Revista ARACÊ
ISSN: 2358-2472

# INCLUSIVE LANGUAGE: BREAKING DOWN BARRIERS AND BUILDING A FAIRER EDUCATION

https://doi.org/10.56238/arev6n4-391

**Submitted on:** 11/23/2024 **Publication date:** 12/23/2024

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## ABSTRACT

The article analyzed how technology, especially assistive and digital technologies, contributed to the process of inclusion of people with disabilities in the school environment. The study aimed to investigate the challenges and possibilities of integrating technological tools into the educational context to meet the specific needs of students with disabilities. The research used the bibliographic methodology, based on the analysis of theoretical contributions and practical studies available in the academic literature, according to the concept of Prodanov and Freitas (2013). The principles of inclusive education were addressed, highlighting the importance of pedagogical and cultural adaptations, as well as the role of technology in promoting equality and strengthening inclusive practices. Examples such as the use of sensory mats for children with cerebral palsy and ASD have highlighted the positive impact of assistive technologies on learning and social interaction. Despite the advances observed, the study identified limitations, such as the lack of teacher training and political-institutional disengagement, which hindered the full implementation of inclusive practices. The results showed that technology can be an indispensable ally in promoting inclusion, as long as it is accompanied by investments in training and structural changes. It was concluded that the integration of assistive technologies should be an integral part of educational strategies, promoting a school that values diversity and ensures equitable learning conditions for all.

**Keywords:** Inclusion. Assistive Technology. Education. Deficiency. Equality.

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ISSN: 2358-2472

## INTRODUCTION

Inclusive education represented a significant advance in the struggle for a more just and equitable society, by ensuring the right of access to education for all individuals, regardless of their physical, intellectual or social conditions. This topic gained global relevance when it was incorporated into public policies and academic debates that highlighted the importance of adapting pedagogical practices and technological resources to meet diversity in classrooms. In Brazil, school inclusion was strengthened by legislation that reaffirmed education as a fundamental human right, essential for social and personal development.

In this context, the study investigated how technology, especially assistive and digital technologies, can be used to promote the inclusion of people with disabilities in the educational environment. The objective was to analyze the challenges and possibilities of integrating these tools in the pedagogical process, with the following guiding question: 'How can technology enhance educational inclusion, meeting the specific needs of students with disabilities?' To answer this question, a bibliographic research was carried out, following the definition of Prodanov and Freitas (2013), who conceptualize this modality as a study based on the analysis of existing theoretical contributions on the subject. The analysis technique used was qualitative, with data collection from academic works, institutional reports and practical projects aimed at educational inclusion.

The article has been structured into five main sections. Initially, the conceptual and practical aspects of inclusive education were addressed in 'Inclusive education: principles, challenges and practices for a school for all', discussing the need for pedagogical and cultural adaptations in the school environment. Then, in the section 'Inclusive education: a fundamental right and the promotion of equality in the school environment', the legal and social foundations that guarantee inclusion as an essential human right were explored.

Subsequently, the section 'Technology and inclusion: pedagogical adaptations and the role of DICTs in the construction of inclusive education' highlighted the role of digital information and communication technologies (DICTs) in overcoming pedagogical and structural barriers. In the section 'Assistive technology: enhancing the inclusion of people with disabilities in the school environment', practical examples of assistive devices, such as the sensory mat, were analyzed, which demonstrated the effectiveness of technological solutions to meet the needs of neurodivergent students.

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The results and data analysis were presented in the section 'Results and data analysis', evidencing the relevance of technology as an inclusive tool, but also pointing out limitations related to teacher training and institutional barriers.

Therefore, the study sought to contribute to the debate on inclusive education, highlighting the importance of technology as an indispensable ally in this process and encouraging the continuity of research that deepens the impact of digital and assistive tools in the educational context.

