

THE INCREASE IN PUPILS WITH SLD AND SEN: POSSIBLE CAUSES AND INTERVENTIONS THROUGH LITERATURE REVIEW AND FIELD INVESTIGATION¹

AUMENTO DE ALUNOS COM TRANSTORNOS ESPECÍFICOS DE APRENDIZAGEM E NECESSIDADES EDUCACIONAIS ESPECIAIS: POSSÍVEIS CAUSAS E INTERVENÇÕES ATRAVÉS DE REVISÃO DE LITERATURA E INVESTIGAÇÃO DE CAMPO

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Abstract: In recent years, there has been a significant increase in the number of children and young people with SLD (Specific Learning Disorders) and SEN (Special Educational Needs) present at school. Only recently has it been realized, thanks to research in the field, identified through a comprehensive literature review, that they are individuals with unique traits and specific learning modalities, to whom a specific operational response must be given. On the basis of the evidence that emerged in the literature, the University of Sassari carried out a qualitative-quantitative survey, as part of the Research Project of National Interest (PRIN), involving a sample of 1,034 teachers and educators from secondary schools of the first and second degree. Starting from the insights that emerged with the analysis of the literature, the present research was carried out, aimed at understanding: the possible causes of the increase in the presence of students with SLD and SEN, the most effective actions to involve families for the assessment and possible diagnosis, the most functional teaching activities for inclusion and the use of the most popular compensatory tools.

Keywords: Scoping review, Specific Learning Disorders (SLD), Special Education Needs (SEN), inclusion, compensatory tools.

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Resumo: Nos últimos anos, houve um aumento significativo no número de crianças e jovens com Transtornos Específicos de Aprendizagem e Necessidades Educacionais Especiais presentes na escola. Só recentemente se percebeu, graças à pesquisa na área, identificada por meio de uma revisão abrangente da literatura, que são indivíduos com características únicas e modalidades específicas de aprendizagem, aos quais uma resposta operacional específica deve ser dada. Com base nas evidências que surgiram na literatura, a Universidade de Sassari realizou uma pesquisa quali-quantitativa, como parte do Projeto de Pesquisa de Interesse Nacional (PRIN), envolvendo uma amostra de 1.034 professores e educadores de escolas secundárias de primeiro e segundo grau. Partindo dos insights que surgiram com a análise da literatura, a presente pesquisa foi realizada, visando compreender: as possíveis causas do aumento da presença de alunos com Transtornos Específicos de Aprendizagem e Necessidades Educacionais Especiais, as ações mais eficazes para envolver as famílias para a avaliação e possível diagnóstico, as atividades de ensino mais funcionais para inclusão e o uso das ferramentas compensatórias mais populares.

Palavras-chave: Revisão de escopo, Transtornos Específicos de Aprendizagem, Necessidades Educacionais Especiais, inclusão, ferramentas compensatórias.

INTRODUCTION

In recent years, there has been an increase in children and youth with SLD (Specific Learning Disorders) and SEN (Special Educational Needs) in the school environment where they spend many hours of their day (Belacchi, 2020). These students have always been present in classrooms, but for a long time they were considered subjects with low intellectual abilities and limited motivation to learn (Dettori, Carboni, 2021). Only recently, research in the field and increased sensitivity within school environments have revealed that these individuals possess unique functional traits and distinct learning styles, requiring a personalized operational response (Yazcayir, Gurgur, 2023). Learning processes have long been a focus of cognitive psychology, offering practical insights to help educators and learning professionals design and implement effective educational activities (Cornoldi, Tressoldi, 2014). However, these recommendations have not always been taken up by teachers and educators; for this reason, many students find a hostile and unmotivating environment that leads them to drop out, first covertly and then overtly (Loopers et al, 2022). At the origin of student failure, it is necessary to make a careful

analysis of how well the referring adults (parents, teachers, and educators) have been able to provide children and youth with quality educational pathways, engaging and motivating them. The study of the learning processes of students in any school setting has, for years now, confirmed the idea that there is no single type of intelligence and that everyone has their own “learning style” (Kyttala et al., 2023). Understanding, therefore, how the learner learns and how the socio-cultural environment can foster or inhibit the development of intelligence, is crucial if we are to try to put each learner in the conditions to be able to express themselves to the fullest (Liese, 2018). Indeed, with Legislative Decree 66/2017 and subsequent regulatory devices, attention has been focused on the importance of full inclusion, including in the organizational and programmatic framework all functional activities so that students with SLD and SEN can also find compensation for their difficulties. All figures in charge of this possibility must, therefore, carry out continuous reevaluation and training to ensure the educational success of each and every one.

