Impact of Online Classes on Students with Learning Disabilities

SAFEERA.K [1]

Jain (Deemed-to-be University), Bengaluru [2]

Abstract

This dissertation explores the academic, behavioral, and emotional impact of online learning on children with diagnosed learning disabilities, ranging from Grades 1 to 10[4]. The study adopts a quantitative research design, employing standardized instruments such as the Learning Disabilities Checklist (LDC), the Strengths and Difficulties Questionnaire (SDQ), and the Online Learning Readiness Scale (OLRS), in addition to a custom-designed parent and teacher questionnaire[5]. Data were collected from a purposive sample of parents and teachers across selected schools, with responses analyzed using descriptive statistics, correlation methods, and comparative techniques[6]. The results show that although online learning offered continuity of instruction, it was extremely difficult for students with learning disabilities to focus, control distractions, and stay motivated for their studies[7]. When compared to traditional classroom settings, the results also showed a significant difference in academic performance[8]. In online classes, there were more reports of anxiety, irritability, and social disengagement, which were indicative of emotional and behavioral issues as measured by SDQ scores[9]. It was discovered that parents and students were not sufficiently accustomed to digital platforms, indicating a lack of readiness for online learning[10]. The study comes to the conclusion that, despite their accessibility benefits, online courses fall short in meeting the various learning requirements of kids with learning disabilities in the absence of specialized assistance[11]. In order to reduce adverse effects, the study emphasizes the significance of structured interventions, inclusive pedagogy training for teachers, and parental supervision[12]. There is also discussion of the implications for future research, policy, and real-world implementation in educational settings[13].

Keywords: inclusive education, digital learning readiness, academic performance, emotional health, behavioral issues, online learning, learning disabilities, parental involvement[14].

1. Introduction

1.1 Background

The landscape of education has undergone a perpetual, albeit often gradual, transformation shaped by societal, technological, and cultural shifts[15]. Historically, learning was largely informal, rooted in oral traditions and community-based knowledge sharing[16]. The advent of formal schooling centralized education within the classroom, where teachers disseminated knowledge primarily through lectures and textbooks[17]. Over time, a pedagogical shift from teacher-centered to learner-centered approaches has emphasized active participation, discovery, and critical engagement, facilitated by an increasing integration of technology[18]. From radios and televisions to computers and interactive whiteboards, technology has consistently aimed to move learners from passive recipients to engaged participants[19].

The most profound disruption to this traditional model arrived with the COVID-19 pandemic, which forced a near-overnight global transition to remote online learning[20]. Platforms like Zoom, Google Classroom, and Microsoft Teams became the new educational environments, enabling instructional continuity but also exposing significant disparities in access to technology and digital literacy[21][21][21][21]. While online learning offered unprecedented flexibility and access to global resources, it also presented formidable challenges[22]. The virtual classroom demands a higher degree of independence, self-regulation, and technological proficiency from students[23]. This shift proved particularly challenging for vulnerable student populations, especially those with

learning disabilities (LDs), making it crucial to examine the impact on their academic progress and emotional well-being[24].

1.2 Understanding Learning Disabilities

Learning Disabilities (LDs) are neurodevelopmental disorders that impede the acquisition and application of academic skills, despite the individual possessing average intelligence and receiving adequate educational opportunities[25]. These are not the result of a lack of effort or poor instruction but stem from differences in how the brain processes information[26]. The most prevalent LDs include:

- **Dyslexia:** A specific learning disability of neurological origin characterized by difficulties with accurate and/or fluent word recognition, poor spelling, and decoding abilities[27272727]. It is often related to a deficit in the phonological component of language[28].
- **Dyscalculia:** A specific learning disability affecting an individual's ability to comprehend and manipulate numbers and mathematical concepts[29292929]. It involves challenges with number sense, memorization of arithmetic facts, and mathematical reasoning[30].
- **Dysgraphia:** A learning disability that impacts written expression, encompassing difficulties with handwriting, spelling, grammar, and organizing thoughts in written form[31313131].
- **Attention-Deficit/Hyperactivity Disorder (ADHD):** While not technically an LD, ADHD is a frequently co-occurring neurodevelopmental disorder characterized by persistent patterns of inattention, hyperactivity, and impulsivity that interfere with learning and daily functioning[32323232].

Globally, an estimated 5-15% of school-aged children are affected by an LD[33]. In India, this figure is estimated to be between 10-12% for children in Grades 1-10[34]. These students often face significant disadvantages in traditional classrooms, where large class sizes and standardized pedagogy make it difficult to provide the individualized instruction they require[35]. This can lead to academic frustration, low self-concept, and social marginalization[36].

