

# A Comparison of Intervention Approaches for Improving Literate Language Use by Children with Language Impairments

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## Introduction

Literate language is the style of language that is used in academics. Oral language is used in daily communication and incorporates nonverbal cues as well as verbal ones. An example of oral language is, "She is pretty." Conveying the same message using literate language might be, "Her beauty is outshined only by her grace."

It has been theorized that children who use literate language styles reach teacher expectations and are rewarded more often than children who use other oral language styles only. There are four categories of "words" that may be described as "literate language" including conjunctions, elaborated noun phrases, mental and linguistic verbs, and adverbs.

**Conjunctions:** Words used to clarify the relationship between events and objects.

• Temporal conjunctions (e.g. *when, while, and after*) provide a background for the events in a narrative.

*When* Tom woke up, he leaned over his bed to say good morning to the frog.  
*While* Tom was calling for the frog, the dog was getting into more trouble.

• Causal conjunctions present a physical or psychological motivation for the events in the narrative (*because, so that*).

The bees were angry *because* the hive fell to the ground.

• Coordinating conjunctions (*so, but, however*) used to demonstrate opposition in the text.

She ran fast *but* she didn't win the race.

**Elaborated Noun Phrases (ENPs):** words or a series of words used to add description to the elements of the narrative.

Noun modifiers (e.g. *the old, dead log*).  
Qualifiers (the rabbit ran into a *hole in the ground*).  
Relative clauses (e.g. the boy took the baby *that liked him home*).  
Appositives (e.g. this boy, *Tom*, had a dog).

**Mental and Linguistic Verbs (ML)** demonstrate that characters are thinking  
Tom *called out* the window.

**Adverbs** indicate time, manner, or degree

The deer stopped *quickly* at the edge of the cliff.

Research suggests that these literate language features (LLF) are directly linked to literate language development. When a child is deficient in literate language their ability to convey specific meanings may be limited and their literacy acquisition can be affected. Children who use less LLF tend to score lower on measures of language productivity (total number of words, total number of different words, mean length of utterance).

Greenhalgh and Strong (2001) examined literate language features in 52 children developing typically or who demonstrated language impairment (LI). Findings revealed that children developing typically used more conjunctions and elaborated noun phrases than children in the LI group. These factors, and the number of different words (TDW) used in the stories were related to literate language use.

## Purpose

The purpose of this study was to examine literate language and language productivity in school-age children with language impairments who received one of two intervention approaches or were part of a no-intervention group.

## Methodology

### General Procedures

A total of 24 children between the ages of 7-9 participated in the study. Sixteen children were randomly assigned to 1) **Literature Based Language Intervention (LBLI)**, or 2) **Drill-Based Language Intervention**. Their performance was compared to a matched **control group (CON)** who were not receiving intervention. Children's language was assessed using the *Test of Narrative Language (TNL)*; Gillam & Pearson, 2004).

• One subtest on the TNL requires children to tell a story from a "single-scene" with aliens and a spaceship.

• Stories children told about the aliens were analyzed for literate language use and general language productivity measures including mean length of utterance (MLU), number of different words (NDW), and total number of words (TNW).

• Literate language was measured by examining the frequency with which children used conjunctions, elaborated noun phrases (ENP), mental and linguistic verbs, and adverbs.

## Interventions

### LBLI

- Children took part in natural conversation and real-life interactions within two topics (bedtime and parties) over a six-week period.
- Multiple opportunities were available for children to participate in conversations.
- Books were used to target language components.
- Language targets included training on specific vocabulary words, regenerating sentences using these vocabulary words, telling and re-telling stories, problem solving, and focusing on specific grammatical targets.
- Children were asked to reflect, write, highlight and compare and contrast lessons presented in weeks 1-5.
- Children created parallel stories using different characters and different story lines.
- Language facilitation techniques were incorporated during activities by the clinician.

### DBLI

- Commercially packaged cards and games published by Linguisticsystems (2005).
- Focused on specific topics such as social language. (e.g. "What would you do if you lost your gloves at school?").
- Three questions for each topic were given in increments of 12-minutes.
- Other focus areas included vocabulary, language, and language targets.
- The vocabulary cards focused on functions, comparisons, compound words, synonyms, antonyms and multiple meaning words.
- The language cards focused skills such as asking and answering questions, listening, grammar, paraphrasing, and problem solving.
- Grammar game: Children practiced grammar concepts (possessives, plurals, pronouns, tenses, adjectives, adverbs, prepositions, conjunctions, negatives, and questions).

