Optimizing Psycho-Pedagogical Support Systems for Learners with Intellectual Disabilities: A Comprehensive Framework

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ABSTRACT:

Background and Aim: This study aims to experimentally substantiate the significance and efficacy of developing a conceptual framework and methodological toolkits designed to optimize the psycho-pedagogical support system for learners with intellectual disabilities.

Methodology: The paper delineates the core trajectories, methods, resources, and implementation conditions shaping these enhanced support services, emphasizing their content and practical orientation. The development of these tools was informed by a mixed-methods approach utilizing quantitative surveys and in-depth qualitative interviews. The sample comprised 33 participants - primary school teachers.

Results: Theoretical and practical analyses confirm that introducing comprehensive models into the support framework is vital to addressing these systemic gaps, particularly regarding content optimization for learners with intellectual disabilities. Baseline data from a formative experiment demonstrated that 53% of the experimental group and 44% of the control group were initially unfamiliar with the principles of Universal Design for Learning (UDL). Following an 8-month implementation of the proposed comprehensive support model, unfamiliarity with UDL content and methodologies dropped significantly to just 6% in the experimental group, compared to 37% remaining in the control group. Qualitative findings corroborated these quantitative shifts, showing marked improvement

in the professional capacities and awareness of primary school teachers. Participants demonstrated a clear conceptual understanding of differentiated instruction, recognized the distinct functions of cognitive, sensory, and emotional strategies, and acquired fundamental competencies in their practical application.

Conclusion: To address the identified challenges, a comprehensive psycho-pedagogical support model was developed. This model integrates the theoretical foundations of support for learners with intellectual disabilities, a model curriculum, and optimized methodologies and conditions for intervention. Furthermore, it incorporates exemplary educational games, exercises, and tasks designed to enhance teaching, upbringing, and corrective-developmental workflows, alongside dedicated resources (theoretical frameworks, targeted topics, syllabi) to elevate educator awareness.

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Introduction

Extensive research indicates that the support system for learners with intellectual disabilities requires systemic optimization and comprehensive, structured approaches. To meet these institutional demands, operational toolkits offering integrated solutions have proven highly effective (Creemers & Kyriakides, 2007). Driven by these considerations, this study developed a conceptual framework aimed at enhancing the support ecosystem across all core operational facets, including professional consultation, diagnostic assessment, and auxiliary support services. This approach facilitates the creation of a comprehensive model incorporating distinct methodologies, resources, and paradigms designed to specify and re-adapt the interconnected levels of the support system and its practical execution. The proposed framework systematically accounts for the knowledge, capacities, and skills of all stakeholders involved, alongside the specific ecological environments where these support interventions occur. Furthermore, the significance of this model extends beyond purely instructional metrics, actively reshaping professional mindsets, structural attitudes, and core value systems (Mouta Torrecilla-Sánchez & Pinto-Llorente, 2025).

The intersection of these systemic factors firmly establishes the presented toolkit as an exemplary paradigm of a comprehensive model. Its primary objective is to advance the efficacy of psycho-pedagogical support rendered to learners with intellectual disabilities, as well as their educators, parents, and specialized professionals across school, home, and center-based environments. Consequently, it serves as an authoritative guide and methodological resource for teachers and parents, as well as multidisciplinary professional teams operating within schools, Regional Psycho-Pedagogical Support Centers (RPPSCs), and the Psycho-Pedagogical Support Center (PPSC). These entities provide specialized consultation, corrective-developmental interventions, diagnostic assessments, awareness campaigns, and continuous monitoring workflows. Ultimately, this toolkit is strategically oriented toward elevating the efficiency of collaborative instruction for learners with intellectual disabilities while fulfilling the pedagogical benchmarks of UDL (Zamishchak & Oliiarnyk, 2022; Rose & Meyer, 2005). Based on these findings, it is confirmed that

this research addresses a highly critical contemporary need, and the comprehensive support model introduced within its scope constitutes a distinct scientific novelty.

Research Methodology

To achieve the research objectives, a comprehensive mixed-methods data collection strategy was employed. This approach integrated professional literature analysis, sociological surveys, and in-depth qualitative interviews embedded with elements of the PARLA methodology (McLeod, 2024). The study, aimed at optimizing the psycho-pedagogical support system for learners with intellectual disabilities, spanned a duration of eight months. Thirty-three primary school teachers were selected to participate in a formative pedagogical experiment: 17 were assigned to the experimental group and 16 to the control group. The experimental research phases were systematically conducted across four public schools in Yerevan, capital of Armenia.