Many studies have focused attention on the role of the educator in the implementation of a personalized educational project that would promote the full inclusion of the student, also based on the principle of self-determination that involves the student personally in the entire project activity (Lascioli, Pasqualotto, 2021). More recently, attention has also turned to the role of the educator, who, in collaboration with the family and teachers, is called upon to take charge of the student with SEN, preparing a life project that looks beyond school, in an organic and continuous path (D'Alonzo, 2022).

LITERATURE REVIEW

Within the framework of the Research Project of National Interest (PRIN)⁴, in which the University of Sassari is the leader of a network of units involving the universities of Verona and Parma, a literature review was carried out aimed at identifying the research carried out and in progress regarding the inclusive processes of secondary school students with SLD and SEN. The research related to the literature review was carried out by prioritizing concepts with inclusion criteria such as:

⁴ Literature review related to the Project: PNRR – M4C2 – I1.1- MUR Notice n. 1409 of 14-09-2022 – Call “PRIN 2022 PNRR” – SH3 – P20228H8K7: TASCLE: Training Pathway addressed to support and curricular teachers of middle and secondary level’school – CUP J53D23016860001 - funded by the European Union – Next Generation EU

- Sample: secondary schools in grades I and II.
- Special needs: specific learning disorders and generic SENs
- Population: teachers and educators
- Time frame: the last 10 years of the literature

The databases consulted were those pertaining to scientific publications in the field such as: ERIC (33), Google Scholar (31), Scopus (13), Torrossa (14) and all ANVUR journals of area A-11- D1 and D2 (17) for a total of 108 materials consulted. This systematic literature review aimed to map out inclusive processes by specifically addressing the educational needs of students with SLD and SEN. The choice of a scoping review methodology is justified by its ability to include a wide range of evidence, allowing for a comprehensive understanding of multiple aspects in special education. Its flexible criteria for including studies make it particularly suitable for investigating this specific area in the educational context (Moher et al., 2009). The review question was formulated using the Population Concept Context (PCC) framework.

The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)-ScR (CIT) guidelines. This review focused on students with SLD and SEN in secondary schools in grades I and II to understand what the state of the art is and to help education professionals know what opportunities can be provided for inclusive learning.

A systematic review was used, which, in accordance with Grant and Booth (2009) provides a preliminary assessment of the potential size and scope of the available research literature, with the goal of identifying research evidence that seeks to be systematic, transparent, and replicable. During data extraction, information was systematically collected from the selected studies based on predetermined criteria: first author, year, country, purpose(s), skills considered, setting, educational level, study population, condition/disability addressed, data collection methods, data analysis, and summary of findings.

The extracted data were organized into a structured format through graphing. Descriptive statistics, including frequencies and percentages, were used to summarize the nominal data. Initially, data extraction was largely deductive, guided by the objectives of the review. Later, during the data processing phase, a more inductive approach was taken, thematically analyzing the extracted data to identify patterns, themes, and discrepancies between studies. Finally, the data were systematically coded, identifying both predefined

categories and new significant items. All literature search data were placed on the project record. This process integrated deductive coding (for predicted categories) with inductive coding (for new insights).

The combination of inductive and deductive patterns ensured a cohesive narrative and allowed, for the researchers, useful elements to prepare the next steps from the research:

- surveying the views of teachers and educators through a questionnaire;
- identification of best practices
- action-research in secondary schools
- definition of guidelines, for teachers and educators, to promote inclusive processes.

