https://doi.org/10.23925/2176-2724.2026v38i4e76349

Difficulties in the reading and writing learning process of students with autism spectrum disorder (ASD): perceptions of Special Educational Support teachers in the public school system of the state of Sergipe

Dificuldades no processo de aprendizagem da leitura e da escrita de estudantes com Transtorno do Espectro Autista (TEA): considerações de professores do AEE da rede pública do estado de Sergipe

Dificultades en el proceso de aprendizaje de la lectura y la escritura de estudiantes con Trastorno del Espectro Autista (TEA): percepciones de profesores de Educación Especializada de la red pública del estado de Sergipe

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Received: 14/05/2026
Accepted: 18/09/2026

Abstract

Introduction: Reading and writing acquisition is configured as a long, complex, and subjective process. In this context, within the field of special education, difficulties are observed not only in the consolidation of teaching practices, but also in the establishment of meaningful and consistent learning. **Objective:** The main objective of this study was to understand, from the perspective of teachers working in Specialized Educational Assistance (AEE), the main linguistic aspects related to the process of learning to read and write among students with autism spectrum disorder (ASD) attending the public education system in the state of Sergipe. **Methods:** This is a qualitative and descriptive study conducted through the administration of a questionnaire developed using Google Forms, consisting of 14 questions related to the reading and writing processes of students with autism. **Results:** Data analysis revealed that aspects such as memorization, syllabic segmentation, phonological awareness, text comprehension, and reading fluency represent major challenges in the learning of reading and writing skills. **Conclusion:** Finally, the findings highlight the need for continued studies from a linguistic-educational perspective regarding these aspects, as well as for further reflection and understanding of language and writing acquisition among students with autism.

Keywords: Autism; Reading; Education Special; Learning Difficulties.

Resumo

Introdução: A aprendizagem da leitura e da escrita se configura como um processo longo, complexo e subjetivo. Diante disso, dentro da educação especial são observadas dificuldades não só na consolidação do ensino, mas na estruturação de uma aprendizagem sólida. Objetivo: O objetivo principal desta pesquisa foi compreender, a partir da perspectiva dos professores do Atendimento Educacional Especializado (AEE), os principais aspectos linguísticos relacionados ao processo de aprendizagem da leitura e da escrita de alunos diagnosticados com Transtorno do Espectro Autista (TEA) atendidos na rede pública do estado de Sergipe. **Métodos:** É uma pesquisa qualitativa de caráter descritivo. Foi realizada a partir da aplicação de um questionário elaborado na plataforma Google Forms, contendo 14 questões sobre os processos de leitura e escrita de alunos com autismo. **Resultados:** Durante a análise dos dados foi possível observar que aspectos como memorização, segmentação silábica, consciência fonológica, interpretação textual e fluência leitora representam grandes dificuldades na aprendizagem da leitura e da escrita. **Conclusão:** Percebe-se a necessidade da continuidade de estudos na perspectiva educacional linguística acerca desses aspectos, assim como refletir e melhor compreender sobre a aquisição da linguagem e da escrita de estudantes com autismo.

Palavras-chave: Autismo; Leitura; Educação Especial; Dificuldades de Aprendizagem.

Resumen

Introducción: El aprendizaje de la lectura y la escritura se configura como un proceso largo, complejo y subjetivo. Ante esto, dentro de la educación especial se observan dificultades no solo en la consolidación de la enseñanza, sino también en la estructuración de un aprendizaje sólido. **Objetivo:** El objetivo principal de esta investigación fue comprender, desde la perspectiva de los profesores que trabajan en la Atención Educativa Especializada (AEE), los principales aspectos lingüísticos relacionados con el proceso de aprendizaje de la lectura y la escritura de estudiantes con Trastorno del Espectro Autista (TEA) atendidos en la red pública del estado de Sergipe. **Metodología:** Se trata de una investigación cualitativa de carácter descriptivo, realizada mediante la aplicación de un cuestionario elaborado en la plataforma Google Forms, el cual contenía 14 preguntas sobre los procesos de lectura y escritura de alumnos con autismo. **Resultados:** Durante el análisis de los datos, fue posible observar que aspectos como la memorización, la segmentación silábica, la conciencia fonológica, la interpretación de textos y la fluidez lectora representan grandes dificultades en el aprendizaje de la lectoescritura. **Conclusión:** Finalmente, se percibe la necesidad de dar continuidad a los estudios desde una perspectiva educativo-lingüística sobre estos aspectos, así como de reflexionar y comprender mejor la adquisición del lenguaje y la escritura de estudiantes con autismo.

