


**UNIVERSAL DESIGN FOR LEARNING AND TEACHER EDUCATION: PATHWAYS AND OBSTACLES TO EFFECTIVE INCLUSION IN THE EARLY YEARS OF ELEMENTARY EDUCATION**

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### **Abstract**

Inclusive education in Brazil, supported by the Brazilian Inclusion Law – BIL (Brasil, 2015) and the National Special Education Policy from the Perspective of Inclusive Education – NSEPI (Brasil, 2008), faces significant challenges in its implementation in the early years of elementary school. This chapter is an analytical literature review that examines the gaps between legal guidelines and pedagogical practices reported in the literature on regular classrooms, focusing on teacher training, curriculum adaptations, and Specialized Educational Support (SES), grounded in the principles of Universal Design for Learning (UDL). Through a critical analysis of national and international academic literature, the study identifies that students with disabilities, although enrolled, often do not actively participate in the learning process due to the lack of inclusive pedagogical strategies and insufficient coordination between SES and mainstream teaching. The results highlight the urgency of continuous and collaborative teacher training and the adoption of UDL practices – still little known in the Brazilian context – as an instrument of curricular transformation. It is concluded that effective inclusion requires not only access to school, but

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also material conditions, reflective teacher training, well-coordinated SES, and integrated public policies, ensuring meaningful learning, participation, and equity for all students.

**Keywords:** Curriculum Adaptations, Universal Design for Learning, Inclusive Education, Teacher Training, Inclusive Practices, Early Years.

## INTRODUCTION

Inclusive education in Brazil constitutes one of the most relevant contemporary challenges for educational systems. Driven by significant legal frameworks – such as the Brazilian Inclusion Law for Persons with Disabilities (LBI) of 2015 (Brazil, 2015) and the National Policy on Special Education from the Perspective of Inclusive Education (PNEE-EI) of 2008 (Brazil, 2008) – the inclusive agenda reaffirms the fundamental right of all students to access, permanence, and meaningful learning in mainstream schools, regardless of their specific educational needs (Souza, 2025a).

However, the realization of this right, especially in the early years of Elementary Education, still faces considerable structural, pedagogical, and educational challenges. The Salamanca Statement (UNESCO, 1994) already indicated, three decades ago, the need for educational systems to organize themselves based on student diversity, affirming that regular schools must adapt through a child-centered pedagogy capable of meeting students' specific needs. Despite this international milestone, recent research reveals a persistent gap between the legal framework and everyday pedagogical practices (Prais, 2020; Zerbato; Mendes, 2021). Data from the 2023 School Census (INEP, 2024) demonstrate a significant increase in the enrollment of students who are the target population of special education in mainstream classes; however, this quantitative increase is not necessarily accompanied by adequate investments in teacher education, infrastructure, and curricular adaptation.

It is thus observed that the physical presence of these students in regular classrooms does not, by itself, ensure their active participation and learning (Souza, 2025a). The persistence of homogenizing

strategies, the lack of accessible pedagogical resources, and insufficient teacher education undermine the principle of educational equity that underlies the inclusive proposal (Prais, 2020; Pereira; Silva; Pinheiro, 2022; Vilas Boas, 2025). In this context, curricular adaptations emerge as a central instrument: according to Sebastian Heredero (2010), these are pedagogical actions intended to make the curriculum more flexible in order to meet students' needs, and not the other way around – a premise likewise proclaimed by the Salamanca Statement (UNESCO, 1994). Vilas Boas (2025) reinforces this understanding by stating that curricular adaptation refers to a set of strategies and pedagogical practices aimed at guaranteeing students' access to the school curriculum through individualized adjustments, ensuring that diversity is valued rather than treated as an obstacle.

In this scenario, Universal Design for Learning (UDL) emerges as a promising theoretical-practical framework. Developed by the Center for Applied Special Technology (CAST), UDL proposes curricular flexibility through multiple means of representation, action and expression, and engagement, with the aim of eliminating barriers from the very design of teaching, thereby promoting meaningful learning for all students (CAST, 2018; Meyer; Rose; Gordon, 2015). Despite its relevance, its implementation in Brazilian schools is still incipient, often limited to individual teacher initiatives or specific projects, without support from systematic public policies (Souza, 2025a; Sebastián-Heredero, 2020). In addition, Specialized Educational Assistance (AEE) constitutes an indispensable support service in this process, responsible for identifying, developing, and organizing pedagogical and accessibility resources that eliminate barriers to the full participation of students with disabilities, and it must operate in articulation with mainstream education (Souza, 2025b).

