

A Multidisciplinary (Psychological–Educational–Speech Therapy) Model for School-Based Intervention for Learners with Specific Learning Disorder: An Applied Approach in the Algerian Context

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Abstract:

This study seeks to propose a multidisciplinary intervention model for children with Specific Learning Disorder (SLD) within the school setting, grounded in the integration of psychological, educational, and speech therapy dimensions within a unified organizational framework. It arises from the issue of weak coordination among stakeholders in educational institutions, along with the continued reliance on fragmented interventions that fail to adequately address the nature of SLD, thereby limiting the effectiveness of the support provided to this population.

The study employs a descriptive-analytical approach based on the review and analysis of theoretical literature and prior research on Specific Learning Disorder and intervention strategies, with the aim of developing a comprehensive framework suited to the specific characteristics of the school context. Accordingly, a progressive model was designed, beginning with early school-based diagnosis, followed by multidisciplinary assessment and the development of an individualized intervention plan, then moving to tiered classroom-based interventions, and culminating in continuous monitoring and evaluation.

The significance of this model lies in its capacity to strengthen integration among educational, psychological, and speech therapy professionals, while positioning the school as the central axis of the intervention process rather than relying heavily on external referrals. It also contributes to improving the quality of interventions, reducing academic failure, and fostering effective school inclusion.

The study concludes that adopting a multidisciplinary approach within the school context is a necessary educational choice for addressing the complexities of Specific Learning Disorder. It further emphasizes the need to field-test the proposed model and refine it based on implementation outcomes.

Keywords: Multidisciplinary model; school-based intervention; learners; Specific Learning Disorder; applied approach; Algerian context

Introduction:

Specific Learning Disorders (SLD) are among the most significant challenges facing educational systems worldwide in general, and in Algeria in particular, due to their direct impact on learners' academic, psychological, and social trajectories. These disorders are not limited to simple academic delay; rather, they represent a complex condition that affects fundamental cognitive processes involved in learning, such as attention, memory, perception, and language processing. As a result, learners with SLD are unable to keep pace with their peers despite having average or sometimes above-average intellectual abilities. From this perspective, understanding and addressing these learning difficulties is no longer a secondary educational option but an urgent necessity imposed by the demands of the modern school, which seeks to ensure equal opportunities and educational equity.

In the Algerian educational context, this issue is particularly significant in light of ongoing reforms within the education system, especially the orientation toward inclusive education and the provision of learning environments that respond to individual differences among learners. However, field reality reveals a gap between educational aspirations and actual classroom practices, as many students with significant learning difficulties do not receive appropriate support. This is due to several factors, including insufficient specialized training for administrative staff and some teachers, limited qualified human resources, and the absence of clear practical models for diagnosis and intervention.

Addressing learning difficulties requires a perspective that goes beyond the traditional view, which reduces the problem to a single dimension—whether pedagogical or psychological—toward a holistic approach that takes into account the interaction of multiple dimensions shaping the child's learning experience. For instance, a student experiencing reading difficulties may simultaneously suffer from weak phonological awareness, attention disorders, or school-related anxiety, all of which affect performance. Therefore, any single-dimensional intervention becomes insufficient to achieve meaningful improvement. This highlights the importance of a multidisciplinary approach based on the integration and coordination of efforts among psychologists, speech and language therapists, teachers, and parents within a structured framework aimed at a comprehensive understanding of the child's condition and the development of an appropriate intervention plan.

Moreover, the school, as the child's natural environment, represents the most suitable setting for implementing such interventions, as it allows continuous observation, direct support, and effective coordination among stakeholders. However, activating this role requires rethinking intervention mechanisms within educational institutions and shifting from a logic of external referral to an internal, collaborative, and organized school-based system. The presence of a multidisciplinary team within the school—or at least closely connected to it—can significantly contribute to early identification of learning difficulties, the provision of targeted and continuous interventions, and the long-term academic support of learners in a way that enhances their chances of success.

Based on these considerations, this article aims to highlight the importance of adopting school-based multidisciplinary intervention strategies through the proposal of an integrated model combining psychological, educational, speech therapy, and family counseling dimensions, in line with the specificities of the Algerian context. It also seeks to clarify the roles of different stakeholders, explain coordination mechanisms among them, and propose practical ways to overcome existing challenges in order to achieve effective and sustainable support for children with Specific Learning Disorders.

