldin, 2024). Unfortunately, participatory research that actively involves neurodivergent people is still rare today; yet it is precisely because, over time, groups of autistic people in particular, and neurodivergent people more broadly, have come together and exchanged experiences about how they felt, their needs, their characteristics, and their specificities, that we now have a broader and deeper understanding of atypical cognitive functioning. The voices of social movements and activists have been, and continue to be, fundamental both for better understanding different modes of functioning and for challenging an ableist view which – despite paying lip service to the value and richness of diversity – continues to regard some ways of functioning as preferable to others. Such a view still expects only neurodivergent people to “adapt” to neurotypical modes of functioning, rather than imagining the possibility of meeting halfway, in a more equitable coexistence among neurotypes.

This shift does not deny that neuroatypical people may also need support, nor does it romanticize difficulties; rather, it rejects the normative use of statistical difference (Marocchini, 2024). Support needs are also one of the key issues debated within both the neurodiversity movement and academic scholarship: Neurodiversity Studies are neither an internally homogeneous field nor in perfect continuity with the Social Model of Disability, Disability Studies and Critical Autism Studies, although they are historically and theoretically connected to these fields. These relationships must therefore be understood in light of contemporary debates on neurodiversity itself, autism, support needs, the relationships among different models of disability, and intersections with other axes of oppression (just to name a few), all of which have brought to light significant and productive tensions (Shakespeare, 2014; Botha, 2021; Dwyer, 2022; Milton *et al.*, 2022; Chapman, 2023; Dwyer *et al.*, 2025).

The educational application of the neurodiversity paradigm and of Neurodiversity Studies – as well as Disability Studies in Education – invites educators to move away from the assumption that the child must be corrected in order to resemble a normative model, and toward the question of how educational contexts can be transformed so that different ways of functioning can coexist with sufficient well-being.

4. FROM “CHALLENGING BEHAVIORS” TO UNMET NEEDS: THE NEURODIVERSITY PARADIGM APPLIED

One example of the application of the neurodiversity paradigm to ECEC contexts lies in the

reinterpretation of the so-called “challenging behaviors”³. This widespread expression can be problematic for at least two reasons: first, it risks making the child appear to be the problem, rather than locating the difficulty in the relationship between child and context; second, it groups together actions that may have very different meanings and causes, often reducing them to a generic “search for attention.” Such a formulation says little about the real need that triggered the action and even less about how the educational context should respond.

In order to broaden the interpretation of these behaviors and to adopt a more respectful and less judgmental approach toward different ways of functioning, deepening the understanding of sensory processing and communicative-relational specificities in neuroatypical children can be extremely helpful. Equipping teachers with deeper and up-to-date knowledge of these aspects can significantly improve the interpretation of children’s behaviors in ECEC contexts, revealing that those “challenging behaviors” may be read as meaningful responses to unmet needs, environmental mismatches or unrecognized sensory and communicative demands of children with different brain functioning.

4.1 Sensory processing

With regard to sensory processing, it is useful to recall that, in addition to the senses most commonly named, there are at least three others with which many educators may be less familiar (Quinn *et al.*, 2022): proprioception, which concerns the perception of the position, movement and tension of one’s body and body parts in space; the vestibular sense, which is responsible for balance and the perception of spatial movement; and interoception, which concerns the perception and interpretation of signals coming from inside the body, such as hunger, thirst, heartbeat, the need to use the toilet, or pain (Ayres, 2012).

A growing body of research on sensory thresholds, modulation, low registration, sensory sensitivity, seeking and avoidance patterns, multisensory integration and interoceptive awareness shows that each person has a distinctive sensory profile and sensory needs, although much of this research has focused on autism (Proff *et al.*, 2022). In order to feel physiologically regulated – and thus to interact, learn and experience well-being – individuals may require different forms and amounts of sensory stimulation and/or support in becoming aware of certain bodily sensations. For example, a child with a low auditory threshold may experience overload in response to a noise that appears only slightly louder than usual to the adult, and may respond with anger, withdrawal or dysregulation; a child who has difficulty recognizing interoceptive signals may react in ways that appear unexpected to adults; a child with intense proprioceptive seeking may need to move a great deal in order to feel regulated. In addition to dysregulation linked to hyper- or hyposensitivity, children may experience difficulties in sensory discrimination or integration, that is, difficulty organizing, differentiating and combining information from different sensory channels in order to process it accurately and respond adaptively. They may also experience problems of modulation, such as difficulty regulating the force used in play. Everyone can be hypersensitive in some sensory channels and hyposensitive in others, as well as having difficulties in sensory integration, but in neuroatypical configurations these sensory specificities may often be amplified (Rodríguez-Armendariz *et al.*, 2024).