Within the frame of this study Literature Review was selected. An extensive analysis of professional literature addressing this research problem indicates that the efficacy of learning outcomes and social integration for students with intellectual disabilities heavily depends on the specific content and environmental conditions of the psycho-pedagogical support rendered to them (Morgan, 2021; Kunte, Frenzel, Nagy, Baumert & Pekrun, 2011).

This perspective is fundamentally supported by McLeod's (2024) analysis of L. S. Vygotsky's sociocultural theory of cognitive development, which asserts that "cognitive development is a socially mediated process as children acquire cultural values, beliefs, and problem-solving strategies through collaborative dialogues with more knowledgeable members of society" (p. 1). This theoretical foundation allowed us to prioritize the improvement and adaptation of pedagogical conditions within instructional processes and corrective-developmental workflows as core prerequisites for advancing support services. To operationalize this objective, a specialized toolkit structured as a comprehensive model was developed, subsequently yielding the anticipated target outcomes upon implementation.

To quantify the empirical shifts within both the experimental and control groups, pure mathematical calculations were systematically performed using Microsoft Excel's data analysis software. This computational method ensured absolute statistical precision when processing raw survey frequencies into the final percentages utilized across the study's comparative charts.

In designing and optimizing the specific content of psycho-pedagogical support, it is critical to evaluate educators' needs, alongside their baseline levels of preparedness and professional willingness (Chartered College of Teaching, 2024). This requirement gains heightened significance within pedagogical processes involving learners with intellectual disabilities. In these settings, teachers continuously signal a vital need to the scientific and pedagogical community for multifaceted support, clearly defined toolkits, and adapted implementation methodologies (Freeman & Alkin, 2000). Consequently, these specific practitioner demands were embedded directly into the foundation of our developed comprehensive model, shaping its primary orientation, programmatic content, and structural architecture.

Results and Discussion

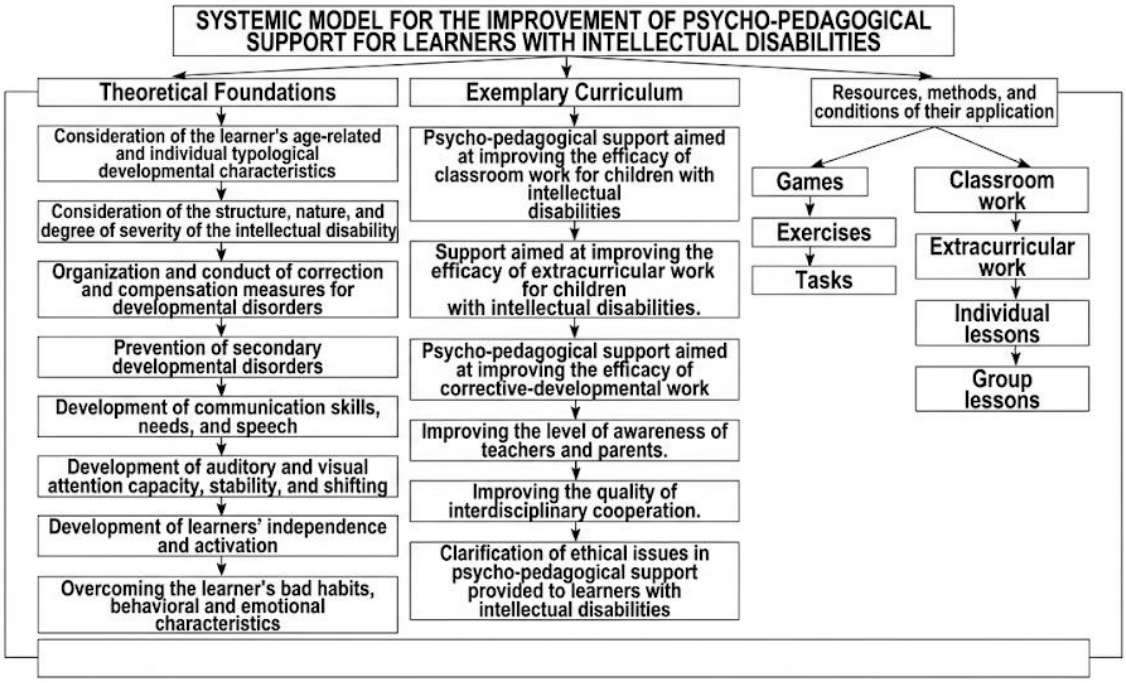
An analysis of the sociological survey data revealed that 53% of the respondents indicated a demand for programs integrating comprehensive pedagogical approaches, 27% highlighted a shortage of scientific, pedagogical, and professional literature in the Armenian language, and 20% emphasized the necessity for targeted professional development training. This finding was further corroborated by the results of the in-depth interviews conducted among the educators. Content analysis of the interview protocols confirmed that the participants, particularly classroom teachers do not fully conceptualize the actual developmental prospects of this cohort of learners. Furthermore, they exhibit gaps in understanding the specific application of instructional and upbringing methodologies tailored to these students, as well as the adaptation

