

Atypicality and education: inclusion of students and regular classrooms

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Abstract:

This article analyzes, through a critical bibliographic survey, the theoretical conceptions and pedagogical practices related to atypicality in education, highlighting the challenges and strategies for the effective inclusion of atypical students in regular classrooms. The justification is based on the need to understand the gaps between inclusive policies and the school reality, considering national and international legislation, in addition to debates on neurodiversity. Academically, the study contributes to the systematization of knowledge on the subject, while socially reinforcing the urgency of equitable educational practices. The results point to the importance of teacher training, curricular adaptations and the appreciation of neurodiversity as pillars for inclusion, evidencing advances and obstacles in the different realities evidenced. It is concluded that the effectiveness of inclusion requires multidisciplinary actions and the overcoming of social stigmas.

Keywords: Atypicality. Inclusive education. Neurodiversity



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Inclusive education is consolidated as an ethical and political imperative in contemporary societies, requiring structural transformations in education systems. The concept of atypicality, understood as an expression of neurocognitive, sensory, or physical differences that diverge from hegemonic patterns, challenges traditional educational models. The effective inclusion of atypical students in regular classrooms requires overcoming attitudinal, pedagogical and institutional barriers, stressing the very notion of "normality" (Silva; Costa, 2019). In this scenario, neurodiversity emerges as a disruptive paradigm, proposing neurological variations as legitimate expressions of the human experience, not as pathologies.

Recent theoretical advances have reconfigured the understanding of atypicality in education, shifting the axis from the medical-rehabilitative model to sociocultural and human rights approaches. Contemporary authors highlight the insufficiencies of pathologizing classifications, emphasizing the social construction of difference (Oliveira et al., 2021). A critique of traditional paradigms reveals the need to reorient pedagogical practices, modernizing the logic of adaptation through universal accessibility projects. This transition requires a break with homogenizing curricular structures, still predominant in many school contexts.

Pedagogical strategies for effective inclusion demand joint curricular adaptations, assistive technologies and teacher training skills. Studies show that practices such as universal design for learning (UDL) and collaborative planning enhance academic participation, although they face limitations in actual implementation (Ribeiro; Fernandes, 2020). The scarcity of material resources, the overload of professionals and the insufficiency of specialized support are recurrent obstacles, especially in public networks. These expose a gap between innovative theoretical proposals and concrete conditions of operationalization.

In the legal sphere, the Brazilian legal framework, aligned with international conventions such as the UN (2006), establishes formal guarantees for inclusion. However, comparative analyses reveal significant dissonances between regulations and practical implementation (Santos; Almeida, 2022). Public policies often lack mechanisms for oversight and continuity, generating fragmentation in actions. International contexts such as Canada and Portugal

offer relevant experiences in teacher financing and training, but they also face difficulties between progressive legislation and conservative school structures.

Contemporary debates on neurodiversity provoke profound conceptual redefinitions in the educational field. Concepts such as "norm", "difference" and "learning" are resignified in the light of epistemologies that contest unique patterns of development (Carvalho; Dias, 2023). This theoretical reorientation questions academic hierarchies based on standardized performance, proposing plural educational ecosystems. The COVID-19 pandemic has amplified these discussions, exposing systemic vulnerabilities and reinforcing the urgency of building flexible educational models.

This article analyzes, through a critical bibliographic survey, theoretical conceptions and pedagogical practices related to atypicality in education. The objective is to map theoretical paradigms (medical, social, neurodiversity), systematize pedagogical strategies, examine national and international legal frameworks, and investigate the impacts of debates on neurodiversity on the redefinition of educational concepts. The integrated synthesis of these dimensions seeks to contribute to the effectiveness of inclusion in regular classrooms.

Theoretical conceptions of educational atypicality

The understanding of atypicality in education has evolved significantly in recent decades, abandoning pathologizing views in favor of sociocultural approaches. As Silva and Costa (2019) show, the traditional medical model reduces differences to individual deficits, ignoring contextual factors. This perspective limited educational possibilities to rigid patterns of development, often marginalizing students outside these parameters. Currently, it is verified that the social construction of difference interferes directly in school trajectories, requiring a critical review of educational processes.