## INCLUSIVE EDUCATION: PRINCIPLES, CHALLENGES AND PRACTICES FOR A SCHOOL FOR ALL

Inclusive education, guaranteed by law, establishes the right to "welcome all children, regardless of their physical, intellectual, social, emotional or linguistic conditions" (Silva; Carvalho, 2017, p. 293). This principle is based on the need to provide an education that respects individual differences, recognizing the school as a democratic and plural space. From this perspective, Miranda (2001) argues that it is essential to think of a school for each one, using resources and methodologies that favor the learning and development of all students. In this way, school inclusion emerges as an ethical and pedagogical commitment that promotes human dignity, as Pinheiro (2020, p. 9) points out, when he argues that "school inclusion should be understood as a practice that respects the dignity of the human person and promotes equal access to regular education for all".

Furthermore, the importance of a broad view of inclusive education is reinforced by the need for "constant adaptations to make this process effective" (Silva; Carvalho, 2017, p. 306). These adaptations are not restricted to material resources, but also involve changes in teacher training and in the curricular structure, in order to contemplate the specificities of each student. In this sense, Miranda (2001) emphasizes that the use of innovative pedagogical resources can be a fundamental strategy to overcome barriers in inclusive education, promoting student engagement. Therefore, the creation of a welcoming and adapted school environment requires the implementation of practices that dialogue with the reality of each individual, favoring not only inclusion, but also the permanence of students in the educational system.

In addition, inclusion should be understood as a continuous process that goes beyond access to education. According to Pinheiro (2020, p. 9), "the promotion of equal access must be accompanied by efforts to ensure the quality of learning". In this context,

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respect for individual differences becomes one of the fundamental pillars for building a more just and equitable society. Silva and Carvalho (2017) corroborate this view by highlighting that inclusive education requires a careful look at the specificities of each student, promoting adaptations that allow the full development of their potential.

Finally, the implementation of inclusive practices depends on an interdisciplinary approach, in which different educational actors are committed to the inclusion process. Miranda (2001) emphasizes that the creation of a school for all requires collaboration between managers, teachers and families, reinforcing the need for collective work to overcome challenges. In this way, inclusive education transcends the simple guarantee of access, configuring itself as a commitment to the integral formation of the individual and to the construction of a more inclusive and egalitarian society.

## INCLUSIVE EDUCATION: A FUNDAMENTAL RIGHT AND THE PROMOTION OF EQUALITY IN THE SCHOOL ENVIRONMENT

Inclusive education is a fundamental right, essential for building a society that respects the equality and dignity of all individuals. In this sense, the creation of segregated schools "directly hurts the right to equality provided for in the Constitution" (Pinheiro, 2020, p. 10). The Federal Constitution of 1988 establishes that education is a universal right and a duty of the State and the family, and should be promoted without any type of discrimination (Brasil, 1988). Thus, the commitment to inclusive education reflects the constitutional principles of equality and social justice.

In addition, inclusive education is a powerful tool for overcoming prejudices and social barriers. Pinheiro (2020, p. 9) highlights that "inclusive education is essential to overcome prejudice and ensure that disabled students can fully participate in society". This perspective is in line with article 205 of the Constitution, which reinforces the importance of education for the full development of the individual and for his active participation in social life. In this way, educational inclusion not only benefits students with disabilities but also strengthens social cohesion by preparing everyone involved to deal with diversity.

From another point of view, Oliveira, Ziesmann and Guilherme (2016, p. 18) state that "education is a fundamental human right and, therefore, should be made available to all human beings". However, this right must transcend simple access to school, integrating pedagogical practices that welcome diversity and respect the specific needs of each student. In this context, Narciso *et al.* (2024, p. 715) emphasize that inclusion requires the

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educational system to offer "a welcoming and efficient learning environment" so that all students have their potential recognized.

At the same time, the implementation of inclusive education requires continuous efforts from all actors involved. As Pinheiro (2020) observes, it is necessary to promote an environment of integration in which teachers, students, and families work together to ensure the full participation of students with disabilities. This approach requires not only structural adaptations, but also a cultural shift that recognizes inclusion as an opportunity for growth for the entire school community.