technologies for psycho-pedagogical support within collaborative teaching environments (Table 1).

Given that UDL constitutes an essential framework whose principles and approaches enable the effective instruction of learners with intellectual disabilities and support their corrective-developmental processes, this study examined how the proposed comprehensive model contributed to elevating primary school teachers' awareness levels regarding these issues. An exemplary paradigm of this comprehensive model is presented below (Table 1).

Table 1.

Sample of the comprehensive model.



As clearly demonstrated in the table below (Table 2), prior to the pedagogical experiment, 53% of the respondents in the experimental group and 44% in the control group were unfamiliar with the framework of UDL. Conversely, following the 8-month implementation of the proposed comprehensive support model, only 6% of the participants in the experimental group provided a negative response regarding their familiarity, whereas this figure remained high at 37% within the control group. Furthermore, data indicates that prior to the intervention, a notably high percentage of respondents across both groups experienced difficulty in answering this question. In addition, the qualitative findings corroborated these trends, demonstrating that the participants developed a clear conceptual understanding of differentiated instruction, recognized the distinct functions and significance of cognitive, sensory, and emotional strategies, and acquired fundamental competencies in their practical application.

Table 2.

Assessing the Awareness Level of Primary School Teachers Regarding the Organization and Implementation of Educational Activities for Learners with Intellectual Disabilities.

Question	*Responses*	*Results*							
		Experimental Group				*Control Group*			
		N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
		Before		*After*		*Before*		*After*	
Do you know what UDL is or its principles?	*Yes*	*2*	*12*	*15*	*88*	*1*	*6*	*2*	*12*
	No	*9*	*53*	*1*	*6*	*7*	*44*	*6*	*38*
	Difficult to answer	*6*	*35*	*1*	*6*	*8*	*50*	*8*	*50*

Thus, considering the institutional barriers, difficulties, and complexities inherent in pedagogical processes arising from the psychophysical developmental characteristics of learners with intellectual disabilities, the core requirements for optimizing their support system were established as follows:

1. **The re-evaluation and optimization of educational frameworks:** This entails implementing structured adaptations designed on the basis of the students' specific psychophysical developmental needs and the core principles of UDL.
2. **The re-evaluation and optimization of remedial-developmental intervention frameworks:** This involves enhancing the specific pedagogical conditions necessary to mitigate and overcome the psychophysical developmental challenges of learners with intellectual disabilities across school, RPPSC, and family environments.

Grounded in the empirical data obtained from the theoretical literature review, alongside extensive professional experience and longitudinal research observations, the primary trajectories for optimizing the psycho-pedagogical support system for learners with intellectual disabilities were defined. These include developing the theoretical foundations of the support system and establishing pathways to improve classroom, extracurricular, group, and individual lessons to advance the socio-educational outcomes of this cohort.

These trajectories constitute the core content of the developed comprehensive model for optimizing the psycho-pedagogical support system for learners with intellectual disabilities, which encompasses:

- The theoretical foundations governing the psycho-pedagogical support system for learners with intellectual disabilities;
- A "model curriculum" for optimizing the psycho-pedagogical support system, which serves as the baseline for developing exemplary thematic units to elevate educator awareness, target learning outcomes, self-reflection and self-assessment queries, and structured tasks with corresponding answer keys;
- The specific paradigms, resources, methodologies, and environmental conditions required to implement the optimized psycho-pedagogical support system;
- A model program designed to advance the quality and efficacy of interdisciplinary collaboration between RPPSC multidisciplinary support teams and school-based psycho-pedagogical staff on matters regarding student support.