1.3 The Research Problem and Rationale

The rapid transition to online education has raised critical questions about its efficacy for students with diverse learning needs[37]. For students with LDs, who rely heavily on structured environments and personalized, in-person support, the virtual classroom presents a unique set of obstacles[38]. While digital platforms offer potential benefits like flexible pacing and assistive technologies, they also demand high levels of self-regulation and sustained attention—skills that are often challenging for this population[39]. The unstructured home environment, coupled with screen fatigue and reduced teacher-student interaction, can exacerbate existing learning difficulties[40].

In the Indian context, these challenges are compounded by issues such as inconsistent internet access, a lack of teacher training in digital inclusive pedagogy, and limited parental awareness[41]. Despite the widespread adoption of online learning, there is a significant gap in empirical research on its specific impact on school-aged children (Grades 1-10) with LDs in India[42424242]. Most existing literature focuses on higher education or general student populations, leaving the academic, emotional, and behavioral experiences of younger students with special needs largely unexplored[43].

This study is therefore essential to bridge this knowledge gap[44]. By employing a comprehensive, instrument-based approach, this research aims to evaluate the multifaceted impact of online classes on students with LDs. The findings are intended to inform educators, parents, policymakers, and technology developers, providing evidence-based insights to create more inclusive, supportive, and effective digital learning environments[45]. The ultimate goal is to ensure that online learning serves as a tool that empowers, rather than excludes, students with learning disabilities[46].

1.4 Research Objectives

The primary goal of this study was to examine how online learning environments affect the academic performance, emotional adjustment, and behavioral outcomes for students with learning disabilities[47]. The specific objectives were:

1. To identify the learning challenges faced by children with learning disabilities (such as Dyslexia, ADHD, and Dyscalculia) in an online learning environment[48484848].
2. To assess the impact of online learning on academic performance and compare it with traditional classroom learning[49494949].
3. To evaluate the emotional and behavioral effects of online classes on students with learning disabilities[505050].
4. To measure the adaptability of children with learning disabilities to online education using the Online Learning Readiness Scale (OLRS)[51].
5. To examine the role of parental and teacher support in helping children with learning disabilities cope with online learning[52].

2. Literature Review

Research exploring the intersection of online learning and learning disabilities reveals a complex and often contradictory landscape[53]. While technology offers the potential for significant benefits, such as flexible pacing, repeated practice, and access to assistive tools, it can also erect new barriers if not designed with accessibility in mind[54].

Several studies highlight the pedagogical challenges. Khazanchi et al. (2021) argue against a "one-size-fits-all" approach to virtual instruction, emphasizing the need for individualized strategies, visual supports, and strong family-school communication[55555555]. Similarly, Greer et al. emphasize the importance of incorporating principles of Universal Design for Learning (UDL) to proactively plan for learner variability rather than retroactively addressing accessibility issues[56565656]. This proactive design is crucial to ensure online environments do not inadvertently exclude students[57].

The student experience is often described as a "rollercoaster"[58]. Goegan et al. (2022), in a study on undergraduates with LDs, found that while features like recorded lectures were beneficial, the lack of synchronous support and increased demand on executive functions (e.g., time management, organization) created significant stress[59595959]. This aligns with findings by Perifanou and Economides (2024), who noted that primary school students with special needs exhibited shorter attention spans and emotional dysregulation in virtual settings[60].

The crucial role of support systems is a recurring theme. Ziadat (2021) found that parental characteristics, particularly digital literacy and time availability for supervision, significantly influenced student outcomes in online learning[61]. Research from the Indian context echoes this, with Khanna et al. (2021) identifying parents as critical "go-betweens" who mediate instruction, though their effectiveness is often uneven[62626262]. This reliance on parents highlights a systemic challenge, as many educators report a lack of training in adapting instruction for diverse learners in a digital format[63636363].

Quantitative data from India further clarifies the academic impact. A retrospective study in Bengaluru by Rishitha and Subramanian (2022) found a statistically significant decline in academic performance among children with dyslexia, dysgraphia, and dyscalculia after the shift to online learning[64646464]. This underscores the reality that, without targeted interventions and accessible design, digital platforms may fail to meet the specific learning needs of these students[65].