## Results

An ANCOVA was conducted to evaluate the effect of Group (LBLI, DBLI, CON) on the post-test standard scores for LLFs. The pre-test scores served as covariates. The Group main effect was significant [ $F(2, 19) = 7.12, p = .005, \eta^2 = .43$ ]. A partial eta squared value of .43 indicated a strong relationship between group membership and the post-test scores on literate language feature use. Follow-up tests were conducted to evaluate pair wise differences among means for each feature.

**The overall use of LLFs combined was significantly higher in the groups who received intervention than in the control group.**

We computed Cohen's *d* effect sizes to assess the clinical significance of the results. Post-test means and pooled standard deviations were calculated separately to compare each of the treatment groups to the control group. A *d* value of .8 is considered to be large, a value of .5 is considered to be medium-sized, and a value of .2 is considered to be small (Cohen, 1988). The Cohen's *d* effect sizes were large for both the LBLI group ( $d = 1.01$ ) and the DBLI group ( $d = 1.17$ ) as compared to the control group.

As can be seen in **Figure 1**, **LLF use was higher for the children who received intervention in the LBLI and DBLI groups than for the control group.**

**Figure 2** illustrates a **slight increase in the use of conjunctions for LBLI**, a **slightly more pronounced increase in the use of conjunctions for DBLI** and a decrease in conjunctions for children in the control group.

**Figure 3**, children in LBLI increased their use of elaborated noun phrases, followed by children in DBLI while children in the control group demonstrated a decrease in the number of ENPs used in their stories.

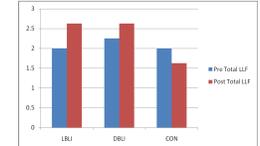
An ANCOVA was conducted to evaluate the effect of Group (LBLI, DBLI, CON) on the post-test standard scores for the language productivity measures (TNW, TDW, MLU). The pre-test scores served as covariates. **The only measure of language productivity that reached significance was mean length of utterance (MLU)**. The group main effect was significant [ $F(2, 19) = 4.88, p = .019, \eta^2 = .34$ ]. A partial eta squared value of .34 indicated a **strong relationship between group membership and the post-test scores on mean length of utterance**.

Figure 4 illustrates that MLU was significantly higher in the groups who received intervention. The Cohen's *d* effect sizes were large for both the LBLI group ( $d = .98$ ) and the DBLI group ( $d = 1.63$ ), with the effects of **DBLI being slightly larger than that of LBLI**.

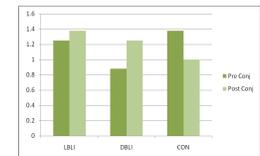
## Discussion

The findings from this study provide tentative support for those of Strong et al. (2001) who suggested that **children with LI have more difficulty than typically developing children in the use of literate language features, particularly elaborated noun phrases**, and that problems with LLF are associated with problems in language productivity as well (MLU). While neither intervention yielded "better" results than the other, **the participants in the drill-based intervention had slightly higher use of conjunctions and elaborated noun phrases than children in the control group**.

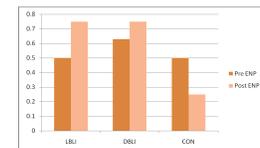
This preliminary work suggests that children with LI have difficulty using conjunctions and elaborated noun phrases, and that they may use fewer words per utterance in their stories. Because these factors are related to literate language use, and literate language use is related to success in academic settings, it may be **important to train the use of these features** in children with LI. A clinician may choose a **literature based approach** to training these features, or utilize a more **skills based approach** and expect positive outcomes for children with LI.



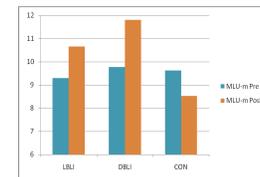
**Figure 1.** Literate Language Feature Use for LBLI, DBLI, and CON groups prior to and following an intervention period.



**Figure 2.** Conjunction Use for LBLI, DBLI, and CON groups prior to and following an intervention period.



**Figure 3.** Elaborated Noun Phrase Use for LBLI, DBLI, and CON groups prior to and following an intervention period.



**Figure 4.** Mean Length of Utterance (MLU) for LBLI, DBLI, and CON groups prior to and following an intervention period.