Palabras clave: Autismo; Lectura; Educación Especial; Dificultades de Aprendizaje.

Introduction

In the context of inclusive education, there has been a significant increase in enrollment in recent years among students receiving special educational services. Schools provide an environment in which scientific knowledge is mediated and make a significant contribution to students' development. In this context, numerous questions arise regarding the process of learning to read and write among individuals with autism spectrum disorder (ASD).

Special education professionals frequently report difficulties in teaching these students. Studies[1] indicate that many educators struggle to design and plan activities based on students' specific difficulties. This is because they feel uncertain about the different ways students learn and about what each student has already mastered.

Specialized Educational Assistance (*Atendimento Educacional Especializado*, AEE), therefore, provides a setting for facilitating learning. Moraes and Silva[2] highlight the role of resource rooms in teaching literacy to students with ASD. Based on a literature review, they reveal that the use of resources adapted to each student's individual needs is essential for the process.

Meaningful and relevant instruction involves developing teaching strategies and using tools tailored to the difficulties identified by teachers[3]. For this reason, the learning environment should also foster the students' desire to learn.

It is equally important to understand which language-related aspects pose the greatest challenges for students with ASD. Given their difficulties with communication and oral language acquisition, learning to read and write can be particularly demanding for these students. The challenge is even greater when it comes to teaching reading and writing through a literacy-oriented approach. Although the acquisition of reading and writing skills (*alfabetização*) and the ability to use reading and writing in social practices (*letramento*) are distinct concepts, developing both requires more than learning letters and sounds; it also involves participation in collective and social contexts[4].

Studies[5] indicate that students with ASD generally experience greater difficulties throughout the literacy acquisition process. A proper understanding of these difficulties requires recognizing that reading and writing involve several skills. Key components include sound-letter relationships, reading comprehension, spelling, and subject-verb and noun-adjective agreement. In the acquisition of reading and written language and in the development of learning among students with ASD, these skills often require particular attention.

Furthermore, linguistic components such as reading comprehension are directly related to oral language skills and letter recognition, among other abilities. Difficulties in associating sounds with their corresponding written representations directly affect the reading of words, sentences, and texts, while also contributing to gaps in inferencing and reading comprehension[6].

Considering the studies discussed above and the various gaps in learning to read and write within the context of AEE, the following questions are raised: What are the main difficulties observed in the process of learning to read and write with regard to linguistic aspects? In educational research focused on this area, what factors are associated with these difficulties? How frequently do these difficulties occur?

Thus, the primary objective of this study is to understand, from the perspective of AEE teachers, the main linguistic aspects involved in the process of learning to read and write among students diagnosed with ASD attending the public school system of the state of Sergipe.

Method

This was a qualitative, descriptive study. Qualitative research seeks to understand and analyze social phenomena using descriptive approaches[7]. The study was conducted as part of a continuing education program for public school teachers in the state of Sergipe who work in basic education and AEE with students diagnosed with ASD.

The program aimed to deepen participants' theoretical and practical knowledge of reading and written language. It resulted from a partnership between the Federal University of Sergipe and the State Department of Education and Culture of Sergipe (Seduc). In addition to these two institutions, the study was supported by the Secretariat for Continuing Education, Literacy for Youth and Adults, Diversity, and Inclusion (Secadi), under the Brazilian Ministry of Education (MEC). The sessions were held in a hybrid format, with some taking place at the Federal University of Sergipe and others at the Ninth Regional Education Di-

rectorate (DRE 09) in the municipality of Nossa Senhora da Glória.

