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Companion Manual for the Educational Psychologist for working with students with ASD

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ABSTRACT

Introduction: teaching literacy to students with autism spectrum disorder (ASD) in inclusive settings represents a significant pedagogical challenge, due to their specific neurocognitive characteristics.

Objective: to validate a companion manual for educational psychologists on teaching literacy to students with ASD in the context of Pinar del Río.

Methods: development research at the University of Pinar del Río "Hermanos Saíz Montes de Oca", during the period from September 2024 to November 2025. The sample consisted of 15 educational psychologists from primary schools in the Pinar del Río municipality. Theoretical and empirical methods were used, including documentary analysis, observation, interviews and surveys. Microsoft Word 2016 and Adobe Master Collection CS6 were used for design and digital layout.

Results: it was configured for A4 format paper sheets, 21 cm x 29,7 cm, with three topics and 280 pages. Initial diagnosis showed that 93,3 % of educational psychologists had difficulties in handling procedures for working with ASD, 80,0 % were unfamiliar with the global method, and 93,3 % did not know how to use pictograms. After implementing the manual, significant improvements were recorded in all evaluated indicators, reaching mastery levels above 80 % in most dimensions.

Conclusions: a companion manual for educational psychologists was developed, which was validated as adequate to strengthen their competencies in teaching literacy to students with ASD, with a relevant pedagogical structure and great value as a support tool for inclusive educational practice.

Keywords: Autism Spectrum Disorder; Teaching Materials; Reading; Writing; Models, Educational.

INTRODUCTION

Teaching literacy to students with autism spectrum disorder (ASD) in inclusive settings is a global pedagogical challenge. These difficulties stem from the neurocognitive characteristics of the spectrum, such as differences in sensory processing (with a predominance of visual over auditory processing) and in social communication, which requires specific methodological adaptations that depart from traditional approaches.⁽¹⁾ The success of this process is fundamental, since literacy is a key instrumental tool for accessing the general curriculum and full social participation.⁽²⁾

In this context, the educational psychologist emerges as a key agent, trained to employ innovative methodological resources that promote effective and personalized learning processes; their role is not limited to direct intervention, but includes guidance for teachers and administrators, advice for families, and the adaptation of teaching strategies.^(3,4) However, significant shortcomings are identified in their training, specifically in the concrete preparation of these professionals in effective teaching methods for literacy, such as the global method, which is better aligned with the learning style of students with ASD.

Contextualizing this challenge in Cuba gives the analysis a particular nuance. The country has a political and educational framework explicitly committed to inclusion, reflected in national guidelines and the adoption of international agendas that promote equitable and quality education for all. Despite this solid foundation, practical implementation in classrooms reveals difficulties, as recent years have seen a considerable increase in the number of students diagnosed with ASD. In Pinar del Río, the figure reaches 203, of whom 123 are included in general education,⁽⁵⁾ not always preceded by a period in special transition schools, which increases the demand for specialized support in the regular classroom. This reality tests the system's capacity to respond and, specifically, the preparedness of educational psychologists to act as effective support agents in this new scenario.

This is where the present study identifies and seeks to address a critical gap between research and action. While there is theoretical knowledge about ASD and general principles of inclusion, as well as pedagogical methods identified as suitable (such as global reading), there is a disconnect with the daily practice of educational psychologists. The gap lies in the lack of structured support tools that translate this theoretical knowledge into practical, applicable, and contextualized guidance.^(6,7)

Therefore, the present research was developed with the objective of validating a support manual for educational psychologists on the teaching of literacy to students with ASD in the context of Pinar del Río.

METHODS

A technological development research project was carried out at the University of Pinar del Río "Hermanos Saíz Montes de Oca", in the period between September 2024 and November 2025. The study was organized into three phases: (1) diagnosis of the current state of preparation of psychopedagogues, (2) design and development of the support manual and (3) pedagogical pre-experiment to evaluate its effectiveness, through a single group design with initial and final measurement.