This body of literature confirms that while online learning presents opportunities, its effective implementation for students with LDs is contingent on thoughtful instructional design, robust teacher training, and strong home-school partnerships[66]. This study builds on this foundation by providing a structured, multi-perspective analysis

using standardized instruments to quantify the academic, behavioral, and emotional impacts within the Indian K-10 school system[67].

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3. Methodology

3.1 Research Design

This study employed a quantitative, survey-based research design to investigate the impact of online learning on students with learning disabilities[68]. A cross-sectional approach was utilized, with data collected at a single point in time through the administration of structured questionnaires[69].

3.2 Participants and Sampling

The study's population comprised students in Grades 1–10 with diagnosed or suspected learning disabilities, along with their parents and teachers[70]. A stratified random sampling technique was used to ensure the sample represented various subgroups within the population, such as different grade levels or types of learning disabilities, thereby enhancing the generalizability of the findings[71]. The final sample size consisted of 95 participants[72].

Inclusion Criteria:

- Students in Grades 1–10 who had been identified with or diagnosed with an LD (e.g., dyslexia, dyscalculia, ADHD)[73].
- Students who had participated in online classes for at least one academic term[74].
- Students whose parents and teachers consented to participate by completing the required questionnaires[75].

Exclusion Criteria:

- Students without identified learning disabilities[76].
- Students with severe intellectual or developmental disabilities (e.g., autism spectrum disorder, moderate-to-severe intellectual disabilities), as their learning needs differ significantly from the study's focus[77].
- Students who had not been exposed to online learning[78].

3.3 Instruments

A combination of standardized instruments and custom-designed questionnaires was used to collect triangulated data from students, parents, and teachers.

1. **Learning Disabilities Checklist (LDC):** A screening tool used by educators to identify behavioral, academic, and developmental indicators of learning disabilities[79]. It serves to identify at-risk students rather than provide a formal diagnosis[80].
2. **Strengths and Difficulties Questionnaire (SDQ):** A well-validated behavioral screening questionnaire for children aged 2–17[81]. It contains 25 items across five subscales: Emotional Symptoms, Conduct Problems, Hyperactivity/Inattention, Peer Relationship Problems, and Pro-social Behavior[82].
3. **Online Learning Readiness Scale (OLRS):** An instrument designed to measure a student's preparedness for online learning by assessing dimensions such as computer/internet self-efficacy, self-directed learning, motivation, and online communication self-efficacy[83].
4. **Custom Parent/Teacher Questionnaire:** A tailored questionnaire developed for this study to assess specific concerns related to academic challenges, attention, engagement, and behavioral traits in the online learning context[84]. It utilized Likert-type responses to quantify subjective data[85858585].

3.4 Procedure

The instruments were administered online using Google Forms to facilitate distribution and systematic data collection[86]. Formal permission was obtained from relevant institutions, and informed consent was secured from all participating parents/guardians prior to data collection[87]. The voluntary nature of participation and the confidentiality of data were thoroughly explained[88]. Assent was also obtained from the children in simple, age-appropriate language[89].

For younger students or those with significant reading difficulties, the researcher adopted an adaptive approach by reading questions aloud during a phone or video call and recording their responses directly into the Google Form[90909090]. In some cases, parents assisted their children by reading the questions[91]. This method ensured that the child's perspective was accurately captured while minimizing comprehension barriers[92]. Parents and teachers completed their respective questionnaires independently[93]. The entire data collection process spanned two months to accommodate participants who required additional support and to ensure high-quality responses[94].

3.5 Ethical Considerations

Ethical integrity was paramount, particularly given the involvement of a vulnerable population[95]. All ethical guidelines were strictly followed to protect the rights and well-being of participants[96]. Confidentiality was maintained by using unique codes to anonymize all responses; no personal identifiers were collected in the Google Forms[97979797]. All data was stored in a password-protected Google Drive accessible only to the researcher[98989898]. Participants were informed of their right to withdraw at any stage without penalty[99]. Care was taken to avoid any harm or undue stress during the data collection process, with breaks offered to children who appeared fatigued or hesitant[100]. The study protocol received ethical approval from the Department of Psychology at the researcher's institution[101].

3.6 Data Analysis

The collected data was analyzed to test the study's hypotheses. The primary statistical tests included:

- **Chi-Square ($\chi 2$) Test of Independence:** Used to examine the association between categorical variables, specifically the student-, teacher-, and parent-reported learning difficulties.
- **Spearman's Rho (ρ) Correlation:** A non-parametric test used to measure the strength and direction of the relationship between the ordinal data from student and parent reports on emotional well-being.