The program was collaboratively developed with members of the Study and Research Group on Language and Augmentative and Alternative Communication (Gepelc). The theoretical module addressed topics such as the psychogenesis of writing, assessment criteria for reading and writing, and executive functions. The practical module included collaborative group activities, presentations, and the development of lesson plans, game-based strategies, and activity adaptations, among other tasks.

During the practical stage of the module, participants were invited to complete a questionnaire administered through Google Forms. The questionnaire contained a total of 14 questions, which participants answered voluntarily. These included two dichotomous questions concerning participation in specialization courses on ASD and the number of speaking and nonspeaking students; four multiple-choice questions addressing activity adaptation, challenges related to the inclusion of students in special education, and reading and writing skills to be addressed; and eight open-ended questions covering topics such as the municipality where participants worked, the number of students receiving AEE, assessment methods used with students, and approaches to and difficulties in adapting activities.

Inclusion criteria and data analysis

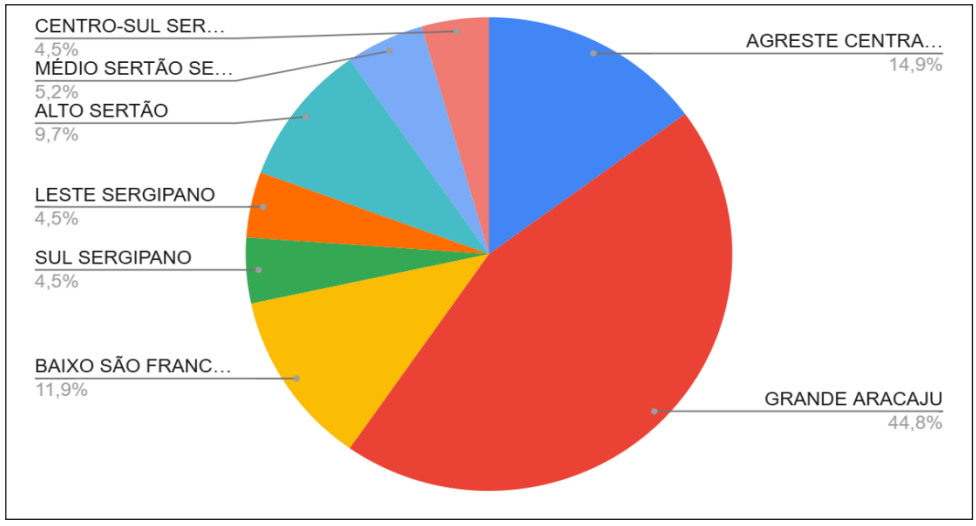
The inclusion criteria were teachers who worked exclusively in AEE, provided services to students with a diagnosis of ASD enrolled in the early or later years of elementary education, and specifically identified language-related difficulties in these students' process of learning to read and write.

Study participants

A total of **174** teachers working in AEE in the state of Sergipe participated in the study. Of these, **seven** participants were excluded because they did not work in AEE, and **nine** because they worked in regular classrooms. Subsequently, **three** participants were excluded because they provided the names of two municipalities in response to a single question, and another **three** because they submitted duplicate responses.

In addition, **two** participants were excluded because they did not work with students diagnosed with ASD, **one** because they did not provide the municipality where they worked, and **another** because they were unable to indicate whether they had students with ASD. **One** response was excluded because the participant reported having no students with disabilities. **Two** responses were excluded because the reported difficulties were related to family involvement in supporting learning at home and frequent absences from the resource room. **Four** participants were excluded because they reported only difficulties related to oral language, and another **four** because they identified motor coordination, cognitive aspects, and literacy-related issues as the main difficulties. **One** response was excluded because the participant identified "perception" as a difficulty without providing further details, and **another** because the participant identified intellectual disability as the greatest difficulty. Finally, **one** response was excluded because the participant worked with children in nursery classes. Thus, after the **40** exclusions listed above, **134** responses were analyzed.