1. Research Problem:

The research problem arises from the complex and multidimensional nature of Specific Learning Disorders, which are developmental disorders that do not affect a single aspect of the child's functioning but involve a dynamic interaction between cognitive, linguistic, emotional, and behavioral processes. This complexity makes purely single-discipline approaches insufficient for achieving sustainable improvement in academic performance (Grigorenko et al., 2020).

Recent literature indicates that children with SLD often experience overlapping difficulties, such as co-occurring reading problems, attention deficits, and anxiety, which require integrated interventions addressing these dimensions simultaneously (Interventions for SLD, 2024).

Despite this complexity, educational practices in many contexts, including Algeria, remain fragmented and poorly coordinated among educational and specialist actors. SLD is often addressed either from a purely pedagogical perspective within the classroom or through external referrals that are not integrated into the school pathway. This limits the effectiveness of interventions and delays early support. In contrast, recent trends in special education emphasize that school-based tiered intervention models and multidisciplinary frameworks (RTI/MTSS) offer more effective approaches for early identification and data-driven intervention within the school context (Fuchs & Fuchs, 2006).

Furthermore, research in special education shows that developing intervention programs based on collaboration among different specialists improves academic, social, and emotional outcomes for

children and strengthens school inclusion, particularly when implemented within structured school systems that coordinate teachers, specialists, and parents through data-informed intervention frameworks (Mitchell, 2014).

Accordingly, the research problem can be formulated in the following question: To what extent is it possible to design and implement a school-based multidisciplinary intervention strategy within the Algerian context that can overcome the fragmented nature of current practices, ensure effective coordination among professionals (psychologist, speech therapist, and teacher), and provide comprehensive and integrated support for children with Specific Learning Disorders, thereby improving their academic success and psychological and social adjustment?

2. Objectives of the Study:

This study aims to develop a practical, scientific, and applied framework for a school-based multidisciplinary intervention strategy. This is achieved through the following main objectives:

- A. To analyze the nature of Specific Learning Disorders from a comprehensive and integrative perspective that combines psychological, educational, and linguistic dimensions, allowing for a deeper understanding of the characteristics of this group of learners.
- B. To highlight the limitations and current mechanisms of intervention for children with Specific Learning Disorders within the Algerian school context, and to identify the main shortcomings associated with these practices.
- C. To emphasize the importance of a multidisciplinary approach in improving the quality of interventions provided to children with SLD, through the coordination of efforts among different professionals.
- D. To define the roles of the psychologist, speech and language therapist, and teacher within the school team, ensuring functional complementarity that positively impacts the child's academic performance.
- E. To propose a practical model that includes a school-based Individualized Intervention Plan (IIP) tailored to the specific needs of children with SLD within the Algerian educational environment.
- F. To provide applicable, practice-oriented recommendations that support the adoption of a multidisciplinary intervention strategy within Algerian educational institutions.

3. Significance of the Study:

This study derives its significance from several scientific and practical considerations, which can be summarized as follows:

1. Scientific significance:

The scientific importance of this study lies in its alignment with contemporary trends in school psychology and special education, which emphasize the shift from single-discipline approaches to integrative frameworks when addressing learners with Specific Learning Disorders. It also contributes to enriching local and Arab academic literature by proposing a theoretical-practical model that links various disciplines within a structured and coordinated school-based framework. This area still requires further research and conceptual development, particularly in Arab and Algerian contexts.

2. Practical significance:

The practical importance of this study lies in its attempt to offer an applicable framework that can be implemented within educational institutions. It proposes clear mechanisms for early school-based diagnosis, intervention, and follow-up, which may enhance the quality of care provided to learners with SLD. It also offers a reference framework that can be used by school life facilitators, teachers, specialists, and parents to better coordinate their efforts.

Overall, this study contributes to supporting school inclusion efforts by strengthening the school's capacity to respond to individual differences and reducing rates of academic failure and dropout associated with learning difficulties. It may also serve as a starting point for the development of educational policies based on multidisciplinary collaboration within Algerian schools.

