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Recommended Citation

May, Minako I., "A BRIEF BUT INTENSIVE LANGUAGE-LITERACY INTERVENTION FOR AN ADOLESCENT" (2016). *Graduate Student Theses, Dissertations, & Professional Papers*. 10718.
https://scholarworks.umt.edu/etd/10718

A BRIEF BUT INTENSIVE LANGUAGE-LITERACY INTERVENTION FOR AN ADOLESCENT

by

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Thesis

presented in partial fulfillment of the requirements

for the degree of

Master of Science
in Speech-Language Pathology

The University of Montana
Missoula, Montana

May 2016

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Abstract Title: A Brief but Intensive Language-Literacy Intervention for an Adolescent

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The current service delivery model most frequently used in a school setting involves short, infrequent sessions over a 180-day school year. To date, there is no research that supports the current service delivery model as being the most effective and efficient model of intervention. As students transition from elementary to middle school, this model is particularly problematic for the adolescent student because of a rotating school schedule, increasing language demands of the academic curriculum, and development of self-perception and academic self-concept. A brief but intensive language-literacy intervention that takes place outside of the school year may be an effective and efficient alternative to adolescents who struggle with written language. The purpose of this study was to determine whether an adolescent who participates in a two-week intensive language-literacy intervention program would make significant gains in written narrative composition, complexity and accuracy of sentence composition, and encoding/decoding skills. Additionally, the investigator wished to determine whether or not an adolescent would demonstrate an increase in self-perception of literacy skills following participation in the aforementioned program. A multiple-baseline design across behaviors was used to examine written narratives collected from the adolescent during each session. There were four phases in this experiment: Baseline Phase - baseline data were collected; Phase A- intervention focused on discourse level literacy skills; Phase B- intervention focused on sentence level and discourse level skills; and Phase C- intervention focused on word/morpheme level, sentence level, and discourse level skills. In addition, pre and post test data were collected to examine word, sentence, and discourse level writing skills as well as self-perception of literacy skills. Preliminary results suggest a brief but intensive intervention did result in significant gains in language-literacy skills and self-perception of literacy skills. Further investigation is needed to determine if a gains can be generalized into the academic setting. Future studies in which the intensity of the intervention is manipulated (e.g. three weeks instead of two, a cycles approach addressing various aspects of language, etc.) could provide even stronger evidence for intervention programs of varied intensity.

Acknowledgments

I would like to start by acknowledging the woman who, when I asked her if she was sure I was capable of such a rigorous and daunting endeavor as a Master's Thesis, she simply replied: "don't think about it, just do it." Dr. Ginger Collins, without your unending support and faith in me as a student and researcher, I know I would not be where I am today.

I would also like to acknowledge my thesis committee, Dr. Ginger Collins, Dr. Catherine Off and Dr. Lindsey Nichols, for your thoughtful insights and contributions which helped shape my research, as well as the time and encouragement you so generously gave me.

I am grateful for my research assistant, Laura Allred, for her endless amounts of positivity and light that she brought to us when we were in the dark depths of data collection and analysis.

I would like to acknowledge the faculty and staff of the Communicative Sciences and Disorders department. This road from leveler to Masters student has been one of the biggest accomplishments and commitments of my life. Each of you played an integral part in my learning experience and personal growth.

I am also thankful for the members of Cohort 2014. You allowed me to be the best version of myself, gave me the strength to persevere, and supported all my crazy ideas. I will never forget the 'ohana we created in these short two years. To my friends and family members, near and far, for their patience, support, and words of encouragement throughout the last three years. Thank you for reminding me to take care of myself first. I am so grateful.

Finally, I would like to acknowledge my husband, Luke Walawander, for supporting me throughout this entire endeavor, and being my person to turn to mai kēia manawa ā mau loa aku. Me ka mahalo nui.

Mahalo me ke aloha lā.

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A Brief but Intensive Language-Literacy Intervention for an Adolescent

Although the school-based speech language pathologist (SLP) has an assortment of service delivery models to choose from, research surveys consistently report the "pull-out" service delivery model as the predominate selection for speech-language therapy (ASHA 1993, 1995, 2008, 2014; Brandel & Loeb, 2011; Whitmire, 2002). Additionally, these surveys revealed that 91% of K-12 school children with communication needs typically receive 20-30 minutes of treatment once (21%) or twice (71%) per week (Brandel & Loeb; Mullen & Schooling, 2010). These findings imply both a stagnant form of service delivery and a low level of intervention intensity. Thus, the purpose of this study was to investigate the effects of a brief, but intensive language-literacy intervention for an adolescent with language and learning deficits (LLD). Additionally, we sought to examine the subsequent language and literacy outcomes as a result of such an intervention, and to examine the effects of such an intervention on an adolescent's self-perception and attitudes towards reading. We proposed that a brief but intensive program may be an alternative or supplemental mode of service-delivery model and intervention to what is typically used by a school-based SLP for adolescents with language and learning deficits.

While the pull-out model may be beneficial for treatment with early-elementary (i.e., kindergarten- grade three) school students when targeting discrete skills, such as misarticulated speech sounds (Case-Smith & Holland, 2009; Schmitt, 2013; Whitmire, 2002), it becomes controversial to continue this mode of service delivery, specifically for adolescent students with LLD for a variety of reasons. As a student matures and transitions from the late-elementary to middle school, many influencing factors begin to emerge that impede the efficacy of pull-out therapy treatment sessions. It is imperative to examine these factors and consider the overall

impact on a student, such as an adolescent with LLD. A significant reason the pull-out service delivery model may not be optimal for adolescent students is related to the vulnerable stage of adolescence itself and its relationship to the development of self-perception.