Sensory dysregulation is one possible cause of behaviors that may appear unmotivated to an unaware observer and are often labelled as “challenging behaviors” (Chen *et al.*, 2024): for example, if a

³ In Italian: “comportamenti problema”.

teacher does not recognize tactile hypersensitivity, a crisis triggered by another child brushing past may seem exaggerated or senseless.

4.2 Communicative and relational specificities

To understand communicative and relational specificities from the perspective of the neurodiversity paradigm, Damian Milton's Double Empathy Problem Theory (2012) is particularly useful: according to this perspective, it is inaccurate to state that autistic⁴ people simply have a deficit of empathy or communication. Recent empirical studies (Crompton *et al.*, 2020) have supported this theory by showing that autistic people actually understand and empathize with one another effectively, just as neurotypical people do among themselves: the difficulty emerges across neurotypes as a bidirectional communication difficulty between people whose cognitive and communicative styles differ.

This perspective is crucial for early childhood education. For example, if a child becomes angry when another child laughs because that laughter is interpreted as mockery, the educator may intervene only to stop (and often punish) the aggressive reaction, without understanding the misunderstanding that triggered it. A neurodiversity-informed educational response would instead accompany the children in reconstructing what happened, naming the different interpretations, and learning how to communicate across different styles. In this sense, inclusion is not achieved by expecting the neuroatypical child to adapt unilaterally to neurotypical communication, but by requiring everyone to learn how to reciprocally adjust to one another.

The educational task is therefore not merely behavioral management; rather, it is a work of translation, mediation and co-regulation, as it requires teachers to recognize that some children need explicit explanations of social situations, greater predictability, sensory supports, alternative forms of participation, or time to regulate before responding.

5. NEUROQUEERING EDUCATION: GOING AGAINST AND BEYOND PRACTICES OF NORMALIZATION

The need to change educational paradigms toward a more respectful approach to difference, as highlighted in the previous paragraph, can be further enriched by the neuroqueer perspective. The terms and concepts of neuroqueer and neuroqueering have been developed within neurodivergent and queer communities and scholarship, particularly through the work of Nick Walker, Athena Lynn Michaels-Dillon, and M. Remi Yergeau, in partly independent and partly collective elaborations (Walker, 2025); they address the intersection between neurodivergence and queerness, and between the neurodiversity paradigm and queer theory.

Walker (2025) prefers using it as a verb, connecting it to the verb "to queer" –and this meaning will be taken up again below – but neuroqueer can also be an adjective to describe people who are both neurodivergent and belong to LGBTQIA+ communities. This intersection is relevant for two main reasons: on the one hand, there appears to be a statistically significant overlap between neuroatypical

⁴ Even though Milton's theory and the empirical studies connected to it focus on the experience of autistic people, the concepts highlighted by the theory can be applied to neuroatypical people more broadly, insofar as they deconstruct the ableist assumption that there is only one correct and desirable way of communicating and relating to other people. Furthermore, also Salvatore and colleagues (2024) affirm that "researchers and neurodivergent community leaders have extended the 'double empathy problem' concept to the experiences of people with other neurodivergent neurotypes" (Salvatore *et al.*, 2024).

and LGBTQIA+ populations; on the other hand, both identities have been subjected (and often still are subjected) to practices of normalization aimed at making dissident bodies, identities and behaviors conform to what is considered acceptable in a given context, and these behavioral practices share overlapping behaviorist genealogies, even though they later followed different clinical, legal and cultural trajectories (Marocchini, 2024; Borelli, Marocchini, & Scarpini, 2024), as highlighted by recent research considering legislation, case law, media, and clinical literature (Pyne, 2020).

Using an intersectional lens (Crenshaw, 1989; Collins, 2019) to analyze neurodiversity is also essential to highlight how gendered socialization can render the needs and characteristics of neuroatypical girls, women and people socialized as female less visible. As confirmed by the scientific literature (Attoe & Climie, 2023; Cook et al., 2024), the ways in which conditions such as autism or ADHD manifest in girls, women and people socialized as female are still poorly recognized, as gender medicine has shown in many areas of care. Gendered presentations of neurodivergence are shaped by diagnostic gender bias, socially learned camouflaging and differentiated educational expectations: the ways in which autism or ADHD are recognized – or fail to be recognized – are co-produced by gender norms, family and school socialization, clinical categories and dominant expectations about how girls and boys are supposed to behave. Gender stereotypes transmitted through socialization and education may encourage many girls and people socialized as female to comply with and adapt more readily to contextual demands, often leading them to hide or suppress certain modes of being, communicating and behaving that would otherwise come more spontaneously to them (Pasin & Mangione, 2024). Thus, girls, women and people socialized as female may be less likely to externalize their needs through so-called “challenging behaviours”, and this may lead educators and parents to misunderstand or overlook their characteristics, frequently contributing to mental health difficulties as a consequence of unmet needs (Pasin & Mangione, 2024).