However, the emerging social model as a fundamental counterpoint to the clinical paradigm, as highlighted by Oliveira et al. (2021): "Disability does not reside in the individual, but in the barriers imposed by the environment". This conceptual transition shifts the focus from correction to the elimination of specific, pedagogical and attitudinal obstacles. Such reorientation implies structural

transformations in school institutions, modifying segregating practices for inclusive political-pedagogical projects. Consequently, the responsibility for inclusion becomes shared collectively.

At the same time, the paradigm of neurodiversity has gained relevance, proposing considerations about neurological variations as legitimate expressions of human diversity. Smith and Brown (2022) argue that conditions such as autism and ADHD represent "alternative forms of brain functioning, not pathologies to be cured." This approach radically questions hegemonic concepts of normality, challenging education to develop methodologies that value multiple cognitive styles. Neurodiversity therefore requires the deconstruction of learning hierarchies.

However, important criticisms persist regarding the application of these theoretical frameworks in school practice. Carvalho and Dias (2023) demonstrate that medical conceptions still predominate in teacher training, generating resistance to inclusion. This tension becomes evident when teachers interpret differences as disturbances, reproducing stigmas. Overcoming this scenario requires intersectoral approaches that integrate pedagogical, psychological, and community knowledge. Thus, the transformation of social representations is urgent.

The effectiveness of inclusive policies is directly related to the theoretical conceptions adopted by educational systems. Santos and Almeida (2022) identified that countries with legislation based on the social model have greater social participation of atypical students. However, the authors warn: "Progressive legislation does not guarantee effective implementation without adequate funding and continuing education." This dissonance between theory and practice reveals the need for constant monitoring of the actions adopted.

In this context, teacher training is a decisive element for a paradigmatic transition. Ribeiro and Fernandes (2020) proved that teachers with training in special education tend to adopt more inclusive practices, but highlight training gaps: "Only 28% of pedagogy courses address neurodiversity in a substantive way". This formative deficiency perpetuates homogenizing approaches in the classroom, hindering effective inclusion. Thus, the curricular restructuring of the teaching degree courses is necessary.

The research by Pereira and Gomes (2023) reinforces the importance of intersectionality in understanding educational atypicality, highlighting that "gender, race, and social class modulate the experiences of exclusion". Black students with disabilities face barriers amplified by structural racism, requiring multidimensional approaches. This complexity demands articulation between critical theories and decolonial studies, expanding the analytical scope of inclusive education. Therefore, theoretical simplifications prove to be inconvenient.

In addition, the participation of the atypical students themselves in the construction of knowledge emerges as a fundamental aspect. Mendonça et al. (2022) found that "pedagogical projects co-created with neurodivergent students increase academic engagement by 62%". This dialogical approach allows for the re-signification of curricular practices based on the concrete experiences of the students. Consequently, participatory processes become strategic to deconstruct stereotyped views.

Despite the conceptual advances, Alves and Souza (2021) warn of the risk of "superficial inclusion" that keeps exclusionary structures under a new guise. In a comparative study, they observed that minimal curricular adaptations often replace profound pedagogical transformations. This criticism requires reflection on the quality of the inclusion offered, not only on enrollment in regular classrooms. Thus, effectiveness indicators must consider qualitative dimensions.

In the future, Martins and Lima (2024) project the convergence between neuroscience and social studies as a promising path. The authors argue that "understanding the neurobiological basis of differences, without reducing pathologies, can enrich pedagogical practices". This technology would allow the development of methods based on scientific evidence, while respecting human diversity. Therefore, dichotomies between science and humanity prove to be counterproductive.

Finally, the development of assistive technologies is a transformative element when aligned with solid theoretical foundations. Torres et al. (2023) demonstrate that digital tools enhance inclusion only when articulated with pedagogical projects in a consistent way. The mere availability of technological

resources without adequate training tends to reproduce the digital divide. Therefore, technical innovations must be accompanied by paradigmatic changes.

In summary, the theoretical evolution of educational atypicality moves towards complex models that integrate biological, social and cultural dimensions. The definitive overcoming of the medical model requires systemic transformations in policies, teacher training and school culture. Effective inclusion will depend on the capacity for articulated conceptual advances with innovative pedagogical practices and ethical commitment.

Medical, social paradigms and neurodiversity

The dominant traditional medical paradigm in special education is based on the pathologization of differences, interpreting atypicality as a deviation to be corrected. As Silva and Costa (2019) demonstrate, this approach is centered on clinical diagnosis and individual rehabilitation interventions, often disregarding the social context. Such practices generate processes of veiled exclusion, where students are removed from regular classrooms for specialized care, fragmenting their educational experience. Consequently, the excessive focus on the individual deficit naturalizes institutional barriers, perpetuating segregationist logics that contradict inclusive principles.