Finally, it is important to emphasize that inclusive education is, in addition to a right, an ethical commitment to human dignity. Oliveira, Ziesmann and Guilherme (2016) reinforce that education should be understood as a means to promote the integral development of all individuals, contributing to the construction of a more just and egalitarian society. Therefore, when dialoguing with the constitutional frameworks and challenges pointed out by the literature, it is clear that educational inclusion is not only a legal requirement, but also an indispensable social need to ensure respect for diversity and the promotion of equity.

## TECHNOLOGY AND INCLUSION: PEDAGOGICAL ADJUSTMENTS AND THE ROLE OF TICS IN THE CONSTRUCTION OF INCLUSIVE EDUCATION

Inclusive education requires adaptations that go beyond the modification of pedagogical practices, also covering structural, communicative and methodological issues. In this sense, Silva and Carvalho (2017, p. 300) highlight that "teachers deem it necessary to make methodological, pedagogical, infrastructure and communicative adjustments for the development of teaching". However, these changes still face significant barriers, including the lack of training and engagement on the part of educators and other education professionals, as the same authors point out:

> teachers and other professionals are not trained in the area of school inclusion and lack philosophical and political engagement to meet the guidelines of this new paradigm (Silva; Carvalho, 2017, p. 302).

In addition, the need for a more comprehensive look at inclusive education is emphasized, considering not only didactic adaptations, but also changes in cultural and social aspects of the school environment. According to Silva and Carvalho (2017, p. 302), "there is a need to look at all areas of inclusive education, with the need to verify and

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modify issues that are not only didactic". In this context, inclusion should be seen as a collective effort that involves pedagogical planning, institutional restructuring, and training of the actors involved.

To achieve this goal, technology emerges as an indispensable ally in the inclusion process. Digital information and communication technologies (DICTs), as argued by Santana *et al*. (2021, p. 2096), "are seen as indispensable tools to serve the student of the twenty-first century". They can act to overcome barriers related to communication, access to content and interaction between students, especially those with specific educational needs (SEN). The integration of these technologies in the school environment is pointed out as an effective way to promote engagement and pedagogical efficiency, as observed by Santana *et al.* (2024, p. 14): "The integration of innovative technologies in school management can significantly enhance the engagement of the school community and the efficiency of administrative and pedagogical processes".

In this sense, some practical examples illustrate how DICTs can be applied to the inclusion of neurodivergent students in the classroom. Tools such as augmentative reading apps, interactive platforms with text-to-audio support, and speech synthesizers can make it easier for students with communication difficulties to access learning. In addition, the use of mind mapping software can benefit students with attention deficit hyperactivity disorder (ADHD) by allowing them to organize information in a visual and non-linear way. Technologies such as augmented reality (AR) have also proven effective in teaching abstract concepts, by offering immersive sensory experiences for students with Autism Spectrum Disorder (ASD).

At the same time, technology must be incorporated in order to foster inclusive language and combat prejudice in schools. Planning activities that discuss the characteristics that make each individual unique, as proposed by Silva and Carvalho (2017, p. 303), can be enriched with the use of gamified platforms that promote interaction between students.

> Plan initial activities that allow discussing the characteristics that make us different and similar to others, minimizing the rejection and loneliness experienced by students with SEN (Silva; Carvalho, 2017, p. 303)

It is a clear example of how inclusive practices can be combined with technology to build a fairer educational environment.

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Finally, the use of DICTs should be seen not only as a support tool, but as a transformative element in the fight for educational equity. Santana *et al.* (2021, p. 2087) reinforce that

> Not only the most needy, but also those responsible for people with disabilities have been fighting for a long time for an optional educational modality that will allow them to fight for equity.

Thus, technological inclusion is an opportunity to rethink educational paradigms, promoting a school that welcomes diversity and celebrates the potential of each individual.

## ASSISTIVE TECHNOLOGY: ENHANCING THE INCLUSION OF PEOPLE WITH DISABILITIES IN THE SCHOOL ENVIRONMENT

Technology has played a key role in the process of inclusion of people with disabilities in school, offering solutions that facilitate the interaction, learning, and autonomy of these students. The advancement of research in universities and the development of practical projects reflect the growing attention to the term 'assistive technology', which has recently been incorporated into the common vocabulary. As previously discussed, digital information and communication technologies (DICTs) are already indispensable in inclusive education, promoting opportunities for access and participation (Santana *et al.,* 2021). In this scenario, assistive technology emerges as an extension of these tools, meeting the specific needs of students with disabilities.