INCREASE IN SLD AND SEN IN RECENT YEARS IN THE SCHOOL SETTING

The PRIN project's research included analysis of data from recent surveys by the Italian National Institute of Statistics (ISTAT, 2023) on pupils with SEN, which showed a 25% increase over the past four years.

The term SEN, in the Italian context, was formally born with the Ministerial Directive of December 27, 2012 called “Intervention tools for pupils with Special Educational Needs and territorial organization for school inclusion.”

We can divide them into four major areas:

1. *developmentally specific*: these include certified SLD (dyslexia, dysgraphia, dysorthographia and dyscalculia) and ADHD (attention deficit hyperactivity disorder). In these cases, there is no support from a support teacher. In fact, it is the school that develops an individualized educational plan for each student;
2. *motor and cognitive disabilities*: where certified by the National Health Service indicate the need for both the support teacher and the personalized educational plan, which may also include the support of an educator;
3. *related to socio-economic, language, cultural factors*: lack of language proficiency and/or behavioral and relational difficulties fall into this category. These may be highlighted either by the school or by social services. The presence of the support teacher is not expected, but if the resources are there, the support of an educator could be useful;
4. *specific learning disabilities (DDA)*: these are related to different causes and reduced cognitive abilities of different degrees. For example, the autism spectrum, neurological, organic or sensory disorders, Down Syndrome, psychological

disorders and so on. Here again, in addition to the figure of the specialized teacher, the educator can make a useful contribution, in terms of inclusion.

ISTAT data speak clearly: pupils with SEN in Italy, exceed 8% of enrolled pupils, excluding those with certified disabilities.

Analyzing the data of the percentages of pupils with BES shows that:

- 51.8%: with specific learning disorders;
- 35.4%: with socioeconomic, linguistic, cultural disadvantage.

Of the total, 12.3% attend secondary schools; 7% attend elementary school; 5% attend high schools; 17.5% attend vocational schools; and 16% attend art schools.

Compared to the past, the increase in pupils with SEN is 23% (about 113,000). Higher the increase in the regions of Central Italy (+25%) than in those of the North (+22%). In the last four years the highest increase, as we have seen, is in secondary school where they have increased by about 85,000. Pupils with SEN are also increasing in kindergarten. In fact, the ratio to total enrollment shows an increase from 0.9% to 1.3% in four years.

Every pupil with SEN has different abilities and difficulties. For this very reason, to date, there are different types of aids to enhance abilities and compensate for difficulties. The national system, namely inclusive education in Law 170/2010, in Art.5 paragraph 2 and C.M. 5669 de 2011, guarantees “the introduction of compensatory tools, including alternative means of learning and information technology” (Dettori, 2022).

Technology to support learning includes physical tools and software that:

- support the student in learning at school;
- assist in studying at home;
- enable participation and ensure inclusion in the entirety of learning activities;
- make it possible to develop and follow inclusive teaching strategies;
- allow for the integration and expansion of the use of tools in daily lessons (Zurbriggen, Muller, 2024).

Thus, it is clear from international research that there is a need for greater synergy between teachers and educators in the creation of an IEP (Individualized Educational Plan) aimed at students with certified disabilities or a PDP (Personalized Educational Plan) developed for students with SLD and SEN, in collaboration with the family and the health professionals who follow them.

THE RESEARCH: SAMPLE, METHODOLOGY AND DATA

The research was carried out by sharing a qualitative-quantitative questionnaire, with an initial demographic survey part and with 15 questions of different types: 7 multiple-choice, 6 multiple-choice, 1 with Likert scale values, and 1 open-response, created with Google Forms (viewable at the following link: <https://urly.it/3ak02>) and disseminated through social and institutional school and academic channels. The sample included 1,034 secondary school teachers and educators nationwide.

BIOGRAPHICAL AND SERVICE DATA

Out of 1034 responses received, 433 are middle school teachers, 449 secondary school teachers, 73 middle school educators, 79 secondary school educators.

Out of the 433 responses given by middle school teachers, it can be seen that 36.4% have been in service for more than 20 years, 24.5% for 10 to 20 years, 18.2% for 3 to 5 years, 17.3% for at least 5 to 10 years, and only 3.6% for less than two years.