The research employed theoretical methods that provided the foundation for the accompanying manual. The historical-logical method enabled the study of the background and evolution of the training of educational psychologists, particularly regarding the teaching and learning process of literacy in students with ASD in the Cuban and Pinar del Río context.

The analysis-synthesis method allowed the processing of theoretical and diagnostic information on the current state of preparation of educational psychologists in educational centers for working with students with ASD during professional performance, as well as interpreting and synthesizing the results of the diagnosis to organize and structure the support manual.

The induction-deduction method established relationships between the observed facts, the explanations and the conclusions obtained in the process of preparing the educational psychologists, which favored the generalization of regularities.

The modeling method allowed the design and theoretical foundation of the support manual, which is proposed as support material for the preparation of educational psychologists in the teaching-learning process of literacy for students with ASD during professional performance.

The systemic-structural-functional method made it possible to organize the manual as a system of interrelated components (topics, content, media, methodological guidelines).

At the empirical level, documentary analysis was used as a method for analyzing the pedagogical delivery reports. The cumulative records, as well as the assessment guides applied by each specialist and the Autism Spectrum Dimensions Inventory (IDEA), were used. Participant observation was applied during the professional practice of the educational psychologists to record their procedures when working with students with ASD. The semi-structured interview and the survey allowed for a deeper understanding of the educational psychologists' knowledge and difficulties regarding the whole-word method, pictograms, and curricular adaptations for ASD, as well as measuring the indicators established in the operationalization of the category.

Through these methods at different times of the investigation, the study of the theoretical elements related to the topic was achieved, their selection and organization in the preparation of the accompanying manual.

Product development

The product design was developed in several stages: the first stage involved compiling, processing, and organizing the information in text form. The second stage consisted of image processing. The third stage involved designing and preparing the material. The fourth and final stage was the layout and export of the product.

Theoretical knowledge about ASD, characteristics, etiology, and documents about literacy teaching methods were compiled, emphasizing the global method, which is the most suitable for the learning of students with ASD given their visual and associative processing capacity.

Microsoft Word 2016 was used for word processing. The Adobe Master Collection CS6 package was used for design and processing of the material, in which the images and cover were processed in Illustrator.

The product was initially conceived for distribution in digital format, and depending on the availability of resources, for subsequent printing.

Pedagogical pre-experiment

The study population consisted of the educational psychologists from the primary schools in the municipality of Pinar del Río. Of the approximately 20 primary schools in the municipality, 15 have educational psychologists. These 15 psychologists were intentionally selected, thus constituting a census of the available professionals. All are graduates in Pedagogy-Psychology, 14 are women and 1 is a man; their ages range from 23 to 59 years.

As a result of the theoretical framework or literature review, the following category was established for study: support of educational psychologists for the teaching-learning process of literacy for students with ASD, understood as: an individual transformation process achieved as a result of acquiring the knowledge, skills, values and attitudes necessary to evaluate, diagnose and provide personalized assistance to students with ASD in learning to read and write, as well as advising and guiding family members and teachers in working with them.

From this construct, it was possible to establish the features that characterize this category and enable its evaluation, which turned out to be the following:

- Knowledge about the regularities and variability of the development of students with ASD.
- Knowledge possessed by educational psychologists regarding methods and procedures for the psycho-pedagogical characterization and design of educational care strategies for students with ASD.
- Information that educational psychologists possess about the teaching and learning of reading and writing.
- Knowledge about the types of support for the teaching-learning process of literacy for students with ASD.
- Information that educational psychologists possess on how to proceed with the global method.
- Knowledge of how to proceed with pictograms and visual cues.

These characteristics were assumed as indicators used in the construction of the instruments applied to evaluate the state of the category under study.

Descriptive statistics were used for data analysis, calculating absolute and relative percentage frequencies. Triangulation of methods and sources was employed to ensure the credibility of the results.

Informed consent was obtained from all participants. Anonymity and confidentiality of information were guaranteed. The research was approved by the ethics committee and the institutional scientific council.

RESULTS

The cover and main page that identify the product and its authors are shown (Figure 1).

