

Pedagogical practice in the educational care of children with Down Syndrome

Práctica pedagógica en la atención educativa de niños con Síndrome de Down

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Abstract

This article presents the results of a study whose objective was to characterize the teaching practices employed by four elementary school teachers in the educational process of children with Down syndrome. It was a qualitative study using an educational action research design. Data were collected through semi-structured interviews and participant observation, supported by instruments such as interview scripts and field notes. The results show that the teaching strategies implemented by the teachers are limited, revealing a gap between inclusive pedagogical discourse and educational practice.

Keywords: education; inclusive education; educational strategies; teacher training; learning disabilities.

Resumen

Este artículo presenta los resultados de una investigación cuyo objetivo fue caracterizar las prácticas pedagógicas desarrolladas por cuatro docentes de Educación Básica primaria en el proceso formativo de niños con Síndrome de Down. Fue un estudio con enfoque cualitativo, mediante un diseño de investigación acción educativa. Para la recolección de la información se empleó la entrevista semiestructurada y la observación participante, apoyadas en instrumentos como el guion de entrevista y los diarios de campo. Los resultados evidencian

que las estrategias didácticas implementadas por los docentes son limitadas, lo que revela una brecha entre el discurso pedagógico inclusivo y la práctica educativa.

Palabras clave: educación; educación inclusiva; estrategias educativas; formación de docentes; dificultad en el aprendizaje.

1. Introduction

Inclusive education has emerged as one of the main challenges facing educational systems, recognizing education as a fundamental human right that must be guaranteed to all individuals without discrimination. “An inclusive approach to education means that the needs of every individual are taken into account, and that all learners participate and achieve together. It also recognizes that all children can learn” (UNESCO, 2025).

Thus, at the international level, various organizations and studies have shown that, despite the normative and discursive advances in inclusive education, significant gaps remain between educational policies and their effective implementation in school settings. For this reason, at the World Education Forum, UNESCO (2015) stated: “We acknowledge the progress made; however, we remain deeply concerned that we are still far from achieving education for all” (p. 1).

Consequently, the education of children with Down syndrome continues to face multiple barriers associated with insufficient teacher preparation, the lack of clear pedagogical guidelines, and the limited availability of instructional

strategies. These challenges are reflected in teaching practices that, although well intentioned, do not always respond effectively to students' diverse learning paces and styles. As Gerardo Echeita Sarrionandia (2008) notes, “In short, time and again, educational authorities, advisors, teachers, and families are confronted with dilemmas of varying degrees and at different levels, which constitute the very essence of the task of inclusion” (p. 7).

In this context, teacher education has become a strategic priority for educational systems worldwide, as it is essential for achieving the goals of inclusive education. As Cevallos et al. (2025) argue, “Teachers often report feeling uncertain or lacking the necessary tools to address diversity in the classroom. Many educators have received training in inclusive education in a fragmented manner, without a comprehensive approach” (p. 1001).

This situation creates tensions in pedagogical practice, as teachers are required to respond to the specific needs of their students, revealing a gap between the ideal of inclusion and its effective implementation in the classroom. As Luque Espinoza de los Monteros (2006)

states, “Teachers bear a significant responsibility for their own preparation and continuous professional development. This implies that teachers should view students with disabilities in their classrooms as an opportunity for improvement” (p. 26).

Therefore, the purpose of this article is to present the findings of a research study on the pedagogical practices implemented by teachers during the educational processes of children with Down syndrome. The study aims to provide a valuable contribution to critical reflection on educational practice and to support the advancement of more inclusive teaching approaches.

2. Theoretical Framework

Within this context, the theory of Structural Cognitive Modifiability (SCM), developed by Reuven Feuerstein, provides a valuable theoretical framework for understanding the learning processes of children with Down syndrome. The theory conceptualizes cognitive development as a dynamic process that can be transformed through mediated learning experiences. Feuerstein (as cited in Varela et al., 2006) argues that “from the perspective of Structural Cognitive Modifiability, human mediation promotes the development of cognitive structures and enhances the human capacity for cognitive change” (p. 301).

Figure 1. Mediated Learning Experience (MLE)



Source: Feuerstein et al. (1994).

In this regard, the teacher assumes a central role as a mediator of knowledge, being responsible for planning, organizing, and guiding a variety of instructional strategies that promote the activation and strengthening of students' cognitive functions. Within this framework, Velarde Consoli (2008) states that “teachers must be capable of developing adaptive strategies that enable students to cope with a rapidly changing globalized world” (p. 207).