Out of 449 responses of secondary school teachers, 33.1% have been in service for more than 20 years, 24.6% for 10 to 20 years, 21.2% for less than five years, 11.9% for at least three years, and finally 9.3% for less than two years.

Out of 73 responses, 37% of middle school educators work from three to five years, 29.6% from five to 10 years, 18.5% for at least 10 years, and finally 14.8% for less than two years.

Out of 79 responses, 42.1% of secondary school educators have been working from three to five years, 31.6% for at least five years, 20% for at least five years, 15.8% for longer than twenty years, and finally 5.3% for less than two years.

RESEARCH DATA

The first questions of the questionnaire were aimed at surveying the sample's perceptions about the increase in the number of pupils/students with SLD and/or SEN and what the causes of this increase might be. They were also asked what disorders were most detected within the classrooms and, if so, what compensatory tools and dispensatory measures, most used by the sample, in order to ensure better inclusion and more effective learning.

These data can be viewed in Table No. 1 below:

Questions	Teachers	Teachers	Educators	Educators
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	middle school (433)	secondary school (449)	middle school (73)	secondary school (79)
Perception of the increase in the number of pupils with SLD or SEN	94,5% yes 5,5% no	94,9% yes 5,1% no	100% yes	89,5%, yes 10,5% no
1) Greater number of requests for diagnosis and/or certification than in past years	76,4%	83,1%	81,5%	68,4%
2) Recognition of rights L.170/2010 (SLD) or Directive 27/12/2012 (SEN)	20%	25,4%	14,8%	21,1%
3) Excessive use of technology	15,5%	11,9%	11,1%	15,8%
POSSIBLE CAUSES:				
1. Comorbidity between an SLD and a behavioral problem	66,4%	55,1%	70,4%	78,9%
2. Comorbidity between an SLD and autism spectrum disorder	19,1%	18,6%	22,2%	26,3%
3. Dyslexia	40%	53,4%	44,4%	31,6%
4. Dysorthography	30%	28%	18,5%	5,3%
5. Dysgraphia	28,2%	28%	18,5%	10,5%
6. Dyscalculia	25,5%	35,6%	18,5%	21,1%
7. Other	5,5%	2,5%	0%	5,3%
Compensatory tools:	97,3% yes	94,9% yes	96,3% yes	73,7% yes
1. simplified material	82,7%	55,9%	70,4%	78,9%
2. mind maps	80,9%	85,6%	81,5%	89,5%
3. tables	47,3%	39,8%	44,4%	42,1%
4. summary sheets	68,2%	66,1%	22,2%	57,9%
5. calculator	50,9%	45,8%	18,5%	42,1%
6. forms	43,6%	33,1%	14,8%	36,8%
7. voice player	12,7%	14,4%	10,4%	21,1%
8. speech synthesis	12,7%	13,6%	15,2%	15,8%
Dispensatory measures:	72,7% yes	73,7% yes	59,3% yes	52,6% yes
1. Give more time for the performance of a task;	81,8%	80,5%	85,2%	68,4%
2. Do not overload the assignment with tasks;	51,8%,	50%	66,7%	63,2%
3. Dispense with reading aloud;	55,5%	59,3%	55,6%	42,1%
4. schedule audits	79,1%	85,6%	66,6%	57,9%

5. Break down content and tasks into micro-units;	38,2%	39%	40,7%	47,4%
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Table 1: Increasing number of SLDs and SENs, possible causes and strategies used

The sample was, in addition, asked how teachers perceive support from educational institutions when faced with the problems of accommodating pupils with SLD and SEN. In middle school, 81.8% believe that school institutions give the right support to students with SEN. Only 18.2% teachers, believe this is not the case. Of secondary school teachers, 83.1% say that the educational institution in which they work offers them the right support for students with SLD, while 16.9% say the opposite.

Of middle school educators, 51.9% say that the educational institution where they work does not offer them the right support, while 48.1% say the opposite. Finally, of secondary school educators, 78.9% say that the educational institution in which they work does not offer them the right support, while 21.1% say the opposite.