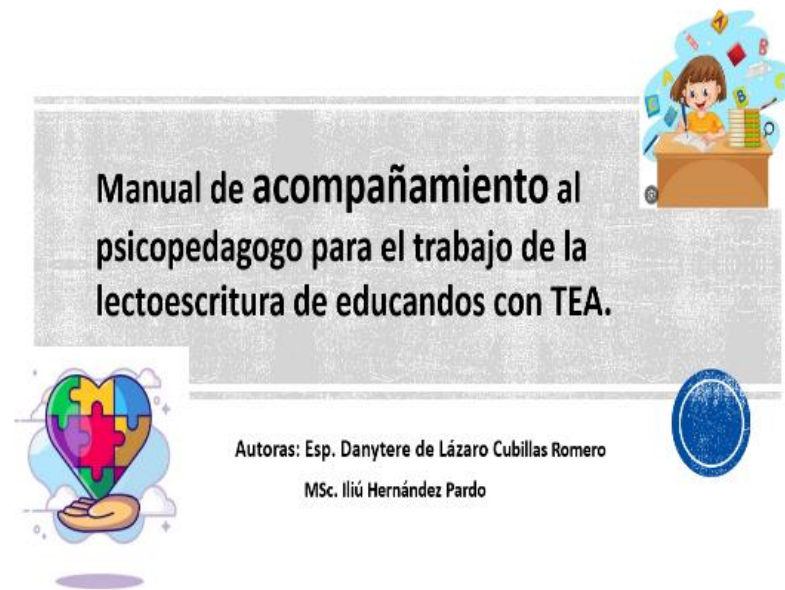


Fig. 1 Cover of the “Manual to support the educational psychologist in the work of literacy in students with ASD.”

It was configured for A4 format paper sheets, 21 cm x 29.7 cm, printed to complete the 280 pages of the material.

The accompanying manual has three topics:

Topic 1: Autism Spectrum Disorder.

Contents:

- Rationale for Autism Spectrum Disorder.
- Causes and characteristics
- The use of pictograms and visual cues

Topic 2. The Literacy Process

Contents:

- Rationale for the teaching and learning process
- Analysis of the methods used in the literacy process.
- Rationale for the global method in the process of learning to read and write.

Topic 3. Global Method

Contents:

- Generalities of the global method
- Rationale for the stages through which the global method passes.
- Teaching media system to be used.

Of the educational psychologists interviewed and surveyed for the validation of the manual (n=15), 93,3 % had difficulties with the knowledge and application of procedures for working with students with ASD, 80 % were unfamiliar with the whole-word approach, and 93,3 % did not know how to use pictograms. Table 1 shows the results of the manual's implementation; it presents the values obtained before and after implementation for the six indicators in the study category.

Table 1. Significant progress in the values taken by the indicators with the application of the proposal.

Characteristic features	Initial stage		Final stage	
	Yeah	No.	Yeah	No.
Knowledge about the regularities and variability of the development of students with ASD.	6,7%	93,3%	93,3%	6,7%
Knowledge possessed by educational psychologists regarding methods and procedures for the psycho-pedagogical characterization and design of educational care strategies for students with ASD.	26,7%	73,3%	93,3%	6,7%
Information that educational psychologists possess about learning to read and write.	6,7%	93,3%	93,3%	6,7%
Knowledge about the types of support for literacy learning for students with ASD.	13,3%	86,7%	93,3%	6,7%
Information that educational psychologists possess on how to proceed with the global method.	20%	80%	93,3%	6,7%
Knowledge of how to proceed with pictograms and visual cues.	6,7%	93,3%	80%	20%

The results show an increase in all indicators. The greatest progress was recorded in indicators 1, 3, and 5, which improved from values below 20 % to over 93 % mastery. Indicator 6 (pictograms and visual cues) showed the least relative improvement, reaching 80 % mastery, with 3 educational psychologists still experiencing difficulties. Indicator 2 (methods and procedures) started from the highest initial value (26,7 %) and also reached 93,3 %.