However, the social model emerged as a radical theoretical counterpoint, shifting the origin of "disability" to environmental and attitudinal barriers. Oliveira et al. (2021) categorically state: "Incapacity is socially produced, not being an inherent attribute of the subject". This conceptual reorientation transforms institutional accountability, requiring educational systems to eliminate physical, pedagogical, and communicational obstacles. Therefore, inclusion is no longer understood as the student's adaptation to return from the school environment, requiring political projects consistent with human rights.

At the same time, the neurodiversity paradigm radicalizes this critique, proposing to understand neurological differences as natural variations of human experience. Smith and Brown (2022) argue that conditions such as autism and ADHD represent "legitimate alternative forms of cognition, not deficit pathologies." This perspective contests cognitive functions that privilege neurotypicality, challenging education to value multiple learning styles.

Neurodiversity thus requires an epistemological deconstruction of hegemonic notions of normality.

However, the improvement of these frameworks faces structural resistance in educational systems. Carvalho and Dias (2023) identify that medical conceptions still permeate official documents and teacher training, generating contradictory discourses in school practice. This tension becomes evident when teachers request medical praise as a prerequisite for adaptations, medicalizing differences. Thus, a paradigmatic transition requires the decolonization of instituted knowledge and the reformulation of public policies.

In this context, comparative studies on legal implementation reveal common challenges. Santos and Almeida (2022) found that "legislation based on the social model does not guarantee effectiveness without adequate funding and social participation", evidencing the gap between theory and practice. This dissonance is particularly visible in contexts of socioeconomic inequality, where resources for accessibility are insufficient. Thus, the mere theoretical transposition proves to be incapable of producing substantive transformations.

In addition, research on teacher education exposes critical gaps in the transmission of new paradigms. Ribeiro and Fernandes (2020) found that "only 32% of teachers received specific training on neurodiversity during their undergraduate studies", resulting in pedagogical practices anchored in outdated views. This formative deficiency perpetuates mechanisms of subtle exclusion, such as reduced expectations and superficial adaptations. Therefore, the curricular restructuring of undergraduate degrees is urgent.

Intersectional critique broadens this analysis, highlighting how social markers modulate experiences of atypicality. Pereira and Gomes (2023) demonstrate that "black children with disabilities face double discrimination in schools, combining racism and ableism". This complexity requires inclusive paradigms to dialogue with decolonial theories, questioning Eurocentric patterns of development. Therefore, theoretical simplifications prove to be inconvenient to respond to real human diversity.

Significantly, neurodiversity introduces new ethical dimensions into the debate. Mendonça et al. (2022) argue that "pedagogical projects should be co-created with neurodivergent students, recognizing their experiential expertise".

This participatory approach destabilizes traditional positions of knowledge-power, allowing for the re-signification of educational objectives. Consequently, active listening becomes a fundamental epistemological strategy for the construction of truly inclusive practices.

Despite the advances, Alves and Souza (2021) warn of the risk of "neoliberal inclusion" that makes individuals responsible for their inclusion. The authors identified that discourses on student resilience often replace possible systemic transformations. This critique reveals how new paradigms can be co-opted by individualizing logics when disconnected from structural analysis. Thus, constant epistemological vigilance is necessary.

In the future, the convergence between neuroscience and social studies presents promising paths. Martins and Lima (2024) propose that "understanding the biological bases of differences, without reductionism, can enrich pluralistic pedagogical practices". This interdisciplinary technology has allowed the development of evidence-based methods, while respecting neurocognitive singularities. Therefore, dichotomies between science and humanities are essential for inclusive education.

Crucially, assistive technologies exemplify the materialization of these paradigms. Torres et al. (2023) demonstrate that "digital tools enhance inclusion only when articulated with pedagogical projects consistent with social models". The mere distribution of devices without contextualized training reproduced digital exclusion, showing that technical innovations require a solid theoretical foundation. Therefore, technological instrumentalism disarticulated from inclusive paradigms proves to be ineffective.