Also, when asked whether the workplace provides them with the support they need, middle school teachers, 49.1% of teachers said they receive it, 38.2% say they receive some of the support they need while 12.7% indicate they do not receive adequate support. Of secondary school teachers, when asked the same question, 61.9% said they were satisfied with the support they receive, 25% were only partially satisfied, and 12.7% indicated they did not receive adequate support.

Out of 73 middle school educators, 44.4% say they are only partly satisfied with the support they receive, while 33.3% say they do not receive adequate support and 22.2% say the opposite. Out of 79 secondary school educators, 52.6% say they are only partly satisfied with the support they receive, while 42.1% say they do not receive adequate support.

In addition, the questions aimed to detect the degree of school-family collaboration. From the data analyzed, 50.9% of middle school teachers find cooperation from the child's family, 47.3% only partially, and the remaining 1.8% indicate that they do not find cooperation from the family. In the case of a negative response, the reason is attributed to *“Not all parents are ‘equipped’ to help their children with their homework. One delegates to the school environment everything that pertains to the sphere of learning.”* or *“Most families of SEN/SLD students do not care about educational success and subsequent achievement of goals and skills.”*

51.9% of middle school educators find only partial cooperation from the child's family, 44.4% say they cooperate with the family, and the remaining 3.7% indicate that they find no cooperation from the family. In the case of a negative response, the reason is attributed to: *“Children with ASDs are quite difficult to manage even from a behavioral point of view, the frustration they feel is often spilled over into the family and often this generates frustration and a sense of helplessness in parental figures as well,”* or *“Unfortunately, collaboration is lacking and it is not always the fault of either the school or the families. I think the fault lies with the lack of expertise and lack of information.”*

60.2% of secondary school teachers find cooperation from the child's family, 34.7%, only partially, while the remaining 5.1% indicate that they do not find cooperation from the family. In the case of a negative response, the reason is attributed to: *“Uninformed, overprotective families, reluctant to make a PDP for fear that the child will turn out “different,”* or *“Often the family demands that all compensatory and dispensatory measures be put in place, always and in any case, regardless of the type of disorder. If this is the case, why ask what measures to apply? So, they prevent or limit the possibility of acquiring better skills and autonomy.”*

52.6% of secondary school educators find only partial cooperation from the child's family, 42.1% say they cooperate with the family, and the remaining 5.3% indicate they find no cooperation from the family. In the case of a negative response, the reason is attributed to: *“They struggle to accept their child's distress, especially in situations of behavioral and relational problems”* or *“Often the family, despite the diagnosis, is not available for any extracurricular interventions (school ones are often not enough).”*

When asked if the educators present in the classroom were helpful, of the middle school teachers, 77.5% responded positively while 22.5% stated how such figures are not supportive during the lesson. Also 79.6% of secondary school teachers answered positively while 20.4% stated how such figures are not supportive during the lesson.

When the question was posed to educators as to whether teachers are supportive during their activities, when asked whether teachers present in the classroom were supportive, 51.9% of middle school educators answered in the affirmative while 48.1% said that such figures are supportive only partially during the lesson.

Finally, 57.9% of secondary school educators stated how such figures are only partly supportive during the lesson, the remaining 42.2% were equally divided in which some educators claim that classroom teachers are a supportive figure the remaining states the opposite.

DISCUSSION ON THE RESULTS OF THE SURVEY

The literature reviewed in the scoping review phase, highlighted:

- increase in recent years of students with SEN;
- the difficulty of the teacher to activate inclusive processes shared with educators, health professionals and families;
- the resistance of many teachers to use innovative technologies to ensure inclusive processes;
- the presence of many students of non-Italian nationality who require the activation of personalized educational pathways;
- the lack of clear guidelines to define effective teaching in collaboration among all stakeholders;
- the need for clear protocols to offer, secondary school students, concrete opportunities to acquire specific skills for entry into the world of work.

The survey of the most recent literature highlights, therefore, the need to activate action-research pathways with teachers in order to identify concrete ways to make inclusion a process that goes beyond school and looks toward the personal and professional fulfillment of the person with disabilities.