DISCUSSION

The research and implementation of the Support Manual for Educational Psychologists in Literacy Work with Students with Autism Spectrum Disorder (ASD) reveal a significant gap between the initial training of educational psychologists and the specific demands of inclusive education practice in the Pinar del Río context. The results of the initial assessment confirm that the preparation received during undergraduate training is insufficient to meet the demands of inclusive education, especially regarding knowledge of ASD and the specific teaching methodologies for literacy. This reality is consistent with what has been reported in international and national literature, which has repeatedly highlighted the need for specialized and ongoing training for professionals working with this population.^(8,9,10)

The lack of preparation not only limits the effectiveness of psycho-pedagogical interventions, but also represents an obstacle to the realization of a genuine educational inclusion model, focused on the development of the potential of each student.

A particularly relevant finding of the initial assessment was the asymmetry among the evaluated indicators. While knowledge of methods and procedures for psychoeducational characterization and the design of educational support strategies showed the most favorable starting level, specific knowledge about ASD, the whole-word approach, and pictograms proved to be the most deficient. This configuration suggests that the training of psychoeducational professionals provides them with general tools for characterization and intervention, but not the specialized knowledge required for addressing neurodiversity. This is consistent with the findings of Ravelo et al.,⁽⁴⁾ who warned of the need to strengthen the preparation of Pedagogy-Psychology students for addressing diversity. Therefore, the manual does not start from scratch, but rather builds upon the professionals' prior knowledge and complements it with the content that proved most deficient, which partly explains its relevance and acceptance.^(11,12)

In the Cuban context, this challenge takes on particular nuances. The sustained increase in students diagnosed with ASD in mainstream education, many of them without prior experience in special schools, increases the demand for specialized support in the regular classroom and tests the educational system's capacity to respond.⁽⁵⁾ This reality requires that educational psychologists assume a more active role as support and advisory agents, as demanded by national guidelines and international agreements signed by the country. However, as the results of this study demonstrate, this demand is not always matched by the actual training of professionals. The gap between inclusive discourse and daily practice is, therefore, the central problem that this manual seeks to help resolve.

The effectiveness of the manual is explained, first and foremost, by its situated nature. It does not emerge as an abstract theoretical proposal, but rather as a tool designed based on the real shortcomings identified in the intended users themselves. This correspondence between diagnosis and design is one of the research's main strengths, as it ensures that the manual's content responds to concrete needs and not to external assumptions. In this sense, the results of the present study differ from other proposals for pedagogical support, such as those reported by Herrera-Vilema,⁽⁶⁾ where the support processes, although significant, did not always begin with such a focused diagnosis nor achieve such high levels of appropriation; however, it is consistent with previous studies in the province.⁽⁷⁾ The difference can also be attributed to the modular nature of the manual, which allows for a transition from the theoretical foundations of ASD to the concrete application of the whole-word method, as well as the inclusion of a system of teaching resources that facilitates transfer to practice.

The decision to structure the manual around the whole-word approach constitutes its main scientific and pedagogical strength. As documented by Tordera Yllescas,⁽¹³⁾ students with ASD frequently exhibit a visuospatial learning style, with strengths in associative memory and the global processing of images. The whole-word approach, by starting with the recognition of complete and meaningful words associated with pictograms, takes advantage of these natural strengths, in contrast to synthetic methods that prioritize phonetic decoding, an area that often presents greater difficulties.^(14,15) The manual, therefore, not only teaches a technique, but also promotes a change in didactic approach aligned with the neurodiversity of students with ASD, and provides educational psychologists with a concrete resource to transform their daily practice.

However, the fact that the indicator related to the use of pictograms and visual cues showed the least relative progress, and was even the only one that did not reach the highest level of mastery, warrants careful interpretation. The use of pictograms is not only declarative knowledge, but also a procedural skill that requires sustained practice, feedback, and access to specific graphic resources. The literature has indicated that the implementation of visual supports in the classroom requires not only training, but also material resources and time for reflective practice.⁽¹²⁾ It is possible that some professionals faced limitations regarding the availability of pictograms, familiarity with design software, or the possibility of applying what they learned in real-world contexts during the implementation period. This result suggests the need to conceive of the manual not as a finished product, but as a resource that is enriched by practice and requires follow-up after the initial training. The distinction between declarative knowledge and procedural skills is therefore key to interpreting the results and designing more effective follow-up strategies.