4. Methodology of the Study:

4.1 Nature of the Study:

This study falls within the framework of theoretical and analytical research with an applied dimension. It aims to analyze the scientific literature related to Specific Learning Disorders, and to review the various approaches adopted in addressing this condition, both historically and in contemporary practice, in order to develop a proposed framework for a school-based multidisciplinary intervention strategy. The study relies on the descriptive-analytical method as it is considered the most appropriate for understanding complex educational phenomena and breaking down their different dimensions, especially those requiring the integration of multiple fields of knowledge.

4.2 Adopted Method:

The study is based on the descriptive-analytical method, which involves collecting information from reliable scientific sources, analyzing and critically examining it, linking the findings of previous studies, and extracting theoretical and practical implications.

The descriptive-analytical method is one of the most widely used approaches in educational and psychological research. It focuses on describing phenomena as they exist in reality, then analyzing and interpreting them in order to understand their components and the relationships governing them. This method does not merely involve data collection; it goes further by deconstructing information, comparing findings, and deriving scientific meanings that help in constructing explanatory frameworks or models. It is commonly used in studies aiming to analyze scientific literature or evaluate educational practices, particularly when the goal is to propose a theoretical framework or an applied model based on accumulated scientific evidence (Creswell, 2014).

This method is particularly suitable for the present study, as it does not aim to test empirical hypotheses in the field, but rather to construct a scientifically grounded intervention model based on theoretical and research-based evidence.

5. Theoretical Foundation of the Proposed Model:

The proposed multidisciplinary intervention model is based on a set of theoretical foundations and frameworks that provide an integrated explanatory structure for understanding Specific Learning Disorders (SLD) and the mechanisms of intervention. First, it draws on the cognitive approach, which conceptualizes SLD as resulting from deficits in basic mental processes such as attention, working memory, and processing speed. This perspective directs intervention toward enhancing these cognitive functions in order to improve the learner's academic performance (Grigorenko et al., 2020).

The model also relies on the constructivist approach, which emphasizes that learning is an active process in which the learner plays a central role in constructing knowledge through interaction with the environment. This requires flexible pedagogical practices that take individual differences into account and provide multiple opportunities for understanding, expression, and participation, thereby enhancing learning motivation and reducing academic failure associated with SLD (Tomlinson, 2014).

In addition, the model is informed by several contemporary applied frameworks in special education, particularly the Response to Intervention (RTI) model, which is based on providing tiered interventions according to learners' needs while continuously linking assessment and intervention (Fuchs & Fuchs, 2006). It also draws on the Multi-Tiered System of Supports (MTSS), which extends this logic by integrating academic, behavioral, and cognitive dimensions within a comprehensive school-based collaborative framework (Sugai & Horner, 2002). Furthermore, the model incorporates principles of Universal Design for Learning (UDL), which focuses on adapting the learning environment to accommodate diverse learning styles through multiple means of representation, engagement, and assessment (Meyer et al., 2014).

Moreover, the proposed model is grounded in a tiered intervention logic, based on different levels of support. It begins with general classroom-based interventions, gradually progresses to more specialized support, and ultimately provides intensive individualized interventions for cases requiring in-depth assistance. This structure allows for the adaptation of interventions according to each learner's needs while ensuring continuous monitoring and systematic evaluation of response to intervention over time.

Accordingly, the integration of cognitive and constructivist perspectives with modern intervention frameworks based on tiered support and multidisciplinary collaboration provides a coherent theoretical foundation for building a comprehensive school-based intervention model. These frameworks have been adapted to suit the specific characteristics of the Algerian school context, ensuring practical applicability within available resources and educational conditions.

6. Steps in Constructing the Proposed Model:

The proposed multidisciplinary intervention model was developed through the following steps:

- A.** Analyzing the key concepts related to Specific Learning Disorders.
- B.** Reviewing a set of international intervention models (psychological, educational, and speech therapy).
- C.** Identifying the weaknesses and limitations of current practices in the Algerian school context.
- D.** Integrating findings from previous studies within a comprehensive framework.
- E.** Proposing a scientific and practical model that is applicable within Algerian schools.