This chapter aims to analyze the relationship between Universal Design for Learning and teacher education, exploring the pathways and obstacles to promoting effective inclusion in the early years of Elementary Education. To this end, it discusses the theoretical framework of UDL, its interface with teacher education, and the concrete challenges identified in observed pedagogical practices, while also proposing strategies to overcome existing barriers, grounded in the contributions of authors such as Prais

(2020), Zerbato and Mendes (2021), Santos (2024), Schön (1987), and Shulman (1986).

## **THEORETICAL FRAMEWORK: UNIVERSAL DESIGN FOR LEARNING AND INCLUSION**

### **THE CONCEPT OF UNIVERSAL DESIGN FOR LEARNING (UDL)**

Universal Design for Learning (UDL) is a theoretical-practical framework aimed at optimizing teaching and learning for all individuals, regardless of their characteristics, abilities, or conditions. Developed by the Center for Applied Special Technology (CAST) and grounded in research from cognitive neuroscience and the learning sciences, UDL proposes the creation of flexible educational environments capable of anticipating and meeting the diverse needs of students, eliminating barriers from the curriculum design stage (CAST, 2018).

Meyer, Rose, and Gordon (2015) emphasize that UDL is based on the understanding of three primary neural networks involved in learning, each corresponding to one of its foundational principles.

Recognition Networks (the “what” of learning) are responsible for identifying and interpreting patterns, facts, and concepts. They are related to the principle of Multiple Means of Representation, which advocates offering different forms of presenting content – visual, auditory, textual, tactile resources, interactive simulations, and multimodal learning objects – so that students may access information in ways compatible with their learning profiles (CAST, 2018; Meyer; Rose; Gordon, 2015).

Strategic Networks (the “how” of learning) involve the planning, execution, and monitoring of actions and expressions. They are related to the principle of Multiple Means of Action and Expression, which proposes diverse options for students to demonstrate what they have learned – through writing, speaking, creating projects, solving practical problems, using assistive technologies, among other modes of expression (CAST, 2018; Meyer; Rose; Gordon, 2015).

Affective Networks (the “why” of learning) are responsible for evaluating patterns and attributing emotional meaning, interest, and motivation. They are related to the principle of Multiple Means of

Engagement, which seeks to stimulate students' interest and motivation by promoting choice, personal relevance of content, collaboration, self-regulation, and connection with real-life contexts (CAST, 2018; Meyer; Rose; Gordon, 2015).

It is essential to emphasize that, from the UDL perspective, the focus of adaptation falls on the curriculum, not on the student. As the proponents of this framework stress, it is inflexible curricula that erect unintended barriers to learning – not students who possess intrinsic “deficiencies.” The goal, therefore, is to design teaching curricularly so that it is accessible to everyone from the outset, overcoming the reactive logic of individualized and isolated adaptations (Souza, 2025a; CAST, 2018; Meyer; Rose; Gordon, 2015). This perspective will be further developed in the following section, which addresses curricular adaptations and their relationship with UDL.

### CURRICULAR ADAPTATIONS: CONCEPT, LEVELS, AND INTERFACE WITH UDL

Curricular adaptations constitute a set of strategies and pedagogical practices aimed at guaranteeing students with disabilities access to the school curriculum through individualized adjustments and modifications, without implying the impoverishment or emptying of content (Vilas Boas, 2025; Oliveira; Machado, 2007). According to Sebastian Heredero (2010), curricular adaptation is understood as any pedagogical action intended to make the curriculum more flexible in order to offer educational responses to the special needs of students in the school context. This definition reaffirms the principle of the Salamanca Statement (UNESCO, 1994): it is the curriculum that must adapt to students' needs, not the opposite.

Eladio Sebastian Heredero, in a 2010 work, systematizes the different levels of curricular adaptations – from minor adjustments, under the teacher's responsibility, to significant modifications involving political-administrative decisions. The author defends a structured model that considers objectives, contents, and pedagogical resources as a condition for making the inclusive school truly effective. This systematization resonates directly with the principles of UDL: whereas traditional

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curricular adaptations operate reactively – adjusting the curriculum after identifying the student’s needs – UDL proposes anticipating this flexibility from the planning stage, making the process more efficient and less dependent on isolated interventions. In a later publication (Sebastián-Heredero, 2020), the same author deepens this perspective by systematizing UDL guidelines for the Brazilian educational context, showing that its implementation requires a reconfiguration of teacher planning practices, assessment, and curricular management – and does not represent additional work for the teacher, but rather an intentional and proactive reorganization of teaching, guided by diversity as the norm.