In the case of neuroatypical people, LGBTQIA+ people, girls and women, and the intersections among these identities, educational contexts play a role in normalizing subjectivities and bodies toward what is considered normative, appropriate, and desirable; and this is where neuroqueering as a verb becomes an essential perspective. In queer theory, “to queer” something means to disrupt expected orders and to analyze the power relations through which normality and deviance, belonging and refusal, are produced (Butler, 1993; Borelli, Marocchini, & Scarpini, 2024); accordingly, neuroqueering means subverting, defying, and disrupting both neuronormativity and gender norms (Walker, 2025).

For teacher education, the neuroqueer perspective is particularly generative: neuroqueering ECEC means questioning the very norms that define which behaviors, bodies, rhythms, gender expressions, forms of attention and modes of communication are considered appropriate. Educational practices are often animated by good intentions, especially when they aim at inclusion. Yet, normalizing practices may be violent precisely because they operate under the appearance of care, help or social integration. When the goal is to make the child indistinguishable from others, to eliminate visible difference, or to suppress behaviors without understanding their meaning, education risks becoming a subtle form of coercion or violence (Borelli, Marocchini, & Scarpini, 2024).

A neuroqueer perspective invites teachers to problematize the “benevolent” power of inclusion. Inclusion can reproduce asymmetries when it is conceived as the decision of a dominant group to allow a minoritized subject to enter, provided that the latter adapts to pre-existing norms (Borelli, Marocchini, & Scarpini, 2024). By contrast, a neuroqueer and neurodiversity-affirming approach asks how the educational context itself might be transformed, how rules can be renegotiated, and how differences can coexist without requiring anyone to be normalized.

6. CONCLUSIONS AND IMPLICATIONS FOR TEACHER TRAINING

The figure of the “difficult child” reveals a central challenge for teacher education today, as it exposes the limits of an educational culture that still too often interprets difference as deviation, and inclusion as adaptation to a pre-existing norm. By reframing these situations through the neurodiversity paradigm and the neuroqueer perspective, teacher training can move toward a more complex and ethically responsible understanding of educational practice, as highlighted by other recent works on neurodiversity pedagogy (Cadavero, Salerni & Femminini, 2024; Cadavero & Salerni, 2025).

What, then, should teacher education do? The answer cannot be reduced to a list of techniques. Strategies are necessary, but they are effective only when grounded in a transformed pedagogical posture in several respects.

A first area concerns the capacity for contextual observation: teachers should be trained to observe not only the child, but also the environment: noise, light, crowding, transitions, unpredictability, adult language, peer interactions, waiting times, bodily demands and implicit rules... What appears as a child’s refusal may be a response to a sensory overload, an unclear request, a sudden transition, or a social demand that has not been made explicit.

A second area concerns reflective self-analysis: teachers need spaces in which to examine the implicit norms that guide their expectations about what counts as attention, participation, politeness, autonomy, respect, correct play, appropriate gender expression, successful socialization... Which of these expectations are educationally necessary, and which simply reproduce the comfort of the adult or the majority group? Without this kind of reflection, even inclusive practices may remain normalizing.

A third area concerns co-regulation and relational mediation: ECEC educators are not only transmitters of knowledge, but also adults who help children recognize bodily states, emotions, needs and relational misunderstandings. Training should therefore include competencies related to sensory regulation, emotional literacy, conflict mediation and cross-neurotype communication.

A fourth area concerns collaboration: a diagnosis, when present, should not become an alibi for delegating the educational task to health services or to a support teacher, nor should it reduce the child to a label. Rather, it can have an important informative function: it may help teachers understand what to do and what to avoid, which strategies to try, which characteristics belong to a specific way of functioning and should not be forced, and which competences need to be supported in order to foster development. Diagnosis is not an endpoint, but a possible starting point for targeted and respectful educational work.

Finally, training should cultivate a political understanding of educational responsibility: to educate in a neuroqueer sense does not mean to “be kind” to difference, but to recognize that ECEC services can either reproduce the norms that marginalize or normalize certain children, or can become places where such norms are made visible, negotiated and transformed. This is why teacher education must connect the micro-level of everyday practice with the macro-level of rights, power and democratic coexistence.

Thus, training teachers today means equipping them to recognize unmet needs behind behaviors, to resist the temptation to normalize, and to transform educational contexts rather than try to “correct” children, thereby moving toward neurodiversity-affirming care (Wagland *et al.*, 2025) and gender-affirming pedagogy (Santambrogio & Burgio, 2024).

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