Based on the core orientations of the section titled "Theoretical Foundations of the Psycho-Pedagogical Support System for Learners with Intellectual Disabilities" within the presented comprehensive model, specific guidelines were

established. These guidelines delineate the structural accounting of intellectual disabilities, the evaluation of learners' potential, inherent strengths, and preserved capacities, and the application of the analytical principle dividing development into the "Zone of Actual Development" and the "Zone of Proximal Development" to facilitate differentiated instruction. Furthermore, it details the interrelation between "primary and secondary disorders" and their respective role from the perspective of organizing instructional and corrective-developmental workflows, alongside the distinctive characteristics of the learning activities of students with intellectual disabilities.

Grounded in the *Comprehensive Model for Enhancing Psycho-Pedagogical Support for Learners with Intellectual Disabilities and the Model Program for Advancing the Quality and Efficacy of Collaboration Between RPPSC Multidisciplinary Support Teams and School Psycho-Pedagogical Staff*, exemplary thematic units were developed and introduced. These units are designed to elevate educator awareness through consultations, seminars, and roundtables, comprising 23 distinct topics structured across ten primary trajectories:

1. Recognizing, accounting for, and overcoming the developmental characteristics of learners with intellectual disabilities;
2. Identifying learning difficulties, understanding their root causes, and implementing targeted interventions;
3. Developing instructional guidelines and methodological support content for teachers, parents, and specialized practitioners;
4. Optimizing remedial-developmental intervention workflows;
5. Stimulating social adaptation mechanisms for learners with intellectual disabilities;
6. Enhancing the quality of instructional, upbringing, and corrective-developmental workflows, and providing practical tasks, exercises, and educational games oriented toward socialization;
7. Advancing the quality and efficacy of organizing and conducting extracurricular and out-of-school activities;
8. Optimizing the structural organization of psycho-pedagogical support for learners with intellectual disabilities;
9. Developing theoretical-practical paradigms aimed at increasing the efficacy of instructional, upbringing, and corrective-developmental workflows for students with intellectual disabilities;
10. Formulating professional pedagogical ethics within the support framework for learners with intellectual disabilities.

Furthermore, based on the section titled "Paradigms, Resources, Methodologies, and Environmental Conditions for Implementing the Optimized Psycho-Pedagogical Support System," the following resources were operationalized:

- Educational games, exercises, and tasks designed to stimulate and develop cognitive interests in learners with intellectual disabilities;
- Educational games, exercises, and tasks for the formation and development of attention span, stability, and shifting;
- Educational games, exercises, and tasks for memory formation and development;
- Educational games, exercises, and tasks for the formation and development of social-communication skills;
- Educational games, exercises, and tasks for speech formation and development;
- Educational games, exercises, and tasks for the formation and development of cognitive/thinking processes;
- Educational games, exercises, and tasks for the formation and development of gross and fine motor skills;
- Educational games, exercises, and tasks for temporal and spatial orientation;

- Educational games, exercises, and tasks for the formation and development of vocational, independent living, and social-daily living skills;
- Methodological adaptations of co-teaching models (One Teach, One Observe; Station Teaching; Parallel Teaching; Alternative Teaching; Team Teaching; One Teach, One Assist) tailored to the individual developmental characteristics and educational needs of learners with intellectual disabilities;
- Adaptations of the direct instruction process to match the individual developmental profiles and learning requirements of students with intellectual disabilities;
- Adaptations of peer-assisted learning and tutoring frameworks;
- Adaptations of cooperative learning models configured to the unique developmental characteristics and educational needs of learners with intellectual disabilities.