7. Presentation of the Proposed School-Based Multidisciplinary Intervention Model:

Based on the above considerations, the proposed model was developed as an integrative framework for supporting children with Specific Learning Disorders within the school environment. It is founded on the principle of coordination among various educational and specialist actors within an organized system aimed at moving from fragmented interventions toward a comprehensive and integrated approach.

The model is based on a dynamic process that combines early school-based diagnosis, tiered intervention, and continuous monitoring. This allows for an effective and responsive approach to learners' needs, ensuring timely and appropriate support throughout their educational trajectory.

The following diagram presents a schematic representation of the proposed school-based multidisciplinary intervention model developed by the researcher:

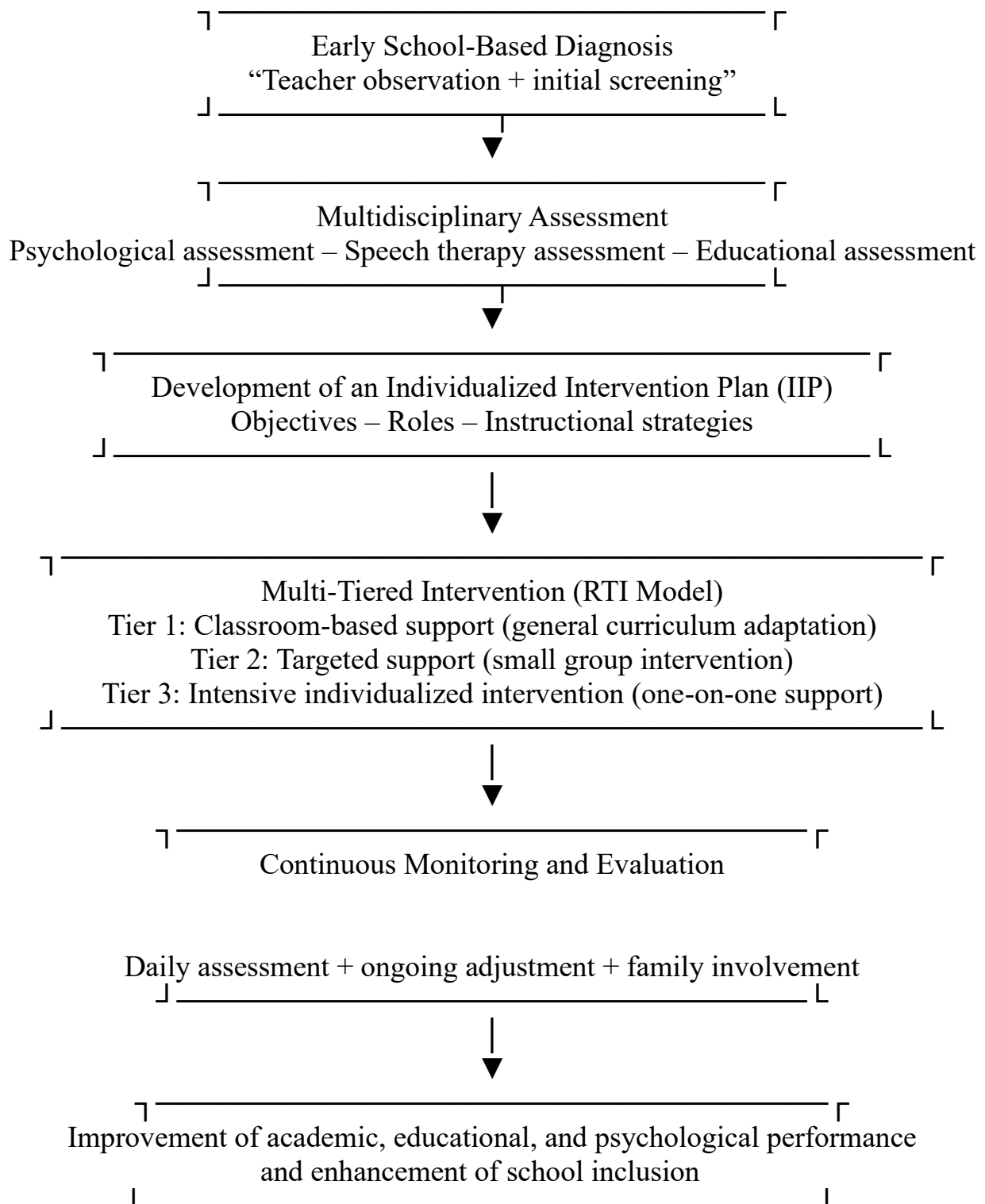


Figure 1: Proposed School-Based Multidisciplinary Intervention Model (Developed by the researcher)