For this article, we examined one question concerning the municipalities in which the participants were located in Sergipe. The purpose of analyzing this question was to characterize the geographical distribution of the teachers who participated in the study and identify their distribution across the state. Figure 1 shows the municipalities in which AEE teachers working with students with ASD were located in the state of Sergipe.



Source: Prepared by the author.

Figure 1. Municipalities where the aee teachers are located

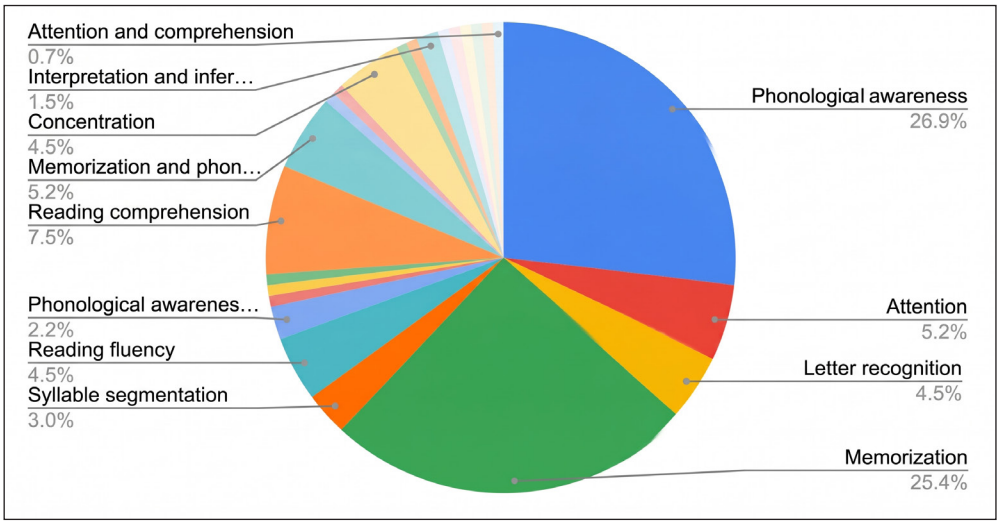
To address the main research objective, responses to the following question were analyzed: "What are the main difficulties observed in students when learning to read and write?" Only the responses from teachers working in AEE with students diagnosed with ASD were included, provided that they identified the main linguistic aspects involved in teaching and learning to read and write.

Data collected through the researcher-developed questionnaire entitled "Reading and Writing in AEE," which included both open- and closed-ended questions, were organized into spreadsheets to facilitate data visualization and analysis.

Results and discussion

After the questionnaire was distributed and the data were collected, the responses were analyzed to identify, from the perspective of AEE teachers in the state of Sergipe, the main linguistic aspects perceived as the greatest challenges in learning to read and to write among students diagnosed with ASD.

Regarding the main linguistic difficulties observed by teachers in the process of learning to read and write (Figure 2), six teachers (4.3%) reported that reading fluency was a major difficulty. Ten teachers (7.5%) identified reading comprehension as a challenge. Seven teachers (5.7%) reported that concentration was the greatest obstacle to learning to read and write. Three teachers (1.5%) identified difficulties in text comprehension involving inferencing. In addition, one teacher (0.7%) reported that the greatest difficulties observed among the students they served were related to attention and concentration. Although these are not linguistic aspects, difficulties in these two cognitive processes may contribute to obstacles in the acquisition of reading and writing skills and, as reported by that teacher, are significant in their teaching practice.



Source: Prepared by the author.

Figure 2. Difficulties observed in reading and writing acquisition

Four teachers (3.0%) reported that learning syllables was the greatest difficulty. Seven teachers (5.2%) identified memorization and phonological awareness as the main difficulties observed in AEE. Thirty-six teachers (26.9%) indicated that phonological awareness was the area in which students experienced the greatest learning difficulties. Seven teachers (5.2%) reported attention-related difficulties. Six teachers (4.5%) referred to letter recognition, while thirty-four teachers (25.4%) identified memorization alone as the greatest difficulty encountered in the resource room. Only three teachers (2.2%) identified both phonological awareness and syllable segmentation as the linguistic aspects presenting the greatest difficulties.