A concrete example is the 'sensory carpet' project developed in partnership with the Association for Assistance to Disabled Children (AACD), aimed at children with mild cerebral palsy. This resource, which measures 1 meter by 1.70 meters, is divided into quadrants with varied textures and materials, allowing occupational therapists to customize activities according to the needs of each patient. In addition, another project completed in collaboration with the Department of Occupational Therapy at USP uses a sensory mat adapted for children with Autism Spectrum Disorder (ASD), aged 5 to 7 years. This interactive tool is controlled by the therapist, allowing playful and therapeutic activities that promote sensory stimulation and engagement. These projects demonstrate how technology can be integrated into the educational environment in a personalized way, expanding the possibilities of learning and interaction for neurodivergent students.

In addition to physical devices, the use of adapted technologies in the classroom has also proven effective. A device was developed that turns on a light when there is

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excess noise, meeting the sensory needs of students with ASD. This type of innovation not only fosters a more welcoming environment for these students but also educates the school community on the importance of respecting differences.

However, inclusion should not be limited to the creation of tools. As Silva and Carvalho (2017) point out, the lack of training and philosophical and political engagement of education professionals is one of the main challenges for the implementation of effective inclusive education. Thus, it is essential that universities, companies and schools invest in continuing education and practices that contemplate different perspectives.

In this context, the role of assistive technology goes beyond its practical functionality. As already discussed by Santana *et al.* (2024, p. 14), the integration of innovative technologies in the school environment can enhance the engagement and efficiency of pedagogical processes. Thus, by incorporating assistive technology as an integral part of educational strategies, it is possible not only to meet the specific needs of each student, but also to create a fairer and more inclusive school environment. In this way, technological inclusion should be seen as an opportunity to transform education into a space that welcomes and values human diversity.

## RESULTS AND DATA ANALYSIS

The results of this study reinforce the relevance and need to integrate assistive and digital technologies in the educational context to promote the inclusion of people with disabilities. The main conclusions point out that the implementation of these technologies can minimize structural and pedagogical barriers, in addition to enhancing the engagement of students with specific needs.

The following table explores the main authors and studies used in the research, organizing their contributions in a clear and systematic manner. Each entry presents the author's name, the year of publication, the subject addressed in his research and the relevance of this contribution to the topic discussed.

Table 1 - Referenced authors

| Author(s) | Year of Publication | Research Subject | Relevance of the Research |
|---|---|---|---|
| Silva; Carvalho | 2017 | Inclusive education and pedagogical adaptations | They highlight the need for methodological and formative adjustments for effective inclusion, in addition to structural barriers. |
| Miranda | 2001 | School planning and inclusive pedagogical practices | It defends the creation of schools adapted to individual differences, promoting learning for all. |

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|---|---|---|---|
| Pine | 2020 | Human rights and equality in inclusive education | It emphasizes inclusive education as a practice that respects human dignity and ensures equal access to education. |
| Olive tree; Ziesmann; William | 2016 | Education as a human right and its universalization | They emphasize that education must be accessible to all as a fundamental human right. |
| Narciso *et al.* | 2024 | Inclusion and efficient learning environment | They discuss the creation of welcoming school environments to enhance the development of students with disabilities. |
| Santana *et al.* | 2021 | Digital technologies and educational inclusion | They highlight DICTs as indispensable tools to meet the needs of the student of the twenty-first century. |
| Santana *et al.* | 2024 | Assistive technology and pedagogical efficiency | They point out how the integration of innovative technologies increases engagement and promotes inclusion in the school environment. |
| Brazil | 1988 | Constitutional rights related to education | The Federal Constitution of 1988 defines education as a universal right and guarantees access without discrimination. |

Source: author himself.