8. Foundations of the Proposed Model:

The proposed school-based multidisciplinary intervention model (developed by the researcher) is grounded in a set of core principles, namely:

- A. **First principle:** Considering the school as the primary setting for addressing Specific Learning Disorders.
- B. **Second principle:** Relying on multidisciplinary teamwork rather than isolated, unidimensional interventions.
- C. **Third principle:** Direct linkage between school-based diagnosis and intervention.
- D. **Fourth principle:** Taking into account individual differences among learners.

9. Components of the Proposed Model:

The proposed multidisciplinary model consists of four interconnected core components:

9.1 Early School-Based Diagnosis:

Early school-based diagnosis represents the first step in the intervention process and takes place within the classroom through:

- Teacher observations of the learner's current academic performance.
- Monitoring indicators of Specific Learning Disorders, such as reading difficulties, writing difficulties, and difficulties in mathematics.
- Identifying behavioral and emotional indicators observed in the classroom.

This stage aims at early detection of learning difficulties before they become more severe or persistent.

9.2 Multidisciplinary Assessment:

The multidisciplinary assessment is conducted through coordination among:

- The **psychologist**, who focuses on cognitive and emotional functioning.
- The **speech and language therapist**, who focuses on language and reading skills.
- The **teacher**, who monitors classroom performance.

The purpose of this assessment is to construct a comprehensive understanding of the child's condition rather than a fragmented or partial diagnosis.

9.3 Development of an Individualized Intervention Plan (IIP):

An individualized intervention plan is developed, including:

- Setting objectives, divided into short-term and medium-term goals.

- Selecting the type of intervention (psychological, educational, or speech therapy).
- Determining the appropriate frequency of intervention sessions for each learner.
- Distributing roles among the previously mentioned professionals.

The main goal of this stage is to organize the intervention process in a structured and targeted manner.

9.4 Multi-Tiered Intervention:

The intervention is implemented across three levels:

9.4.1 Tier 1: Teacher Support within the Classroom

This level represents the starting point of intervention and takes place in the regular classroom. It targets all students without exception, with particular attention to those showing early signs of SLD. It is based on flexible pedagogical adaptations that allow teachers to simplify content and present it in varied ways that suit learners' individual differences. It also relies on differentiated instruction strategies, enabling the same lesson to be delivered through multiple methods adapted to students' abilities and learning pace. This level aims to create an inclusive and supportive learning environment that provides equal learning opportunities and prevents the emergence or worsening of academic and developmental difficulties.

9.4.2 Tier 2: Targeted Specialized Support for Learners

This level represents a more specialized stage of intervention, directed toward a selected group of students who continue to experience difficulties despite receiving general support at Tier 1. Intervention is organized in small groups, allowing for more focused support and closer monitoring of each learner's progress.

It includes targeted psychological, educational, and speech therapy interventions addressing specific areas of difficulty, such as reading skills improvement, phonological awareness development, or language comprehension support. This level combines guided group work with quasi-individual intervention, offering greater opportunities for interaction, immediate correction, and gradual learning enhancement aligned with learners' needs.

9.4.3 Tier 3: Intensive Individual Intervention

This level represents the highest stage of intervention in the proposed model and is directed at learners with severe difficulties who have not responded sufficiently to previous levels of support (Tier 1 and Tier 2).

It is characterized by an intensive individualized approach, where a specific intervention program is designed for each learner based on their precise needs and characteristics. This includes psychological sessions aimed at addressing emotional and cognitive aspects of learning, as well as speech therapy rehabilitation targeting language and academic difficulties, particularly in reading and writing. It also involves a detailed individualized program with clear objectives and continuous monitoring of progress.

The main goal of this level is to provide intensive and sustained support that matches the severity of the difficulty, ensuring meaningful improvement in both academic performance and psychological adjustment.