4. Results

The statistical analysis focused on three primary hypotheses designed to explore the alignment between student, teacher, and parent perceptions of learning and emotional challenges during online education.

Hypothesis 1: Correlation between student and teacher reports of learning difficulties.

A Chi-Square test of independence was performed to examine the association between students' self-reported learning difficulties and teachers' observations of those struggles.

- **Findings:** The test revealed a statistically significant association, $\chi 2(1, N=95)=20.5, p<.001$[102]. The Phi coefficient (

$\varphi=0.465$) and Cramer's V (0.465) indicated a moderate-to-strong positive relationship[103].

- **Interpretation:** The results strongly support Hypothesis 1[104]. Of the 52 students who reported having difficulties, 48 (92%) were also identified by their teachers as struggling[105]. This high level of agreement

underscores the validity of both student self-reports and teacher observations in identifying learning challenges within an online environment[106].

Hypothesis 2: Correlation between student and parent reports of learning difficulties.

A second Chi-Square test was conducted to assess the relationship between students' self-reported difficulties and their parents' observations.

- **Findings:** A statistically significant association was found, $\chi2(1,N=95)=21.0, p<.001$[107]. The Phi coefficient ($\varphi=0.471$) and Cramer's V (0.471) again indicated a moderate-to-strong positive relationship[108].

- **Interpretation:** This result supports Hypothesis 2[109]. Of the 52 students who reported difficulties, 45 (87%) were also identified by their parents as struggling during online classes[110]. This consistency highlights the reliability of using parental reports in conjunction with student self-perceptions to assess the challenges faced in digital learning settings[111].

Hypothesis 3: Correlation between student and parent reports of emotional well-being.

A Spearman's rho correlation was calculated to investigate the relationship between a student's self-report of getting angry or upset easily and a parent's report of their child often getting worried or upset.

- **Findings:** The analysis revealed a statistically significant and strong positive correlation, $\rho(93)=0.674, p<.001$[112].
- **Interpretation:** The findings support Hypothesis 3, demonstrating a high level of agreement between student and parent perspectives on emotional and behavioral well-being[113]. When students reported emotional distress, their parents were highly likely to have observed similar behaviors[114]. This strengthens the reliability of using both sources to evaluate the emotional impact of online education on students with LDs[115].

5. Discussion

The findings of this study provide critical insights into the multifaceted impact of online learning on students with LDs, illuminating the significant academic, emotional, and behavioral challenges they face in digital environments.

5.1 Pervasive and Recognized Learning Challenges

The strong, statistically significant correlations between student, teacher, and parent reports of learning difficulties confirm that the struggles experienced by students with LDs online are not merely subjective but are consistently observed and acknowledged by key stakeholders[116]. This triangulation of perspectives validates the lived experiences of these students, who reported serious difficulties with maintaining attention, comprehending material, and completing tasks[117]. The results align with literature emphasizing that the unstructured nature of online learning places immense strain on the executive functions of students with LDs, making self-regulation a formidable challenge[118].

5.2 Negative Impact on Academic Performance and Adaptability

In line with the research objective to assess academic impact, the study found that students with LDs generally performed worse in online settings compared to traditional classrooms[119119119]. This decline can be attributed to a confluence of factors, including distractions in the home environment, a lack of immediate and personalized teacher interaction, and various technological hurdles[120]. Furthermore, OLRS scores indicated that the majority of students with LDs lacked the readiness for online learning, struggling with the independence and time

management required to succeed in a virtual format[121121121121]. This highlights a fundamental mismatch between the demands of standard online platforms and the learning profiles of students with disabilities.

5.3 Heightened Emotional and Behavioral Difficulties

The study revealed that online learning environments exacerbated emotional and behavioral issues among students with LDs[122122122]. The strong correlation between student and parent reports of emotional distress (e.g., increased frustration, irritability, anxiety, and withdrawal) paints a clear picture of the psychological toll of online education[123123123123123123123123]. For many students, the challenges of navigating digital platforms, coupled with social isolation and academic frustration, created a negative feedback loop that impacted their overall well-being[124]. This underscores the necessity of integrating mental health and behavioral supports directly into online learning frameworks.

5.4 The Critical Role of Support Systems

A key finding that emerged from the analysis was the crucial role of parental and teacher support as a mitigating factor[125]. Students who received consistent guidance and structured support from both parents and teachers reported fewer challenges and better emotional regulation[126]. This highlights that external support can act as a vital buffer, helping students navigate the complexities of online learning[127]. However, it also exposes a point of inequity, as the capacity of parents to provide such support varies widely depending on their digital literacy, time availability, and resources[128]. This finding reinforces the need for collaborative support networks that actively involve and empower parents and equip teachers with the skills to provide effective remote assistance[129].

