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Comparative Effectiveness of Intensive Oral Language Sound Training Versus Traditional Phonics Instruction in Enhancing Reading Skills in Bilingual Children with Dyslexia

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Abstract

This study investigates the comparative effectiveness of intensive oral language sound training (IOLST) and traditional phonics instruction (TPI) in enhancing reading skills among bilingual children diagnosed with dyslexia. Conducted as a randomized controlled trial involving 80 participants aged 8 to 10 years, the research evaluates improvements in reading comprehension, phonological awareness, and decoding skills across both interventions. The results indicate that IOLST not only yields significant gains in reading abilities but also enhances students' confidence and engagement in their learning process. The findings suggest that integrating IOLST into educational curricula may provide a more effective approach to supporting bilingual dyslexic learners, thereby addressing the unique challenges they face in literacy acquisition.

Keywords: Dyslexia, Oral Language Sound Training, Phonics Instruction, Bilingual Education, Reading Skills, Literacy Interventions

1. Introduction

Dyslexia is a prevalent learning disability characterized by difficulties in reading, spelling, and decoding. It affects an estimated 5-10% of school-age children globally (Shaywitz, 2003; Rose et al., 2023). The challenges faced by children with dyslexia can be particularly pronounced in bilingual contexts, where students must navigate literacy acquisition in multiple languages. Research indicates that bilingual children with dyslexia encounter compounded difficulties due to language transfer issues, phonological awareness deficits, and decoding challenges across their languages (Gonzalez &Burchinal, 2018; Zhang et al., 2023).

Traditional phonics instruction (TPI) has been widely implemented as a primary approach to teaching reading. It focuses on the explicit teaching of letter-sound relationships and decoding strategies, critical components of early reading development. However, the effectiveness of TPI may be limited for children with dyslexia, who often struggle with the phonological processing skills that underpin phonics instruction (Torgesen et al., 2006; McGowan et al., 2022). Given these challenges, there is a growing interest in exploring alternative interventions, such as intensive oral language sound training (IOLST).

IOLST emphasizes developing auditory discrimination, phonological processing, and sound manipulation through engaging, multisensory activities. Preliminary studies suggest that IOLST can improve reading skills in children with dyslexia more effectively than traditional phonics approaches (Hernandez et al., 2020; Simmons et al., 2023). This study aims to compare the effectiveness of IOLST and TPI in enhancing reading skills among bilingual children with dyslexia, specifically focusing on reading comprehension, phonological awareness, and decoding abilities.

2. Literature Review

2.1 Dyslexia and Bilingualism

Dyslexia presents unique challenges for bilingual learners, particularly concerning language transfer. Research has shown that bilingual children may face difficulties in applying phonological skills across languages, which can hinder their overall reading development (Gonzalez &Burchinal, 2018). Recent studies also suggest that the cognitive load of managing multiple languages can exacerbate the challenges dyslexic children face in reading (Zhang et al., 2023). Understanding these complexities is crucial for developing effective interventions tailored to the needs of bilingual dyslexic students.

2.2 Traditional Phonics Instruction

TPI has been a foundational method for teaching reading for decades. It typically involves

systematic instruction in letter-sound relationships and the application of these relationships to decode words. While many learners benefit from TPI, children with dyslexia often experience challenges with phonological processing that limit their ability to grasp phonics concepts fully (Torgesen et al., 2006; McGowan et al., 2022). This has led educators and researchers to explore alternative instructional methods that may better meet the needs of dyslexic learners.

2.3 Intensive Oral Language Sound Training

IOLST is an emerging instructional strategy designed to bolster phonological awareness and reading skills through auditory discrimination training. IOLST engages students in interactive, multisensory activities that promote sound recognition and manipulation. Initial studies suggest that IOLST can be particularly effective for children with dyslexia, yielding significant improvements in reading skills (Hernandez et al., 2020; Simmons et al., 2023). This research highlights the need for further investigation into the comparative effectiveness of IOLST and TPI, particularly for bilingual children.

3. Methodology

3.1 Participants

The study recruited 80 bilingual children (40 boys and 40 girls), aged 8 to 10 years, diagnosed with dyslexia. All participants were proficient in both Hindi and English, having been exposed to both languages from an early age. Participants were randomly assigned to two groups: the IOLST group (40 children) and the TPI group (40 children). This randomization ensured a balanced distribution of variables between the two groups.

3.2 Intervention

- Intensive Oral Language Sound Training (IOLST): The IOLST intervention included 20 sessions, each lasting 45 minutes. The curriculum focused on auditory discrimination, sound manipulation, and phonological awareness through games and interactive activities conducted in both Hindi and English. Activities included sound matching games, phoneme segmentation exercises, and interactive storytelling emphasizing sound recognition.
- Traditional Phonics Instruction (TPI): The TPI group received 20 sessions, each lasting 45 minutes, based on a standardized phonics curriculum. This curriculum emphasized letter-sound relationships and decoding strategies through systematic instruction and practice. Activities included phonics worksheets, flashcard drills, and guided reading sessions focused on phonics-based texts.

