

Breaking Barriers: Strategies for Supporting Students with Learning Disabilities

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Abstract: *Learning disabilities can create lasting academic and social barriers when teaching methods do not respond to different learning needs. This study examines educational strategies for students with learning disabilities in mainstream schools, with particular attention to Universal Design for Learning, assistive technology, teacher preparedness, family involvement, and institutional support. A mixed-methods design will combine a quasi-experimental pre-test and post-test approach with interviews, focus groups, and questionnaires. The study will involve approximately 120 students aged 10 to 18, along with 20 teachers and 20 parents. A 12-week Universal Design for Learning intervention will be used to assess changes in academic performance, while qualitative data will capture the experiences of students, teachers, and families. Quantitative data will be examined using t-tests, ANCOVA, and effect size measures, while qualitative responses will undergo thematic analysis. The study is expected to clarify how flexible teaching, appropriate learning tools, trained teachers, supportive families, and inclusive school policies can reduce barriers faced by students with learning disabilities. The results may also provide practical guidance for developing inclusive teaching approaches that can be adapted to schools with different social, cultural, and resource conditions.*

Keywords: Learning Disabilities, Inclusive Education, Universal Design for Learning, Assistive Technology, Academic Performance

1. Introduction

Learning disabilities (LDs) are neurologically based processing disorders that affect how individuals acquire, process, and retain information. These conditions, which include dyslexia, dyscalculia, dysgraphia, attention deficit hyperactivity disorder (ADHD), and auditory or visual processing disorders, are among the most prevalent challenges faced by students in educational settings globally. Despite their prevalence, students with learning disabilities continue to encounter significant barriers within conventional educational systems that are largely designed for neurotypical learners.

The significance of this study lies in the urgent need to shift educational paradigms from a deficit-focused model toward an inclusive, strengths-based approach. Research consistently demonstrates that early identification and targeted intervention can substantially improve academic outcomes and quality of life for students with LDs. However, many educators remain under-equipped with effective strategies, and institutional support mechanisms are often inadequate.

Key theoretical frameworks informing this research include Vygotsky's Zone of Proximal Development, Universal Design for Learning (UDL), and the Social Model of Disability. These frameworks collectively advocate for flexible instructional design, peer collaboration, and systemic accommodation of diverse learners.

Despite a growing body of literature on inclusive education, a significant gap persists regarding the practical application of evidence-based strategies in classroom settings, particularly in under-resourced schools. Most existing studies are conducted in high-income, English-speaking contexts, leaving a dearth of culturally adaptive, context-specific research.

Problem Statement

To what extent are current educational strategies effective in supporting students with learning disabilities, and what

evidence-based approaches can be implemented to break systemic barriers and promote equitable academic success?

2. Review of Literature

The literature on learning disabilities spans several decades and disciplines, including educational psychology, special education, cognitive neuroscience, and sociology. Early conceptualizations of LDs were primarily medical in nature, framing them as deficits to be remediated (Kirk, 1962). Over time, however, scholars have advocated for more inclusive and socially constructed understandings of disability.

Universal Design for Learning (UDL), developed by CAST (2018), has emerged as a robust framework for designing accessible curricula. Studies by Rose and Meyer (2002) demonstrated that UDL principles, when systematically applied, significantly reduce barriers to learning and improve engagement among students with LDs. Similarly, differentiated instruction strategies have been shown to enhance academic performance when tailored to individual learning profiles (Tomlinson, 2014).

Assistive technology represents another prominent area of research. Tools such as text-to-speech software, speech recognition programs, and graphic organizers have demonstrated efficacy in supporting students with dyslexia and ADHD (Edyburn, 2013). Research by Strangman and Hall (2004) found that students using assistive technologies showed marked improvements in reading comprehension and written expression.

Peer-mediated instruction and collaborative learning have also received considerable scholarly attention. Fuchs and Fuchs (2005) found that peer tutoring programs improved academic outcomes for students with LDs while simultaneously fostering positive social relationships. Teacher attitudes and preparedness remain critical variables; several studies indicate that negative teacher perceptions and insufficient professional training constitute major barriers to inclusive education (Avramidis & Norwich, 2002).

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A notable gap in the existing literature is the limited focus on family and community involvement as integral components of support systems for students with LDs. Furthermore, there is a lack of longitudinal studies examining the sustained impact of early intervention strategies across diverse socio-cultural contexts. The present study seeks to address these gaps by integrating multi-stakeholder perspectives and examining culturally responsive pedagogical strategies.