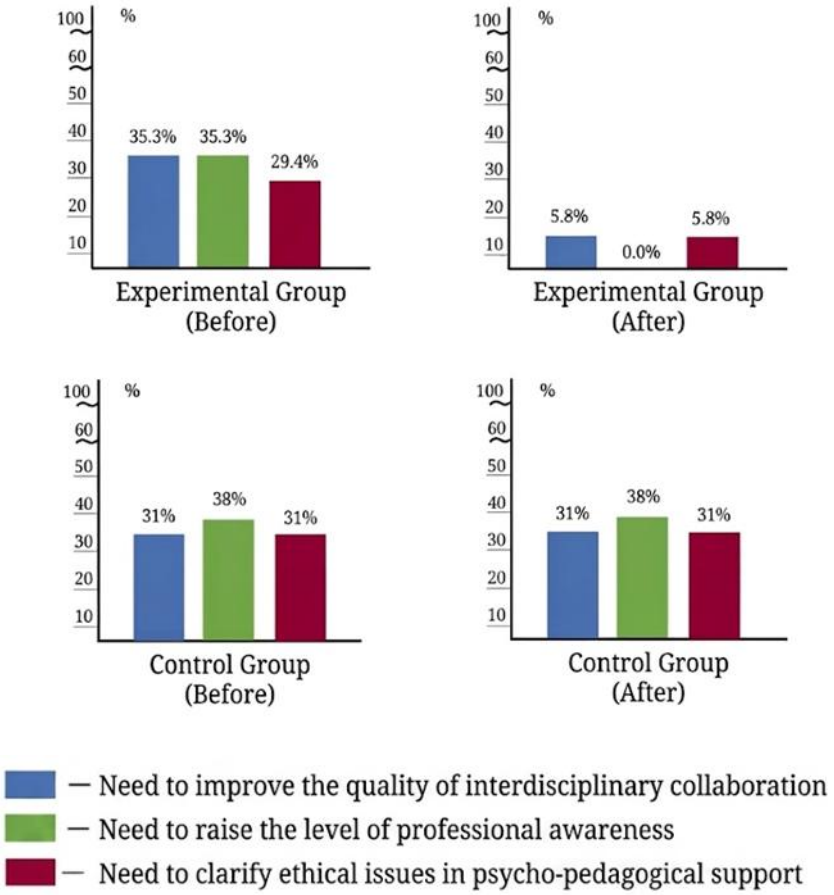
In conclusion, the presented comprehensive model is systematically directed toward the optimization of psycho-pedagogical support for learners with intellectual disabilities. This optimization presupposes an advancement in the quality and efficacy of diagnostic assessment, professional consultation, and corrective-developmental workflows across school, RPPSC, and family settings. Simultaneously, it systematically enhances educator awareness levels and the quality of interdisciplinary collaboration. This comprehensive structural synergy is systematically illustrated in the diagram below (Chart 1).

The chart clearly demonstrates that as a result of our formative pedagogical experiment, the experimental group teachers' need to improve the quality of interdisciplinary cooperation significantly decreased, dropping from 35% to 6%. A nearly identical trend is observed in the indicators regarding the need to raise the level of professional awareness and the need to clarify ethical issues in psycho-pedagogical support. Specifically, the acute need for baseline awareness was completely mitigated, falling from 35% to 0%, which underlines the target efficacy of the model curriculum implemented during the intervention.

In contrast, as illustrated, these baseline indicators within the control group remained virtually unchanged over the course of the eight-month study, lingering at high levels between 31% and 38%. This stark statistical divergence empirically validates that traditional school environments without structured, systemic interventions fail to naturally resolve the professional deficits felt by educators. Ultimately, these findings confirm that the strategic integration of our comprehensive support model successfully bridges the gap between inclusive theory and collaborative classroom practice.

Chart 1.

Primary professional needs assessment indicators of primary school teachers in supporting learners with intellectual disabilities



Theoretical and Systemic Foundations of the Model

Optimizing the psycho-pedagogical support system for learners with intellectual disabilities inherently demands a systemic, multi-tiered framework. To adequately address these institutional and structural needs, educational models must bypass fragmented interventions in favor of holistic, integrated solutions (Creemers & Kyriakides, 2007). Grounded in this systemic paradigm, the comprehensive model developed in this study operationalizes the improvement and conceptual restructuring of interconnected institutional nodes and their concurrent pedagogical operations. Rather than treating inclusion as a localized classroom challenge, our framework conceptualizes psycho-pedagogical support as a dynamic, ecocultural matrix. It systematically accounts for the baseline knowledge, pedagogical competencies, and practical skills of all educational stakeholders, while simultaneously adapting the ecological environments: the classroom, the special institution, the family, and the community within which these support workflows occur.