9.5 Continuous Monitoring and Evaluation:

This stage aims to ensure the effectiveness and continuity of the intervention process. Continuous monitoring and evaluation constitute a fundamental component of successful intervention, as the process does not end with the implementation of programs but requires ongoing and precise tracking of the learner's progress over time. This includes conducting regular assessments to measure the extent to which the set objectives are being achieved, as well as identifying areas of improvement or persistent difficulties.

Based on these findings, the intervention plan is adjusted when necessary, whether in terms of the strategies employed or the intensity and frequency of support, ensuring continuous alignment with the child's needs. In addition, involving the family at this stage is essential, by keeping them informed about the learner's progress and guiding them on how to support the child at home. This follow-up process aims to ensure both the effectiveness and sustainability of the intervention, leading to optimal academic and psychological outcomes.

10. Practical Value of the Proposed Model:

The practical value of the proposed model lies in its ability to generate a tangible impact within the school environment by providing a structured and actionable framework for supporting children with learning difficulties. The model contributes to reducing academic failure through early school-based intervention and tiered support. It also enhances the learner's psychological adjustment by addressing emotional aspects and strengthening self-confidence.

Furthermore, it promotes effective school inclusion by enabling learners to benefit from instruction within the regular classroom in an environment that is more responsive to their educational and psychological needs. The model also improves the quality of intervention within the school by clearly organizing roles and coordinating efforts among stakeholders, thereby reducing randomness

in intervention practices. In addition, it minimizes excessive reliance on external referrals by activating internal support mechanisms and positioning the school as the primary setting for educational and psychological support.

11. Recommendations of the Study:

In light of the findings of this study, it becomes necessary to rethink how children with Specific Learning Disorders are supported within schools by adopting a more comprehensive and coordinated approach. In this regard, the importance of implementing a multidisciplinary strategy becomes evident, as it ensures the integration of roles among various stakeholders rather than relying on isolated and limited interventions.

- Strengthening schools with specialized professionals, such as psychologists and speech and language therapists, is a key step toward improving the quality of intervention. At a minimum, effective communication channels with these specialists outside the institution should be ensured. In parallel, there is a need for continuous teacher training, not only in theoretical aspects of SLD but also in practical classroom strategies, including flexible teaching methods and appropriate pedagogical adaptations.
- Adopting structured Individualized Intervention Plans tailored to each learner's needs is essential, along with ensuring regular monitoring and evaluation. The role of the family must not be overlooked, as it remains a key partner in the intervention process, requiring active involvement and guidance to support the child at home.
- Enhancing the effectiveness of intervention also requires fostering a culture of teamwork within schools, enabling experience-sharing and coordination among stakeholders. In this context, developing continuous evaluation mechanisms becomes crucial for adjusting interventions according to the learner's progress.
- Finally, this study opens the door for future field research to test the proposed model in real educational settings and to measure its effectiveness in improving both academic performance and psychological well-being among learners with Specific Learning Disorders in Algerian schools.

Conclusion:

In conclusion, Specific Learning Disorders constitute a complex educational challenge that extends beyond mere academic delay or failure, involving an interplay of cognitive, linguistic, and emotional dimensions that demand a comprehensive understanding and coordinated intervention. This study has shown that dependence on fragmented or unidimensional interventions within schools

is insufficient to achieve effective outcomes, particularly in light of the diversity of learners' needs and the variability of their difficulties.

From this standpoint, the proposed multidisciplinary intervention model provides a practical framework for restructuring school-based interventions by connecting early diagnosis, specialized assessment, individualized intervention planning, and the implementation of integrated and tiered support adapted to the severity of difficulties, while maintaining continuous monitoring.

The model further underscores the importance of coordination among educational, psychological, and speech therapy professionals, alongside the active involvement of families as a crucial element in the success of any intervention process.

Therefore, adopting such models within Algerian educational institutions can significantly enhance the quality of support, reduce academic failure, and promote more effective school inclusion. This study also highlights that moving toward a multidisciplinary approach is no longer an optional choice but an educational necessity imposed by the complexity of learning difficulties.

Finally, this study serves as a preliminary step toward encouraging further field-based research to examine and refine the proposed model in real school contexts, ensuring its adaptation to the specific characteristics of the Algerian educational environment.

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