## SPECIALIZED EDUCATIONAL ASSISTANCE AND ITS ARTICULATION WITH MAINSTREAM EDUCATION

Specialized Educational Assistance (AEE) is a special education service that identifies, develops, and organizes pedagogical and accessibility resources with the aim of eliminating barriers that prevent the full participation of students with disabilities, global developmental disorders, and high abilities or giftedness in mainstream education (Brazil, 2008). Provided for in the National Policy on Special Education from the Perspective of Inclusive Education (Brazil, 2008) and regulated by Decree No. 7,611/2011, AEE must be offered preferably in Multifunctional Resource Rooms within mainstream schools, in the opposite shift to regular schooling, in a complementary or supplementary manner to students’ education.

Souza (2025b) highlights that AEE has fundamental contributions to pedagogical practice: when well implemented, it acts as a link between the student’s specific needs and the demands of mainstream teaching, providing the regular classroom teacher with strategies, resources, and adjustments that strengthen the participation and learning of the student with disabilities. From this perspective, AEE does not replace regular schooling, but complements it, functioning as specialized support that expands the possibilities of access to the curriculum.

However, the articulation between AEE and mainstream education remains one of the critical knots of Brazilian inclusive education. Souza (2025b) points out that when AEE is reduced to isolated actions in the multifunctional resource room – without systematic dialogue with the classroom teacher and without integration into the class’s pedagogical planning – it loses its transformative potential and comes to function in a parallel, rather than complementary, manner to the schooling process. This lack of articulation directly compromises inclusive outcomes and reinforces the view that responsibility for the learning of students with disabilities falls exclusively on the specialist teacher, exempting the mainstream classroom teacher from co-responsibility.

It is precisely at this point that UDL and AEE intersect and mutually enhance one another. While UDL proposes that curricular flexibility be incorporated from the planning stage – proactively eliminating barriers – AEE offers the specialized knowledge and resources that inform and qualify this flexibility. The articulation between both, mediated by a truly inclusive school culture and adequate teacher education, constitutes the most robust path to guaranteeing meaningful learning for all students (Souza, 2025a; Souza, 2025b; Zerbato; Mendes, 2021).

### INCLUSIVE EDUCATION IN THE BRAZILIAN CONTEXT: LEGAL FRAMEWORKS AND CONCRETE CHALLENGES

Inclusive education in Brazil is a right guaranteed by robust legislation, which includes the 1988 Federal Constitution (Brazil, 1988), the Law of Directives and Bases of National Education (LDB) of 1996 (Brazil, 1996), the Brazilian Inclusion Law for Persons with Disabilities (LBI) of 2015 (Brazil, 2015), and the National Policy on Special Education from the Perspective of Inclusive Education (PNEE-EI) of 2008 (Brazil, 2008). These legal frameworks establish inclusion as a fundamental principle, requiring educational systems to guarantee access, participation, and learning for all students without discrimination (Brazil, 2015; Brazil, 2008). Within this framework, two concepts are central and complementary: equality and equity. Whereas equality presupposes offering the same conditions to

everyone, equity recognizes individual differences and provides personalized support so that each student may achieve the same level of participation and educational success – which, in practice, means offering more to those who need more (Vilas Boas, 2025). The guarantee of human dignity and human rights, foundations of inclusive education, requires precisely this equitable stance, which values each student in his or her individual characteristics (Vilas Boas, 2025).

Despite this normative framework, the implementation of inclusive guidelines in everyday practice still presents structural, pedagogical, and educational challenges. The Salamanca Statement (UNESCO, 1994) already pointed out that the development of inclusive schools requires a clear and strong inclusion policy, accompanied by adequate funding, the combating of prejudice, and both initial and continuing teacher education. Decades later, although data from the 2023 School Census (INEP, 2024) indicate growth in full-time enrollments at all stages of basic education, this quantitative increase is not always accompanied by proportional investments in accessible infrastructure and, above all, qualified teacher education (Souza, 2025a).