Following the analysis of responses from public school teachers in the state of Sergipe, it is possible to reflect on the difficulties involved in teaching and learning to read and write among students with ASD within AEE. Teachers' responses indicate that these difficulties concern phonological awareness and grapheme-phoneme relationships, reading fluency, inference and text comprehension, as well as letter recognition. Thus, although contemporary academic research has addressed oral and written language and the learning processes of students with ASD, teachers continue to face practical challenges in identifying the main linguistic aspects requiring greater attention and in developing activities specifically targeting these areas.

The findings indicate that phonological awareness is the linguistic aspect most frequently identified by teachers as a major difficulty. Participants also highlighted text comprehension, memorization, and syllable segmentation. Regarding reading and writing among students with ASD, persistent difficulties with phonological awareness are predominantly associated with oral language difficulties[8]. Moreover, semantic difficulties and limited linguistic and lexical repertoire also contribute to challenges in this process.

Students with ASD experience difficulties with socialization and the morphosyntactic structure of discourse[8]. In reading and writing, these difficulties can be readily observed, for example, in the interpretation of instructions.

In addition to morphosyntactic disorganization, difficulties with planning and memory can interfere with the organization of coherent and cohesive discourse. Consequently, when translating their thoughts from speech into writing, students with ASD may struggle to express their ideas in written form, particularly when attempting to understand written material[7].

A study[9] involving children with ASD found that reading requires a range of skills and complex cognitive processes to operate simultaneously. As a result, students experience considerable difficulty both reading and comprehending text at the same time.

Meaningful learning is not limited to mechanical repetition and practice. Social, cultural, and communication perspectives are essential to the development of both effective literacy and reading and writing skills. Accordingly, difficulties with executive functions and pragmatic language and comprehension in ASD contribute to greater challenges in developing reading fluency and inferencing skills[9].

In literacy development involving the acquisition of symbols and sounds, work on phoneme-grapheme relationships, phonological awareness, and syllable segmentation is essential to students' understanding, as these are among the areas in which learning difficulties are most frequently reported in the literature[9].

In a study on reading skills among students with ASD in the public school system in the state of Paraná, the researchers clearly indicated that most students are able to recognize letters of the alphabet. However, they tend to read syllables through decoding, demonstrating significant difficulty understanding what they have read[12]. They also showed semantic difficulties. Another study[10] highlighted that these reading difficulties are associated with communication and social interaction challenges.

In addition to linguistic difficulties, attention and concentration have been identified as obstacles to learning to read and write[13]. These challenges are also observed in the classroom.

In reading, difficulties with symbolic representation, in addition to oral language difficulties, can also hinder the acquisition of reading skills[14]. This is because, alongside challenges involving letter-sound relationships, students may experience semantic and lexical difficulties. Consequently, students with ASD may struggle to form a mental representation of the word and its corresponding image.

Final considerations

Considering the studies discussed above and the analysis of teachers' responses, it is possible to identify several difficulties experienced by students with ASD in teaching and learning to read and write. As shown in the Figures, teachers reported challenges related to phonological awareness, reading comprehension, reading fluency, text interpretation, and letter recognition, among other linguistic processes. Thus, the challenges extend beyond written language and are also related to cognitive functioning, socialization, behavior, oral language acquisition, and pragmatic and semantic aspects, among others.

Therefore, during the assessment process in AEE, understanding these linguistic components, including the identification of those that pose the greatest challenges for students with ASD, can contribute to more comprehensive planning and the development of more structured activities tailored to each student's needs.

There is an urgent necessity for educational practices to be designed around each student's individual characteristics in order to become more inclusive. For activities to serve as a means of consolidating the learning process, ongoing assessment is essential. Nevertheless, the findings also revealed a scarcity of more robust studies addressing specific reading skills and executive functions, for example. Finally, the results of this study highlight the fundamental need for further research on this topic, as well as the importance of examining everyday pedagogical practices from the teachers' perspective.

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