The practical examples analyzed, such as the sensory mat for children with cerebral palsy and ASD, demonstrate the effectiveness of customizable tools in promoting autonomy and learning. These data corroborate the observations of Santana *et al.* (2024), which emphasize the ability of innovative technologies to increase pedagogical efficiency and promote a more inclusive educational environment.

The significance of these findings goes beyond the practical application of technologies, as they reveal an advance in the conception of inclusive education as an essential human right. This perspective is in line with the arguments of Silva and Carvalho (2017), who defend the need for methodological, pedagogical and communicative adaptations to meet the demands of school diversity. In addition, the tools analyzed reinforce the idea that inclusion is not just a matter of access, but of providing real conditions for learning and social interaction, as pointed out by Oliveira, Ziesmann and Guilherme (2016.

These findings also find an echo in previous research exploring the role of technology in inclusion. The work of Santana *et al*. (2021), for example, already highlighted DICTs as indispensable to meet the demands of the twenty-first century student. However, this study contributes by exploring the specific application of assistive technologies, such as sensory and adaptive devices, in educational contexts. Such an approach broadens the understanding of technology as a tool not only for access, but for pedagogical and social transformation.

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However, it is necessary to recognize the limitations of the findings presented. Although the practical examples show promising results, the analyses depend on specific case studies, which may limit the generalization of the findings. In addition, as Silva and Carvalho (2017) point out, the lack of teacher training in inclusive practices and philosophical and political disengagement in many institutions still represent significant barriers. Such limitations indicate that technological advances must be accompanied by investments in continuing education and structural changes in educational policies.

Another relevant issue is the interpretation of unexpected results, such as the resistance of some educators to the use of assistive technologies, even in the face of evidence of their effectiveness. This behavior can be explained by the absence of a more humanized and inclusive approach in teacher training, as suggested by Pinheiro (2020). The author highlights that inclusive practices require not only tools, but also a change in mentality among educational actors.

In view of these considerations, suggestions for future research include the expansion of longitudinal studies that evaluate the impacts of assistive technologies over time, in different school contexts. In addition, it is essential to investigate the relationship between teacher training and the effectiveness of these tools, exploring methodologies that combine technical and social aspects of inclusion. Finally, research that analyzes the impact of inclusive technologies on large school communities, involving students, teachers, and families, can offer a more coherent view of the challenges and opportunities of this field.

In short, the results and discussions presented reaffirm the importance of technology as an indispensable ally in the construction of a fairer and more equitable education. However, its effectiveness depends on continuous efforts to overcome structural, pedagogical and cultural barriers, as well as on the expansion of studies that deepen the possibilities of inclusion in the educational environment.

## CONCLUSION

The present study aimed to explore how technology, especially assistive and digital technologies, can be integrated into the school environment to promote the inclusion of people with disabilities. The results obtained confirm that these tools play a central role in overcoming pedagogical, structural and social barriers, enabling a more equitable and inclusive environment for all students. Through the analysis of practical projects, such as

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sensory mats and sensory stimulus control devices, it was possible to verify the applicability and effectiveness of technological solutions in meeting the specific needs of students with disabilities.

In addition, the existing limitations were discussed, such as the lack of teacher training and political-institutional disengagement, which still hinder the full implementation of inclusive practices. These barriers highlight the need to align technological advances with investments in training and structural changes in the educational system. Thus, the study also highlighted the importance of a collective effort that involves not only teachers and school managers, but also families, universities and companies committed to the development of inclusive technologies.

Therefore, it is concluded that the objectives of the study were met by demonstrating the relevance of technologies as indispensable tools for educational inclusion. However, the research emphasizes that the effectiveness of these practices requires continuous investment in training and innovation, combined with a cultural change that values diversity as a pillar of education.

Thus, it is encouraged that more research be carried out on the impact of assistive technologies in different contexts and populations, in addition to studies that address the relationships between public policies, teacher training and inclusive practices. Investigating new possibilities for technological customization to meet the diversity of classrooms can contribute significantly to the advancement of a truly inclusive and transformative education.

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