Accordingly, the theory assumes that teachers must be well-trained professionals who possess both the necessary expertise and a positive attitude to guide the learning process. They are responsible for designing challenges through carefully planned strategies and activities that facilitate the achievement of educational objectives. Thus, the purpose of the Mediated Learning Experience (MLE) is to promote individuals' cognitive modification through intentional mediation.

Within this theoretical framework, particular emphasis is placed on the importance of cognitive functions (CFs) in the mental act. These functions enable individuals to receive, select, transform, store, process, and retrieve information. Cognitive functions are closely associated

with neural connections and allow individuals to adapt to new situations and changing environments. Motivation is also recognized as a fundamental component of these cognitive processes.

Reuven Feuerstein classifies cognitive functions into three interconnected phases: Input, Elaboration, and Output. Rather than operating in a linear sequence, these phases interact multidirectionally throughout the mental act, making it possible to identify where cognitive deficiencies occur during information processing.

Based on his conception of learning processes, Feuerstein emphasizes the importance of understanding how learning takes place as a prerequisite for acquiring new knowledge. To achieve this, he proposes the Cognitive Map, from which seven dimensions are derived. These dimensions serve as an analytical framework for identifying deficiencies in cognitive functions across the three phases of information processing—Input, Elaboration, and Output. As Cedillo Quizhpe (2010) explains, the Cognitive Map “is a pedagogical resource that defines the stages through which the mental act can be analyzed, categorized, and organized” (p. 62).

3. Method

This study is grounded in the interpretive paradigm and was conducted using a qualitative approach. According to Guerrero Bejarano (2016), this approach

“seeks to understand the perspectives of the individuals or groups being studied regarding the events surrounding them, exploring their experiences and opinions in order to understand how they subjectively perceive their reality” (p. 2).

Additionally, Roberto Hernández Sampieri et al. (2018) state that “qualitative research focuses on understanding phenomena by exploring them from the participants' perspectives within their natural environment and in relation to their context” (p. 390). Accordingly, this study sought to understand and interpret teachers' pedagogical practices in authentic inclusive educational settings, taking into account the particularities of the educational processes of children with Down syndrome.

The methodological design adopted was educational action research. According to Parra Moreno (2009), “action research analyzes human actions and educational situations experienced by teachers as problematic or in need of improvement” (p. 122). Action research is organized through a cyclical, dynamic, and continuous process that does not follow a linear sequence but rather a spiral structure integrating the phases of observation, planning, action, and reflection.

The participants consisted of four elementary school teachers who were directly involved in the teaching and learning processes of students with Down syndrome. Data were collected through

semi-structured interviews and participant observation. The interviews provided access to teachers' perceptions, experiences, and pedagogical decision-making, while participant observation enabled the systematic documentation of classroom practices.

The research instruments included an interview guide and field journals, which facilitated data triangulation and strengthened the study's internal validity. Data organization was carried out in three stages: organizing the collected information, transcribing the data, and systematizing the findings. This process facilitated the identification of recurring patterns and the emergence of subcategories associated with the main analytical categories. Through continuous review and refinement, these subcategories supported the final categorization process and laid the foundation for interpreting the research findings.

4. Results

The findings of this study reveal that the pedagogical practices implemented by teachers during the educational processes of children with Down syndrome exhibit significant limitations in terms of pedagogical intentionality. In particular, regarding instructional strategies, it was observed that activities such as handicrafts and artistic projects were often presented by teachers in an advanced or nearly completed state. This considerably reduced children's active participation and

limited their opportunities to explore, manipulate materials, and construct knowledge through direct experience. In this regard, Ruiz Rodríguez (2012) states that “the teacher may act as a mediator to bring knowledge closer to the learner, but should always seek to ensure that the child becomes the protagonist of his or her own learning” (p. 28).

Accordingly, although handicrafts and artistic activities have the potential to foster fine motor skills, creativity, and autonomy, their implementation in the observed classrooms functioned more as complementary activities than as pedagogically planned strategies aligned with teaching and learning objectives. As Peraza and González (2021) argue, “teachers should be prepared to incorporate artistic activities as an essential pedagogical strategy that is integrated throughout their educational practice” (p. 4).

The study also highlighted the widespread use of pedagogical worksheets, which were presented without a clear instructional sequence or a direct connection to the curricular content being taught. Once one worksheet was completed, another was immediately assigned, creating a repetitive daily routine that generated signs of fatigue and declining motivation among students, who frequently expressed the need to change activities or engage in tasks unrelated to a clearly defined pedagogical purpose. Valverde (2003) argues that worksheets should function not merely as mechanical

tools for repetitive practice but as pedagogical resources capable of individualizing instruction and responding to students' specific learning characteristics.