Research and classroom observations show that, in many cases, the active participation and meaningful learning of students with disabilities are limited by the absence of inclusive pedagogical strategies and appropriate resources (Souza, 2025a; Prais, 2020). Data from research conducted in a 3rd-grade elementary class indicate that 93% of activities were applied without any adaptation, disregarding the specific needs of students with disabilities, and that 85% of the support professional's time was devoted to the mechanical copying of content, to the detriment of strategies that promoted students' understanding and active participation (Souza, 2025a). This situation is corroborated by Pereira, Silva, and Pinheiro (2022), who, in research with 14 teachers from the municipal public school system of São Luís, identified that although the teachers carried out small-scale curricular adaptations, inclusive planning still lacked systematization and consistent criteria – a direct reflection of the gaps in specific training in Special Education, present in only half of the participants.

This reality reveals a dissonance between the inclusive discourse present in institutional documents and the practices actually adopted in everyday school life. Pereira, Silva, and Pinheiro (2022), in research conducted with teachers from municipal public schools, identified that despite teacher engagement with curricular adaptations, gaps in education and in the structural conditions necessary for the implementation of equitable inclusion persist. Souza (2025b) adds that AEE, when well implemented, has the potential to contribute directly to the pedagogical practice of the mainstream classroom teacher through the collaborative development of strategies, resources, and adjustments that strengthen the participation of students with disabilities. However, the articulation between AEE and mainstream education is still inconsistent in many schools, which weakens the expected inclusive outcomes. This scenario underscores the urgency of rethinking both teacher education and the organization of support services in light of UDL principles (Zerbato; Mendes, 2021).

Authors such as Zerbato and Mendes (2021), Sebastián-Heredero (2020), and Santos (2024) have contributed significantly to the discussion on the application of UDL and teacher education in the Brazilian context. The adoption of UDL requires a paradigmatic shift in teacher education, which must be continuous and collaborative, enabling teachers to plan and implement pedagogical practices that anticipate and address student diversity as a premise, rather than as a later adaptation (Zerbato; Mendes, 2021).

## **TEACHER EDUCATION AND UDL: CHALLENGES AND POTENTIALITIES**

### INITIAL AND CONTINUING TEACHER EDUCATION FOR INCLUSION

Teacher education constitutes a fundamental pillar for the realization of inclusive education. However, recent research reveals that the initial education of many educators is still insufficient with regard to preparation for dealing with diversity in the classroom (Souza, 2025a; Prais, 2020). The lack of specific subjects on special and inclusive education in Pedagogy programs, together with the predominance of homogenizing pedagogical approaches, contributes to teachers feeling unprepared to

meet the specific needs of students with disabilities (Souza, 2025a). Pereira, Silva, and Pinheiro (2022) reinforce that although most of the teachers surveyed had *Lato Sensu* postgraduate education, only half had specific training in the area of Special Education, highlighting a structural weakness in teacher preparation.

This educational gap results in pedagogical practices that frequently disregard students' specificities, leading to the application of standardized activities for everyone, without the necessary curricular adaptations (Souza, 2025a). Vilas Boas (2025), in line with Mantoan (2003), observes that many teachers, accustomed to a homogenizing work pattern, resist the changes required by inclusion, arguing that they are not prepared to serve students with disabilities – which evidences the need for knowledge of inclusive pedagogical practices to be included as a compulsory curricular subject in teacher education, as also defended by Vitaliano (2012, *apud* Vilas Boas, 2025). Prais (2020), in collaborative research conducted with teachers in the early years of Elementary Education, demonstrates that teacher education and the reorganization of teaching are essential conditions for fostering inclusive pedagogical practices, and that UDL has been referenced as a central tool for the implementation of this agenda.

In this context, the concept of the reflective teacher, proposed by Schön (1987), becomes particularly relevant. The reflective teacher is one who critically analyzes his or her own practice, seeking to understand challenges and opportunities for improvement, which is essential for adapting to the demands of inclusive education. Complementarily, the concept of Pedagogical Content Knowledge (PCK), developed by Shulman (1986), emphasizes the importance of the teacher not only mastering the content to be taught, but also knowing how to make it understandable for different students, considering their particularities. The application of UDL requires that the teacher develop an inclusive PCK, capable of transforming the curriculum into learning experiences accessible to all. In this process, the AEE teacher plays the role of a strategic partner, contributing specialized knowledge that informs and enriches the planning of the mainstream classroom teacher (Souza, 2025b).