Beyond the percentages, the testimonials gathered during the manual's impact assessment constitute a tangible result that aligns with the professional model of the Bachelor of Pedagogy-Psychology graduate. By strengthening the competencies of educational psychologists, the manual enhances their advisory and guidance role for teachers and families, and contributes to improving the quality of the literacy teaching and learning process for students with ASD. This represents a crucial step toward genuine, high-quality educational inclusion, a central objective of the Cuban education system. As noted by Barbosa Paulo de Aquino et al.,⁽³⁾ the development of professional competencies for working with students with ASD not only improves individual performance but also impacts the quality of the educational service they provide. In this sense, the manual not only benefits educational psychologists but also has a multiplier effect on teachers, families, and ultimately, on the students themselves.

The research, however, has some limitations that must be acknowledged. First, the sample consisted of the educational psychologists available in the municipality of Pinar del Río, which, while constituting a census of the professionals in the area, limits the generalizability of the results to other contexts with different characteristics. Second, the single-group design with pre- and post-intervention measurements, without a control group, does not allow for complete isolation of the manual's effect from other contextual variables, such as parallel training, peer interaction, or the participants' intrinsic motivation. Third, the measurement was taken immediately after implementation, so it is not possible to determine whether the changes persist in the medium or long term. These limitations do not invalidate the results, but they suggest the need for complementary studies with more robust designs and longitudinal follow-up.

Another limitation relates to the nature of the indicators assessed, which primarily measured knowledge and information, rather than procedural skills or attitudes. Although the definition of the study category included knowledge, skills, values, and attitudes, the instruments used focused on the cognitive dimension. Future research should incorporate indicators that allow for the evaluation of knowledge transfer to practice, the quality of the strategies designed by educational psychologists, and the actual impact on the learning of students with ASD. This would allow for a more comprehensive evaluation of educational support and its impact on educational inclusion.

Finally, the study raises new questions that can guide future research. How does the manual perform in rural contexts or in schools with fewer technological resources? What follow-up support strategies are most effective in consolidating the learning acquired? How do teachers and families perceive the manual's impact on the teaching and learning process of students with ASD? What adjustments does the manual require to address the diversity within the autism spectrum itself? These questions, derived from the findings and limitations of this study, contribute to outlining a research agenda that strengthens the training of educational psychologists and, consequently, the quality of inclusive education in Cuba.

CONCLUSIONS

The study led to the development and validation of a support manual for educational psychologists on teaching literacy to students with Autism Spectrum Disorder (ASD). This manual was conceived as a relevant and contextualized tool tailored to the demands of inclusive education in Pinar del Río. Its main contribution lies in articulating the theoretical foundations of ASD with the specific teaching methodologies for literacy, focusing on the whole-word approach and the use of visual aids, in accordance with the neurocognitive strengths of these students. Implementation of the manual demonstrated substantial improvements in the preparation of educational psychologists, confirming its value as a resource to support professional practice and its contribution to strengthening the advisory and guidance role they play with teachers and families. However, persistent difficulties in the procedural mastery of some content, along with limitations inherent in the study's design and territorial scope, suggest the need to conceive of the manual as a resource under continuous development, requiring ongoing support, longitudinal monitoring, and validation in diverse contexts. In this sense, the research not only offers a concrete product for inclusive Cuban educational practice but also opens a work agenda aimed at improving the training of educational psychologists and, consequently, ensuring genuine, equitable, and high-quality educational inclusion for students with ASD.

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Conflict of interest

The authors declare that there is no conflict of interest.

Authorship contribution

DLCR: conceptualization, validation, methodology, research, administration, writing - original draft, writing - revision and editing.

IHP: conceptualization, research, data curation, writing - original draft, writing - revision and editing.

Statement on the use of artificial intelligence

The authors declare that they did not use generative artificial intelligence technologies or AI-assisted tools during the research or writing of this article.

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