Another commonly employed strategy was the use of classroom routines, which constituted a recurring instructional approach to support the teaching and learning processes of children with Down syndrome. These routines were structured around the repetition of daily school activities, facilitating students' adaptation to the educational environment. As Ruiz Rodríguez (2013) explains, “they find it easier to pay attention in familiar, routine, or habitual situations where they recognize most of the environmental cues. Well-structured and repetitive learning situations allow them to focus and sustain attention” (p. 66). From this perspective, routine becomes an essential mediating mechanism that reduces the cognitive demands associated with interpreting the learning environment, thereby allowing greater cognitive resources to be allocated to understanding academic content.

Regarding assessment practices, the findings indicate that formative assessment predominates. This approach emphasizes the learning process rather than final outcomes, enabling teachers to adjust instructional strategies according to individual students' needs while evaluating progress from a qualitative, flexible, and inclusive perspective. As Casanova (2024) notes, “formative assessment evaluates processes, providing continuous

information about how learning develops step by step” (p. 5).

Consequently, the assessment of children with Down syndrome should focus on recognizing their individual abilities and progress, as observed in the participating teachers' practices. In this respect, the literature emphasizes that formative assessment contributes to the development of genuinely inclusive education by creating opportunities for participation and learning through continuous observation, feedback, and instructional adjustment. As stated by the Ministry of National Education of Colombia (2022), “In an educational system based on the principles of inclusion and equity, all students are assessed continuously according to their progress within the curriculum” (p. 21).

From this perspective, assessment is understood not as a mechanism for measuring outcomes or assigning grades, but as a pedagogical tool that accompanies learning, values individual progress, and promotes students' active participation in their own educational process. Accordingly, Cornejo Pino and Almonacid Rivera (2024) affirm that formative assessment “is consistent with the principles of inclusive education because it seeks to provide participation, development, and learning opportunities for all” (p. 53).

With respect to instructional materials, classroom observations revealed that teaching relied predominantly on notebooks and visual materials. Regarding

notebook use, there was little evidence of strategies that transformed notebooks into instruments for cognitive mediation capable of promoting exploration, representation, and students' personal expression. Therefore, it is essential to “introduce open-ended activities with simple and meaningful tasks that are relevant to the child, while occasionally allowing them to choose among different options to increase both motivation and the likelihood of success” (Ruiz Rodríguez, 2012, p. 28). This involves designing activities adapted to each child's abilities and learning pace while incorporating visual supports, pictograms, and graphic sequences.

Similarly, the study identified frequent use of visual resources, particularly images for classifying objects, reinforcing basic concepts, and educational videos. Nevertheless, the findings underscore the importance of incorporating additional resources such as pictograms, sequencing cards, illustrated charts, and digital supports, since, for this population, “learning content should be presented through multisensory approaches” (Ruiz Rodríguez, 2012, p. 26).

Regarding the teacher's role, the findings demonstrate that educators perform a fundamentally affective function in mediating the learning of children with Down syndrome. In this regard, López de Maturana Luna (2010) emphasizes that “thinking about education from the perspective of our teaching role implies

reflecting on the meaning of our everyday educational actions” (p. 27).

Furthermore, the study documented the presence of shadow teachers or support teachers. These individuals were either university students completing their teaching practicum in the school or persons hired directly by families without specialized training in special education. As Elizalde et al. (2023) argue, a shadow teacher “must receive specialized preparation and intensive training” (p. 24). This finding highlights the need to ensure that support teachers receive appropriate pedagogical training focused on diversity, mediated learning, and inclusive educational strategies.

5. Conclusions

The characterization of pedagogical practices revealed that regular classroom teachers demonstrate a positive disposition toward the inclusive education of children with Down syndrome.

However, the findings indicate that instructional strategies are often implemented without clear pedagogical intentionality or systematic alignment with curricular objectives. This limits their educational potential and their contribution to the cognitive development of students with Down syndrome.

The Theory of Structural Cognitive Modifiability provides a key pedagogical foundation for instructional decision-making aimed at supporting the learning of

children with Down syndrome, as it conceptualizes cognition as a dynamic system that can be transformed through intentional mediated learning experiences.

Finally, the findings confirm the need to strengthen pedagogical practice through professional development processes and pedagogical guidance that foster more intentional, coherent, and theoretically grounded mediation. Such efforts can promote the comprehensive development and cognitive modifiability of students with Down syndrome.

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