According to Gauthier et al. (1998), knowledge of the elements of teacher knowledge that allow teachers to exercise their profession competently is fundamental. In this sense, education for inclusion must be understood as a continuous, reflective, and collaborative process that empowers the teacher to become an agent of change in his or her own practice. Continuing education programs based on UDL must contemplate not only the theoretical foundations of the framework, but also practical strategies for inclusive planning, the analysis of real cases, and the collaborative construction of accessible didactic materials (Zerbato; Mendes, 2021).

Continuing education, in this context, assumes a crucial role. Prais (2020) demonstrates that teachers in the early years of Elementary Education, after a collaborative continuing education process focused on UDL, began to plan and apply the principles of the framework in their pedagogical practices, developing appropriate activities and using didactic resources that favored the learning of all students. Zerbato and Mendes (2021) reinforce that collaborative education, grounded in the exchange of experiences and the collective construction of knowledge among teachers and specialists, is particularly effective for the development of sustainable inclusive practices.

### UDL AS A TOOL FOR THE DEVELOPMENT OF INCLUSIVE PRAXIS

Universal Design for Learning (UDL) offers a robust theoretical-practical framework for transforming pedagogical practices and promoting effective inclusion. By proposing multiple means of representation, action and expression, and engagement, UDL enables teachers to create flexible learning environments that address the vast range of students' needs, preferences, and potentialities (CAST, 2018).

When trained in UDL principles, teachers can:

- Make the curriculum flexible without reducing it: UDL allows content to be presented in diverse ways, ensuring that all students have access to information and can understand it, without reducing academic rigor (Souza, 2025a; CAST, 2018). Sebastian Heredero (2010) emphasizes that curricular adaptations, when well structured and applied at the appropriate

levels, have high potential for inclusion – and UDL represents precisely the advancement of this logic, by incorporating flexibility from the very design of teaching rather than treating it as a later adjustment. As reinforced by Oliveira and Machado (2007), such adaptations do not imply the emptying or impoverishment of the curriculum, but rather its reorganization in favor of learning for all.

- Promote the active participation of all students: by offering multiple options for the expression of knowledge and for engagement, UDL encourages the autonomy and participation of all students, including those with specific educational needs (Souza, 2025a; Meyer; Rose; Gordon, 2015).
- Reduce the need for reactive individualized adaptations: by planning lessons that already consider diversity as a premise, UDL minimizes the need for isolated adaptations, making the teaching-learning process more efficient and inclusive from the outset (Souza, 2025a; CAST, 2018).
- Develop inclusive formative assessment practices: UDL proposes that assessment instruments and criteria should also be diversified, allowing students to demonstrate their learning through multiple pathways, in accordance with their profiles (Sebastián-Heredero, 2020).

Concrete examples of the application of UDL in the classroom include: the use of visual and auditory resources to present content (multiple means of representation); offering different formats for completing tasks, such as writing, oral presentation, video recording, or the development of practical projects (multiple means of action and expression); and the creation of activities that stimulate collaboration, choice, and the personal relevance of learning (multiple means of engagement) (CAST, 2018). These practices correspond closely to what Vilas Boas (2025) calls pedagogical differentiation – a strategy that adjusts teaching by content, process, product, and environment, recognizing that each student is unique and has distinct rhythms and learning styles. The author adds that the use of inclusive

educational resources – such as diversified didactic materials, assistive technology, differentiated assessments, and collaborative learning – is an essential condition for all students to have access to meaningful learning. Collaborative consultation, as demonstrated by Santos (2024), may be an effective strategy to support teachers in implementing these practices, resulting in higher academic performance and greater student motivation.