This demand, which emerged from the literature survey, was, subsequently, the subject and driving force behind the research described in this paper.

A first aspect that emerged is that the cause of the increase in SLDs and SENs in school is due to the increase in requests for diagnosis and certification, compared to past years, as reported by all teachers and educators and, in particular, those in secondary school. This figure makes one wonder how much, in recent years, training and the gradual increase in studies on the subject, have favored early detection of disabilities and disorders (Pavone, 2015).

Another aspect that emerges from the research, emphasized above all by educators, is the comorbidity between ASDs and behavior disorders; this finding confirms what has been highlighted by studies, which note that, when a child at school does not find an inclusive context, he or she enacts dysfunctional behaviors that create difficulties in classroom management (Dettori, Carboni, 2021).

Another relevant finding concerns the teaching effectiveness in supporting students with SEN; in fact, both teachers and educators, of the two school orders,

highlight the need to use compensatory tools to make the teaching/learning process more effective and, in particular, the use of: simplified materials and mind and concept maps. Technologies can, in this sense, offer great support, as several studies have shown that they are a useful tool for compensating and facilitating learning, although they are not yet widely known and used by classroom and support teachers (Dettori, Letteri, 2019).

Regarding dispensatory measures, attention emerges to give more time to carry out homework and tests. In lower secondary schools, there is greater sensitivity in not overloading the student with SEN with homework. A further attention, especially in secondary schools, is the scheduling of tests to facilitate the organization of the student's time.

An interesting aspect that emerges from the research is the different perception between teachers and educators regarding the school's support in educational and didactic intervention for students with SLD and SEN.

With regard to school-family collaboration, both teachers and educators, in the majority of cases, declare that there is collaboration. When this is lacking, the cause is mainly due to the excessive delegation of the family to the school and the difficulty in accepting the child's disorder/difficulty. Educators, on the other hand, highlight that when there is no collaboration with the family, it is because the parent does not recognize their professional role and would instead like the support of other professionals (speech therapist, psychologist, etc.). This data highlights an aspect that has been repeatedly mentioned in the literature: the educator, too often, is not recognized for his specific professionalism; in the same school his skills are not always adequately valued both in the planning of activities and in the verification of learning (Falcinelli, 2012). The most interesting aspect of the research is the different perception that the two professionals, teacher and educator, have regarding the support received in class. While teachers report having constant support from educators, the latter complain about a lack of appreciation from class teachers and support teachers.

CONCLUSIONS AND RESEARCH PERSPECTIVES

The main data that this survey has provided, and that the literature review has confirmed, is the increase in students with SEN in the different school levels. The teachers' perception of this finding is due to the increase in certifications that in recent years have grown significantly compared to the past. It would be useful to understand, also through the direct involvement of teachers in action-research processes, whether this

increase is due to the larger number of trained professionals who prompt families to make earlier diagnoses than in the past or whether the causes are attributable to other variables.

Empirical research has also highlighted the difficulty of joint work between different professionals and the need for better communication with the families of students with disabilities. A critical issue, highlighted by the survey, is in fact the different perception regarding the collaboration between teachers and educators, for which an in-depth study would be necessary to understand the causes.

The data on the school-family relationship is certainly encouraging, which is generally positive, although in some cases it can be improved, since parents do not always accept their children's difficulties or delegate the responsibility of managing the difficulties to the school. Similar difficulties, as highlighted in this research, are also observed in international contexts beyond Italy, as noted in the scoping review. In particular, the difficulty of care professionals in using common languages hinders the activation of inclusive processes that include training actions, functional to the acquisition of transversal and life skills, also useful in finding a job (Sansavini et al., 2019). In this case, the figure of the School Principal could activate greater synergies and moments of discussion. To respond to these needs for further study, the research project PRIN TASCLE: Training Pathway addressed to support and curricular teachers of middle and secondary level's school, provides joint training paths, experimentation and action research, for the definition of guidelines that can better orient teachers, educators, school managers, parents, health personnel and local authorities, on the specific tasks and responsibilities of each one to promote the real inclusion of students with SEN in a life project that sees them as protagonists even after the formal learning path.

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