Furthermore, the empirical data underscores that the utility of this comprehensive model extends far beyond mere instructional or technical skill acquisition. It functions fundamentally as a catalyst for transformative professional growth, restructuring educators' underlying cognitive schemata, deep-seated professional attitudes, and core normative value systems regarding inclusive equity (Mouta Torrecilla-Sánchez & Pinto-Llorente, 2025). This

shift from a deficit-based pedagogical mindset to an asset-based, multi-professional orientation is critical; it alters how educators perceive the educability and adaptive potential of students with intellectual disabilities.

Empirical Validations and Multifaceted Outcomes

Consequently, these findings empirically validate that the developed specialized toolkit constitutes a highly integrated, comprehensive model uniquely capable of optimizing psycho-pedagogical support for learners with intellectual disabilities. By restructuring the programmatic content and procedural delivery of diagnostic assessments, multidisciplinary consultations, and corrective-developmental workflows, the model establishes a fluid continuum of care spanning the public school, the RPPSC, and the family unit.

Quantitatively and qualitatively, the intervention yielded profound shifts in stakeholder readiness. General education teachers, specialized practitioners, and school-based support staff demonstrated a sophisticated conceptual mastery of the specialized content, differentiated methodologies, and evidence-based practices required to navigate the unique psychophysical profiles of this student cohort. Crucially, participants successfully bridged the gap between theory and practice by operationalizing the core tenets of UDL. They adapted pedagogical resources and environmental conditions to accommodate individual variance without reducing academic rigor (McLeod, 2024).

Professional Autonomy and Sustainable Inclusion

A critical outcome of the intervention was the emergence of advanced professional autonomy and a heightened sense of teacher self-efficacy. Educators demonstrated the capacity to independently and creatively deploy peer-assisted learning frameworks, implement adaptive screening mechanisms, and exhibit reflexive pedagogical competencies when working with complex learning profiles.

These targets exit outcomes demonstrate that the systematic toolkits embedded within the comprehensive model comprehensively satisfy the acute professional needs of practitioners serving students with intellectual disabilities. By mitigating the baseline deficits in awareness, collaborative friction, and ethical ambiguity, as illustrated in the experimental data, this model provides a sustainable blueprint for inclusive education. Ultimately, the successful acquisition of these high-level competencies allows classroom teachers to transition from passive implementers of inclusive policy to localized experts and frontline advocates at the institutional level, ensuring the long-term efficacy of the school-wide support ecosystem.

Conclusion

The optimization of the psycho-pedagogical support system for learners with intellectual disabilities represents a critical frontier in the realization of sustainable, equitable inclusive education. This study has addressed this imperative through the design, implementation, and empirical evaluation of a comprehensive systemic model. By structurally uniting theoretical foundations, a target-driven model curriculum, adapted pedagogical resources, and formalized interdisciplinary collaboration protocols, the model shifts the focus of inclusive practice from localized crisis-management to a proactive, structured continuum of care spanning schools, RTPPSCs, and family environments.

The empirical data gathered across the eight-month formative pedagogical experiment provide robust validation for the efficacy of this systemic intervention. Prior to the study, a significant portion of general education teachers and specialized practitioners exhibited pronounced professional vulnerabilities, characterized by systemic deficits in baseline UDL awareness, collaborative friction, and ambiguities regarding inclusive professional ethics. Following the implementation of the model, these deficits were systematically mitigated within the experimental group most notably reflected in the absolute resolution of the primary professional awareness gap (dropping from 35% to 0%) and a marked contraction in collaborative and ethical difficulties.

Conversely, the static nature of the control group's data underscores that traditional, unadapted educational structures fail to naturally alleviate these professional barriers over time.

Ultimately, the significance of this research lies in its dual contribution to theory and practice. Theoretically, it expands the application of structural-functional and sociocultural paradigms within inclusive education by treating the support system as a dynamic, ecocultural matrix. Practically, it provides educational institutions and regional support networks with an operational, highly adaptable toolkit. By empowering classroom teachers to transition from passive executors of inclusive mandates to localized experts and institutional advocates, this model offers a scalable blueprint for enhancing the socio-educational outcomes, social adaptation, and long-term developmental prospects of learners with intellectual disabilities.

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