### **PATHWAYS AND OBSTACLES TO EFFECTIVE INCLUSION IN THE EARLY YEARS**

#### **PEDAGOGICAL AND ORGANIZATIONAL BARRIERS**

Despite legislative advances and recognition of the importance of inclusive education, the reality of classrooms in the early years of Elementary Education still reveals the persistence of significant pedagogical and organizational barriers. Data from research conducted in a 3rd-grade elementary class recorded that 93% of the activities were applied without any methodological or curricular adaptation, and that 85% of the support professional's time was consumed by mechanical copying tasks, to the detriment of strategies that would ensure the active participation of students with disabilities (Souza, 2025a). Pereira, Silva, and Pinheiro (2022), in research with teachers from the public school system of São Luís, confirmed the same pattern: even when teachers demonstrated engagement with curricular adaptations, the absence of specific education and adequate structural conditions limited the scope and consistency of their inclusive practices. This convergence of findings shows that the problem is not isolated, but structural. Vilas Boas (2025) systematizes the main challenges of curricular adaptation into four axes: individualization – consideration of the unique needs of each student –; the demand for additional resources and time for planning and implementing adapted strategies; the need for alignment with the standard curriculum, avoiding gaps in learning; and the complexity of assessing the progress of students in the adaptation process, which requires equally flexible and diversified instruments.

The way support professionals operate in schools also constitutes an obstacle. The aforementioned research points out that 85% of the support professional's time was devoted to the mechanical copying of

content, to the detriment of strategies that would ensure students' understanding and active participation (Souza, 2025a). This practice, in addition to being pedagogically ineffective, reinforces the idea that inclusion is limited to the student's physical presence, without guaranteeing meaningful learning. This support model, centered on the execution of tasks by the professional in place of the student, may even generate dependence and compromise the development of the student's autonomy (Zerbato; Mendes, 2021). Souza (2025b) points out that AEE, when disconnected from everyday pedagogical practice and reduced to isolated actions in the multifunctional resource room, loses its transformative potential – making it essential that its contributions be systematically integrated into the planning of the classroom teacher and classroom routines.

At the organizational level, the dissonance between inclusive discourse and pedagogical practice is evident. Schools' Political-Pedagogical Projects (PPPs) often formally declare a commitment to inclusion, but analysis of lesson plans reveals a low percentage of activities with methodological or curricular flexibilizations (Souza, 2025a). The Salamanca Statement (UNESCO, 1994) already indicated that the reform of special education and the inclusion of all children in mainstream schools would only be achieved as a result of reform of the educational system as a whole, requiring teachers' curricular autonomy and structured institutional support. Pereira, Silva, and Pinheiro (2022) identified that, although there is teacher engagement in developing curricular adaptations, challenges related to pedagogical education and the structural conditions of schools remain concrete obstacles to the implementation of inclusion. Sebastian Heredero (2010) points out that significant adaptations – those involving deeper changes in the curriculum – require political-administrative decisions, which demands institutional involvement beyond the individual teacher's action. This fragility demonstrates the need for a restructuring of pedagogical planning processes that effectively incorporates UDL principles as a systematic guideline (Sebastián-Heredero, 2020; Zerbato; Mendes, 2021).

Additionally, the absence of an inclusive institutional culture and of pedagogical leadership committed to diversity represents a relevant structural obstacle. The large-scale implementation of UDL requires the engagement of the entire school community – administrators, teachers, support professionals, families, and the students themselves – articulated with public policies that guarantee the necessary investments (Souza, 2025a; Santos, 2024).

### STRATEGIES TO OVERCOME THE CHALLENGES

Overcoming barriers to effective inclusion in the early years of Elementary Education requires a multifaceted approach that articulates teacher education, the development of pedagogical resources, and institutional support. The triangulation of data from recent studies points to three priority axes of action (Souza, 2025a; Prais, 2020; Santos, 2024):

#### **Consistent and collaborative teacher education**

Extension courses and continuing education programs focused on inclusive strategies and, in particular, on the principles and practices of UDL, are essential. This education must go beyond theory, promoting critical reflection on practice and the development of concrete skills for applying UDL in the classroom (Prais, 2020). Teacher education must enable the teacher to be a mediator who plans intentionally for diversity, using UDL as a systematic guide for this planning. The educational process must be continuous, collaborative, and contextualized, favoring the exchange of experiences among peers and the collective construction of pedagogical solutions (Zerbato; Mendes, 2021; Pereira; Silva; Pinheiro, 2022).

#### **Development and provision of accessible pedagogical resources**

The development and provision of accessible and flexible didactic materials are fundamental, encompassing multiple means of representation, action and expression, and engagement. The use of

assistive technologies and multimodal resources – such as interactive simulations, audio description, Braille materials, and Augmentative and Alternative Communication (AAC) – can significantly enrich the learning environment and meet students’ cognitive and sensory diversity (CAST, 2018; Sebastián-Herero, 2020). The development of these resources should be planned collectively, involving teachers, specialists, and, whenever possible, the students themselves.