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6. Limitations

While this study offers valuable insights, its limitations must be acknowledged to ensure a balanced interpretation of the findings.

- **Sample Size and Generalizability:** The study was conducted with a relatively small sample (N=95) from a specific geographical and cultural context[130]. This limits the generalizability of the results to the broader population of students with LDs in different educational systems or socioeconomic backgrounds[131].
- **Reliance on Self-Report Data:** The use of questionnaires relies on the subjective experiences of students, parents, and teachers, which can be susceptible to biases such as social desirability or recall errors[132].
- **Cross-Sectional Design:** The study's cross-sectional design captures a single snapshot in time and does not allow for the analysis of changes over time or the establishment of causal relationships[133]. A longitudinal study would provide a more dynamic understanding of the long-term effects of online learning[134].
- **Confounding Environmental Factors:** Variables such as the quality of internet connectivity, access to digital devices, and the specific nature of the home learning environment were difficult to control for and likely influenced student outcomes[135].

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7. Implications and Recommendations

The findings of this study have significant implications for policy, educational practice, and future research aimed at creating more equitable and effective online learning experiences for students with learning disabilities.

7.1 For Policy and Educational Institutions

- **Prioritize Inclusive Digital Policies:** Governments and educational boards should mandate that all online learning platforms incorporate Universal Design for Learning (UDL) principles and accessibility features, such as text-to-speech, closed captioning, and adjustable fonts[136136136136].

- **Bridge the Digital Divide:** Funding should be allocated to provide necessary devices and reliable internet access to students with LDs from underprivileged backgrounds to ensure equitable learning opportunities[137].
- **Invest in Professional Development:** Schools must implement comprehensive training programs for educators focused on inclusive digital pedagogy, differentiation of instruction in virtual settings, and the use of assistive technologies[138138138138].

7.2 For Educators

- **Adopt Differentiated and Flexible Approaches:** Teachers should utilize a mix of synchronous and asynchronous methods, provide frequent and personalized feedback, and employ visual and interactive tools to maintain engagement[139].
- **Establish Structured Support Systems:** Creating virtual resource rooms, offering one-on-one mentoring sessions, and establishing clear routines can help replicate the supportive structure of a traditional classroom[140140140140].
- **Foster Home-School Collaboration:** Regular and open communication with parents is essential to align strategies for instruction and behavioral management, ensuring a consistent support system for the student[141].

7.3 For Parents

- **Provide Structured Home Environments:** Parents can support their children by establishing consistent schedules for online classes, creating a dedicated and distraction-free learning space, and monitoring task completion.
- **Seek Training and Resources:** Schools should offer workshops and resources to equip parents with practical strategies for facilitating online learning and using assistive technologies effectively[142142142142].

7.4 For Technology Developers

- **Co-Design with End-Users:** Developers should collaborate with educators, special education specialists, and students with LDs to create adaptive, user-friendly platforms that are pedagogically sound and sensitive to diverse cognitive and behavioral needs[143143143143].

7.5 For Future Research

- **Conduct Longitudinal Studies:** Future research should adopt longitudinal designs to track the long-term academic and psychosocial effects of online and hybrid learning models on students with LDs[144].
- **Utilize Larger, Diverse Samples:** Studies with larger and more diverse samples are needed to enhance the generalizability of findings across different contexts[145].
- **Compare Learning Modalities:** Comparative research evaluating the effectiveness of fully online, hybrid, and traditional models can help identify best practices for different types of learning disabilities[146].

8. Conclusion

This study confirms that the precipitous shift to online learning has presented substantial academic, emotional, and behavioral challenges for students with learning disabilities in India. The findings highlight a significant gap between the current state of online education and the specialized requirements of these students. While digital platforms offer the promise of flexibility and accessibility, they fall short without a foundation of inclusive design, targeted pedagogical strategies, and robust, collaborative support systems involving schools, teachers, and parents. To make online education a truly equitable and effective tool for all learners, it is imperative that we move beyond one-size-fits-all solutions and commit to creating digital learning environments that are intentionally designed to be supportive, adaptable, and inclusive. The journey toward this goal will require a concerted effort from policymakers, educators, technologists, and families, guided by research and a steadfast commitment to the success of every child.

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