3.3 Assessments

Participants were assessed using:

- Reading Comprehension Test: This test evaluated students' understanding of texts in both languages. Participants read short passages and answered comprehension questions to assess their ability to derive meaning from the text.
- Phonological Awareness Test: This assessment measured participants' abilities in phoneme recognition and manipulation through tasks such as rhyming, syllable segmentation, and phoneme deletion.
- Decoding Skills Assessment: This assessment involved the ability to read and pronounce non-words to evaluate students' decoding skills independent of their vocabulary knowledge.

All assessments were conducted pre-intervention and post-intervention to measure progress and effectiveness.

4. Results

4.1 Quantitative Analysis

Data analysis using paired t-tests revealed significant improvements in the IOLST group in all assessed areas:

- Reading Comprehension: The mean scores increased from 55 to 82, with a p-value < 0.01, indicating substantial growth in reading comprehension abilities.
- Phonological Awareness: Scores improved from 52 to 85 ($p < 0.01$), demonstrating

significant enhancements in phonological skills.

- Decoding Skills: Non-word reading scores increased from 47 to 79 ($p < 0.01$), highlighting the effectiveness of IOLST in developing decoding abilities.

In contrast, the TPI group exhibited minimal gains:

- Reading Comprehension: Mean scores increased from 54 to 60 ($p > 0.05$), indicating no significant improvement.
- Phonological Awareness: Scores improved from 50 to 56 ($p > 0.05$), showing limited progress.
- Decoding Skills: Non-word reading scores increased from 45 to 52 ($p > 0.05$), further demonstrating a lack of significant gains.

4.2 Qualitative Feedback

Thematic analysis of qualitative feedback gathered from both students and teachers revealed that children in the IOLST group reported higher levels of confidence and enjoyment in reading activities compared to their TPI counterparts. Many students expressed excitement about the interactive nature of the IOLST activities, stating that they felt more engaged in the learning process. Teachers noted increased participation and enthusiasm among students receiving IOLST, along with marked improvements in their phonological awareness and overall reading abilities.

4.3 Quantitative Analysis

Data analysis using paired t-tests revealed significant improvements in the IOLST group in all assessed areas, as summarized in Table 1.

Assessment Area	IOLST Group (Pre-Intervention)	IOLST Group (Post-Intervention)	p-value	TPI Group (Pre-Intervention)	TPI Group (Post-Intervention)	p-value
Reading Comprehension	55	82	< 0.01	54	60	> 0.05
Phonological Awareness	52	85	< 0.01	50	56	> 0.05
Decoding Skills (Non-word)	47	79	< 0.01	45	52	> 0.05

Table 1: Summary of Pre- and Post-Intervention Scores for IOLST and TPI Groups

In contrast, the TPI group exhibited minimal gains:

- **Reading Comprehension**: Mean scores increased from 54 to 60 ($p > 0.05$), indicating no significant improvement.
- **Phonological Awareness**: Scores improved from 50 to 56 ($p > 0.05$), showing limited progress.
- **Decoding Skills**: Non-word reading scores increased from 45 to 52 ($p > 0.05$), further demonstrating a lack of significant gains.

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This qualitative feedback reinforces the quantitative data, suggesting that IOLST not only fosters skill development but also contributes positively to the students' emotional and psychological engagement with reading.

Summary of Feedback

- **IOLST Group:**
  - Higher confidence levels reported by students
  - Increased engagement and enjoyment during reading activities
  - Teachers observed improved participation and enthusiasm
- **TPI Group:**
  - Limited feedback on engagement
  - Minimal perceived improvement in confidence or enjoyment

This combined analysis highlights the multifaceted benefits of IOLST in addressing both the academic and emotional needs of bilingual children with dyslexia.

5. Discussion

The findings of this study support the hypothesis that IOLST is more effective than TPI in enhancing reading skills in bilingual children with dyslexia. The significant improvements observed in reading comprehension, phonological awareness, and decoding skills highlight the importance of focusing on auditory discrimination and sound processing in literacy interventions.

The positive psychological impact of IOLST, as indicated by increased confidence and engagement among students, underscores the multifaceted benefits of this approach. In contrast, the minimal gains in the TPI group suggest that traditional phonics instruction may not adequately address the specific needs of bilingual dyslexic learners, particularly regarding phonological processing.

These results align with previous research indicating that interventions focused on auditory processing and phonological awareness yield more favorable outcomes for children with dyslexia (Hernandez et al., 2020; Simmons et al., 2023). Furthermore, the study's emphasis on bilingual contexts underscores the adaptability of IOLST across different language environments, suggesting that it may serve as a viable intervention for diverse linguistic populations.

6. Conclusion

This research demonstrates that intensive oral language sound training offers a promising alternative to traditional phonics instruction for improving reading skills in bilingual children with dyslexia. Given the significant gains observed in the IOLST group, educators and clinicians should consider integrating this approach into literacy programs tailored for dyslexic learners.

By prioritizing auditory discrimination and sound processing, IOLST not only enhances reading abilities but also fosters greater confidence and engagement among students. Future studies should explore the long-term effects of IOLST and its applicability in diverse educational settings. Additionally, researchers should investigate the potential benefits of combining IOLST with other instructional strategies to create a comprehensive approach to literacy intervention for bilingual children with dyslexia.

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