### **Institutional support and articulated public policies**

The creation of inclusion support centers in schools, with trained professionals able to offer pedagogical support and collaborative consultation to teachers, is crucial for the sustained implementation of UDL (Santos, 2024). In this context, the consolidation of AEE as a service effectively articulated with mainstream education – rather than parallel to it – is an indispensable condition for inclusive strategies to reach the classroom consistently (Souza, 2025b). In addition, public policies that guarantee investment in accessible infrastructure and institutionalize the adoption of UDL as a curricular guideline on a large scale are indispensable for the consolidation of inclusive education in the public education system (Souza, 2025a). Coordination among the federal, state, and municipal levels is fundamental so that UDL principles translate into everyday school practices.

Collaborative consultation emerges, in this context, as a particularly promising strategy for supporting teachers in the implementation of UDL. Santos (2024) demonstrates that collaborative consultation, based on UDL principles, contributes to the development of more inclusive pedagogical practices, resulting in better academic performance and greater motivation to learn among students. This approach allows teachers, with the support of specialists, to review their practices, develop appropriate activities, and use didactic resources that favor everyone’s learning (Prais, 2020; Santos, 2024). Vilas Boas (2025) complements this perspective by listing the concrete benefits of well-implemented curricular adaptations: the promotion of effective inclusion and of a more diversified environment; personalized

learning, which increases student engagement and motivation; the strengthening of students' self-esteem and self-confidence; the overall improvement of the school environment; and the development of resilience and self-management skills that prepare students for future challenges, both academic and professional.

### **FINAL CONSIDERATIONS**

The analysis undertaken in this chapter allows us to affirm that educational inclusion in the early years of Elementary Education is not resolved by decree nor by enrollment alone. It requires an articulated transformation in three interdependent dimensions: teacher education, curricular organization, and specialized support. None of these dimensions, in isolation, is sufficient – and it is precisely the lack of articulation among them that explains the persistence of the gap between Brazilian legislative advances and the reality of classrooms.

Universal Design for Learning emerges, in this scenario, not as just another methodology to be adopted, but as a shift in perspective: from a curriculum that excludes to a curriculum that anticipates diversity. The difference is structural. Whereas traditional curricular adaptations operate reactively – making isolated adjustments to what was planned for a standard student – UDL proposes that flexibility be the starting point of planning, making inclusion a condition of teaching rather than a later correction (CAST, 2018; Sebastián-Heredero, 2020; Sebastian Heredero, 2010). Vilas Boas (2025) and Oliveira and Machado (2007) reinforce that this flexibility, when well conducted, does not impoverish the curriculum: on the contrary, it enriches the learning environment for all students.

For school administrators, the central implication is clear: UDL is not implemented individually. It requires committed pedagogical leadership, revision of Political-Pedagogical Projects, investment in accessible resources, and the creation of systematic spaces for collaborative planning between classroom teachers and AEE teachers. For teacher educators, the challenge is to overcome the dichotomy between theory and practice: continuing education programs need to contemplate UDL not as abstract content, but

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as a concrete guide for lesson planning, as demonstrated by Prais (2020) and Santos (2024). For mainstream classroom teachers, AEE must be experienced as a partnership, not as outsourcing responsibility for the learning of students with disabilities (Souza, 2025b).

From the perspective of public policy, the findings of this review point to the urgent need to institutionalize UDL as a curricular guideline on a large scale – and not merely as the initiative of isolated teachers – while simultaneously guaranteeing the material conditions, qualified teacher education, and effective articulation between AEE and mainstream education that make this guideline viable in practice (Souza, 2025a; Zerbato; Mendes, 2021; Pereira; Silva; Pinheiro, 2022). The Salamanca Statement (UNESCO, 1994) proclaimed this commitment more than three decades ago; making it a reality remains the task still awaiting Brazilian educational systems.

For future research, the following are suggested: investigating models of systematic articulation between AEE and UDL in different education systems; developing and validating formative assessment instruments aligned with UDL principles; examining the effects of collaborative continuing education programs on teaching practices in the long term; and analyzing the institutional conditions that favor or hinder the scaling up of inclusive practices based on UDL in public schools. Such investigations will contribute to solidifying the foundations of an education that is, in fact, inclusive, equitable, and meaningful for all.

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