3. Objectives of the Study

- 1) To identify and analyze existing educational strategies used to support students with learning disabilities in mainstream classroom settings.
- 2) To evaluate the effectiveness of Universal Design for Learning (UDL) and assistive technology as inclusive instructional approaches.
- 3) To examine the role of teachers, parents, and institutional policies in creating supportive environments for students with learning disabilities.
- 4) To propose evidence-based recommendations for schools to develop more inclusive, barrier-free educational frameworks.

4. Hypotheses / Research Questions

Hypotheses (Quantitative Component)

H₀: There is no significant difference in academic performance between students with learning disabilities who receive UDL-based instruction and those who receive traditional instruction.

H₁: Students with learning disabilities who receive UDL-based instruction demonstrate significantly higher academic performance compared to those receiving traditional instruction.

Research Questions (Qualitative Component)

- 1) What are teachers' lived experiences and perceived challenges when implementing inclusive strategies for students with learning disabilities?
- 2) How do students with learning disabilities perceive their own academic experiences, social inclusion, and access to support within the school environment?
- 3) What institutional policies and family involvement factors contribute to or hinder the effective support of students with learning disabilities?

5. Research Methodology

1) Research Design

This study adopts a mixed-methods research design, integrating both quantitative and qualitative approaches to provide a comprehensive understanding of the research problem. The quantitative component employs a quasi-experimental pre-test/post-test design to evaluate the impact of UDL-based instruction on academic performance. The qualitative component employs thematic analysis of in-depth interviews and focus group discussions. A mixed-methods approach is justified as it allows for triangulation of data, enriching the depth and breadth of findings.

2) Population and Sample

Target Population: Students (aged 10–18) formally identified with one or more learning disabilities enrolled in mainstream schools, along with their classroom teachers and parents.

Sampling Method: Stratified purposive sampling for qualitative data; random cluster sampling for quantitative data.

Sample Size: Approximately 120 students (60 experimental, 60 control), 20 teachers, and 20 parents.

Inclusion Criteria: Students with a formal diagnosis of learning disability, enrolled in Grades 5–12, with parental consent.

Exclusion Criteria: Students with co-occurring severe intellectual disabilities or those without a formal LD diagnosis.

3) Tools / Instruments Used

Academic Performance Assessment Tool (researcher-developed, pre- and post-test format; validated through expert review and pilot testing).

Teacher Attitudes towards Inclusive Education Scale (TAIS) – standardized, Cronbach's $\alpha = 0.87$.

Semi-structured interview protocols for teachers and parents (self-developed, qualitative).

Student Inclusive Experience Questionnaire (SIEQ) – adapted from existing validated instruments, reliability coefficient = 0.82.

4) Procedure

- a) Obtain ethical clearance from the Institutional Review Board (IRB) and school administration.
- b) Distribute informed consent and assent forms to parents, teachers, and student participants.
- c) Administer pre-tests to both experimental and control groups.
- d) Implement a 12-week UDL-based instructional intervention in the experimental group.
- e) Conduct post-tests, teacher interviews, student focus groups, and parent questionnaires.
- f) Ensure participant anonymity, voluntary participation, and the right to withdraw at any stage.

6. Analysis Plan

Quantitative Analysis: Independent samples t-test and ANCOVA to compare pre- and post-test scores between experimental and control groups. SPSS (v.26) will be used for all statistical analyses. Effect size (Cohen's d) will be computed to assess practical significance.

Qualitative Analysis: Reflexive thematic analysis (Braun & Clarke, 2006) will be applied to interview and focus group transcripts. NVivo software will facilitate systematic coding, and member-checking will enhance trustworthiness of findings.

Expected Outcomes

Based on the existing literature and the objectives of this study, the following outcomes are anticipated:

Students receiving UDL-based instruction will demonstrate significantly improved academic performance compared to those in the control group.

Teachers will report both the effectiveness and practical challenges of implementing inclusive strategies, highlighting training needs.

Students will express greater academic confidence and sense of belonging when provided with structured, flexible support.

Parental involvement and institutional policy support will emerge as key enablers of successful inclusive education.

Theoretically, findings are expected to reinforce the applicability of UDL and social model frameworks. Practically, the study will yield a set of context-sensitive recommendations for educators, school administrators, and policymakers aimed at fostering genuinely inclusive educational environments.

7. Limitations of the Study

- **Sample Size and Scope:** The study is limited to a specific geographic region, which may restrict the generalizability of findings to broader or more diverse populations.
- **Duration:** A 12-week intervention period may not be sufficient to capture long-term effects of UDL-based instruction.
- **Self-Report Bias:** Qualitative data from interviews may be subject to social desirability bias among teachers and parents.
- **Heterogeneity of LDs:** The diverse nature of learning disabilities may make it difficult to draw generalized conclusions across all LD subtypes.
- **Resource Constraints:** Variability in school resources may influence the fidelity of intervention implementation across different school sites.

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