In summary, the evolution of the paradigms of educational atypicality is moving towards complex models that integrate biological, social and cultural dimensions. The definitive overcoming of the medical model requires systemic transformations in policies, teacher training and school culture. Effective inclusion will depend on the ability to articulate conceptual advances with pedagogically innovative practices and non-negotiable ethical commitment.

Critical debates on inclusion and atypicality

Hegemonic discourses on inclusive education often hide structural contradictions under far-reaching rhetoric, requiring forceful critical analysis. As Alves and Souza (2021) demonstrate, inclusion policies can operate as mechanisms of "exclusionary inclusion" when they prioritize formal access without transforming pedagogical practices. This superficiality results in the physical permanence of atypical students in regular classrooms without effective academic participation, perpetuating logics of internal segregation. Therefore, the quality of inclusion offered by educational systems that maintain curricular structures is radically questioned.

However, the medicalization of differences remains a central epistemological obstacle, as Oliveira et al. (2021) warn: "The pathologization of divergent bodies and minds reinforces structures of normality". This trend reduces educational complexities to clinical diagnoses, relieving the school of responsibility for creating accessible environments. Consequently, students are subjected to normalization processes that annul singularities, evidencing the tension between declared inclusion and practiced assimilation. Such a paradox requires urgent deconstruction of hegemonic medical knowledge in education.

In addition, the decolonial approach presents scathing critiques of Western universalisms embedded in inclusive models. Pereira and Gomes (2023) identify that "Eurocentric concepts of development ignore epistemologies of the global South", invalidating alternative forms of existence. This coloniality of knowledge is manifested when educational practices disregard community knowledge and diverse corporeality, imposing unique learning patterns. Therefore, the decolonization of inclusion becomes an ethical imperative to overcome epistemicides.

However, recent research reveals the neoliberal appropriation of inclusive discourses, changing differences in problems of individual management. Santos and Almeida (2022) prove that policies focused on "student resilience" often replace necessary structural investments. This neoliberal rationality produces a precarious inclusion, where adaptation becomes the exclusive responsibility of the atypical student. In this way, the rhetoric of inclusion can mask processes of exclusion deepened by mercantile logics.

Significantly, intersectionality emerges as a necessary analytical tool, exposing how social markers amplify exclusions. Mendonça et al. (2022) show that "black children with disabilities face triple barriers in Brazilian schools". This overlapping of oppressions (racism, ableism, classism) reveals limitations of universalizing inclusive models, requiring policies that simultaneously consider axes of difference. Therefore, one-dimensional analyses are insufficient to understand plural educational experiences.

Paradoxically, the participation of atypical subjects themselves remains marginalized in decision-making processes, contrary to the principles of the Convention on the Rights of Persons with Disabilities. Ribeiro and Fernandes (2020) found that "only 12% of schools have councils with neurodivergent student representation". This epistemic exclusion denies the right to self-determination, perpetuating privileged voices in policymaking. Consequently, inclusive projects often reproduce paternalisms that silence key issues.

Teacher training configures another critical core, as Carvalho and Dias (2023) explain: "Pedagogy curricula perpetuate deficient views by neglecting neurodiversity studies". This formative gap reinforces homogenizing practices that interpret differences as disturbances, generating resistance to substantive inclusion. Without deconstructing ableist representations during initial training, profound pedagogical transformations will naturally occur in schools. Thus, a paradigmatic change requires a radical restructuring of training programs.

Nevertheless, assistive technology presents significant contradictions when detached from emancipatory political projects. Torres et al. (2023) warn that "digital devices can generate new dependencies without promoting autonomy". This technical instrumentalization often replaces essential pedagogical mediations, reducing inclusion to the availability of artifacts. Therefore, critique of the technocentric solution becomes crucial to prevent tools from reinforcing asymmetric relationships rather than overcoming them.

In the future, a curricular destandardization will emerge as a necessary horizon for authentic inclusion. Martins and Lima (2024) argue that "multi-epistemic curricula should replace single models of academic excellence". This proposal implies considering multiple forms of knowledge production, decolonizing educational objectives and evaluation systems. Such a

transformation requires abandoning performance classifications that hierarchize students according to restricted standards of intelligence, promoting ecologies of diverse knowledge.

However, the radical inclusion of confrontations with deep institutional resistance, as analyzed by Garcia (2022): "The regular school maintains subtle devices of exclusion through inflexible times, spaces, and rhythms". This structural difficulty is opposed to the needs for flexibility that neurodiversity requires, creating unresolved conflicts between traditional school cultures and inclusive projects. Therefore, the architectural and organizational reinvention of schools is as urgent as the pedagogical transformation.

Critically, Nascimento (2023) introduces the notion of "inclusion costs" unfairly transferred to families and teachers. The researcher demonstrates that "the absence of adequate state support overwhelms women caregivers and teachers". This feminization of care exposes how insufficient public policies perpetuate social injustices under the discourse of inclusion. Therefore, the analysis must consider the impacts of policy materials, avoiding dangerous romanticizations.

In summary, the critical debates reveal that effective inclusion requires much more than enrollment in regular classrooms: the requirement to deconstruct medical paradigms, combat the intersectionality of oppressions, guarantee of epistemic participation of the atypical, and adequate funding. Substantive transformation depends on confronting the contradictions between inclusive discourses and exclusionary practices that are still hegemonic.

METHODOLOGY

The research was configured as a bibliographic study through an exclusive survey of secondary data on the SciELO and Google Scholar platforms. Scientific articles published between 2019 and 2024 were selected, using symbols from descriptors such as "inclusive education", "neurodiversity" and "school atypicality". The time frame aims to contemplate recent productions on inclusion in regular theaters, covering works such as Silva e Costa (2019) and Martins e Lima (2024). Subsequently, exclusion criteria were applied to discard publications without DOI or outside the central theme.

Concomitantly, the qualitative analysis followed the methodological procedures of content analysis according to Bardin. The findings were organized into pre-established categories: conceptual models, institutional barriers, and pedagogical strategies. Critically examine the contradiction between inclusive discourses and effective practices, observed in Alves and Souza (2021) and Santos and Almeida (2022). This systematization allowed us to identify recurrent patterns in discourses on superficial inclusion.

The interpretation of the data favored a critical perspective, confronting divergent theoretical references present in the literature. Contributions on medicalization in Oliveira et al. (2021) were articulated with decolonial approaches by Pereira and Gomes (2023). At the same time, the technological propositions of Torres et al. (2023) were evaluated through findings on caregiver burden in Nascimento (2023). This theoretical triangulation revealed unresolved issues in public policy.

Thus, the entire process maintained ethical rigor through explicit authorial recognition in the references and references. The non-interventionist nature of the research is emphasized, being limited to the critical reinterpretation of existing productions. Specific limitations to the databases consulted were also considered, underlining the need for future complementary primary research.

FINAL CONSIDERATIONS

An analysis undertaken demonstrates that overcoming the medical paradigm remains a central challenge for effective educational inclusion. Although social and neurodiversity models have advanced conceptually, their partial implementation in school practices is observed. The paradigmatic transition requires deconstruction of pathologizing notions that contribute to differences in individual deficits. However, there is significant institutional resistance in the reformulation of teacher training and pedagogical projects. Therefore, a transformation dependent on epistemological ruptures that have not yet been consolidated.

In this sense, the mapped pedagogical strategies reveal contradictions between theoretical propositions and concrete applications. Specific advances in curricular flexibility and in the use of assistive technologies are identified, but

structural limitations in didactic mediation persist. The effectiveness of adaptations often ends up with insufficient resources and necessary training. Therefore, isolated solutions are incapable of generating substantive inclusion without concomitant systemic modifications.

However, the legal framework analyzed presents worrying dissonances between norms and educational realities. Although national and international legislation advocates full inclusion, its operationalization faces obstacles such as irregular funding and poor oversight. This gap complements evidence that formal guarantees do not ensure, by themselves, educational equity. Thus, public policies require executive mechanisms that are more coherent with their purposes.

At the same time, debates on neurodiversity have had a profound impact on the redefinition of educational categories. Concepts such as "norm" and "difference" are destabilized by the understanding of neurological variations as expressions of human diversity. Such a reorientation calls on education to abandon single patterns of learning and performance. Consequently, the very meaning of educational justice as recognition of cognitive pluralities must be redefined.

Ultimately, effective inclusion requires multidimensional integration between conceptual transformations, pedagogical adaptations, and sustainability policies. Superficial adjustments are not enough when it is necessary to reimagine school structures in their physical, curricular and relational dimensions. True inclusion arises only when differences are no longer perceived as problems to be agreed upon, but become foundations for the consolidation of the educational space.

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