Adolescence is the period during which an individual will experience critical growth and development. It is a transitional stage from childhood but before entering adulthood, typically beginning around age ten and continuing through to age 19 (World Health Organization, 2016). The physical and psychological changes that occur during adolescence create an environment of uncertainty and vulnerability, particularly to the student's developing self-image, or self-perception (Gans, Kenny, & Ghany, 2003; Heyman, 1990; McKenna, Kear, & Ellsworth, 1995; Thomas, Butler, Hare, & Green, 2011). Likewise, from a developmental psychosocial perspective, Eric Erickson (1963) proposed a person undergoes eight stages over a course of a lifespan for identity formation, each one building upon the next, contributing to a person's personality, life skills, and abilities to function within society. He specifically stressed the adolescent period as a pivotal time for the development of self-identity, or self-perception (Erickson, 1963). Self-perception is rooted in a multitude of beliefs one has about oneself. Self-perception is purely subjective, but is based on one's past history of success and reinforcement (Bong & Skaalvik, 2003). Once self-perception is established, it may determine the outcomes of the student's future success in all aspects of life. Repeatedly removing a student from his peer group for intervention can feel stigmatizing and embarrassing for an adolescent and may create a [symbolic] barrier to forming peer relationships (Causton-Theoharis & Theoharis, 2008).

Another critical factor to consider when choosing the proper service delivery model and intervention for an adolescent with LLD is the process of language and literacy development

itself (Hoffman, 2009; Nippold, 1998). Language is complex but can be teased apart into smaller, discrete units for instruction and mastered within the intervention setting. However, before the SLP can assume intervention has been truly successful, the student must demonstrate proficiency in the natural context of communication to ensure generalization has occurred (Cirrin & Gillam, 2008; Hoffman, 2009; Nippold, 1998; Schraeder, 2013). This process takes time and practice. The traditional pull-out model of intervention that occurs within the school setting may not provide sufficient time or practice for adolescents with LLD to effectively generalize what it taught in the individual or group therapy sessions especially when only receiving brief spurts of services once or twice a week for 20-30 minutes (Brandel & Loeb, 2011; Mullen & Schooling, 2010).

Finally, an investigation into the optimal intervention intensity for adolescents with LLD is necessary to determine the appropriate dose and dose frequency needed for a language and literacy intervention to be successful and long-lasting. There is a lack of research to support specific recommendations for intervention intensity for adolescent students with LLD (Brandel & Loeb, 2011; Cirrin & Gillam, 2008; Nippold, 2012; Scott, 2014). With the majority of studies centered on the preschool and elementary school levels, often a school-based SLP in secondary school settings is challenged to provide evidence-based intervention that meets older students' language-related needs (Ehren, 2002; Ehren & Lenz, 1989).

Development of Self-Perception and Academic Self-Concept

Adolescent students begin to develop their self-perception based on acceptance from those who play key roles in the construct of their lives, such as peers, siblings, teachers, and parental figures (Gans et al., 2003; Heyman, 1990; McKenna et al., 1995; Thomas et al., 2011).

This aspect of self-perception development can be particularly detrimental for students who struggle academically with a learning disability. A study by Valas (1999) showed that students with learning disabilities experience lower levels of self-esteem and social acceptance from their peers in comparison to students without learning disabilities. Similarly, Harter, Whitesell, and Junkin (1998) found that students with learning disabilities had a negative perception of their overall intellectual ability than students without learning disabilities. The self-perception the student constructs during adolescence plays an influential role in present and future levels of academic success and motivation in the form of academic self-concept (Bong & Skaalvik, 2003; Heyman, 1990; Ju, Zhang, & Katsiyannis, 2013; Wolter, DiLollo, & Apel, 2006). Therefore, it is important for the school-based SLP to take into consideration the negative impacts of utilizing the pull-out model for an adolescent student. The pull-out model may perpetuate the stigma associated with being removed from the classroom for special services, such as speech therapy or additional reading instruction, as something socially unacceptable and indicative of low intellect. This may inevitably negatively affect the student's self-perception and in turn, negatively affect academic self-concept.

Bong and Skaalvik (2003) characterized academic self-concept as being made up of multidimensional perceptions of school-related experiences that determine outcomes of academic learning and motivation. Studies have indicated that the relationship between academic struggle and negative academic self-concept are directly proportional for an adolescent student (Bong & Skaalvik, 2003; Heyman, 1990; Ju, Zhang, & Katsiyannis, 2013; Wolter, DiLollo, & Apel, 2006). An adolescent student with LLD may be especially susceptible to developing low academic self-concept due to familiarity with academic strife. The process of

scheduling an adolescent student in middle school and high school for pull-out intervention can

be problematic given the academic schedule. Students change classrooms, teachers, and school

subject areas multiple times per day and thus spend less time in each classroom. Furthermore,

when a student with LLD already struggles with course content, routine removal from

academically-dense subjects, such as Science, Math, and English, may result in extraneous

stress on the student. Removal from non-academic subjects such as Physical Education, Art,

Music, or Study Hall, will similarly affect an adolescent negatively, as these non-academic

subjects generally provide a reprieve from academic coursework. Presumably, for an

adolescent who is beginning to develop his or her self-perception based on social acceptance,

peer-comparison, and social feedback, any negative experiences during this fragile period of

development can cause detrimental and lasting impacts. Upon reflection of these factors, it is

controversial to use a service delivery model, such as the pull-out model, for an adolescent

student. Other service delivery models to implement intervention for adolescents should be

investigated.

Predominate Service Delivery Model and Program Intensity

As Whitmire (2002) and Schraeder (2013) have observed, the pull-out service delivery

model has traditionally been the method of choice for SLPs for over a century. Pull-out therapy

involves providing speech and language services to children individually or in small groups by

removing them from their classrooms and into a separate room. Also known as "direct

services," the SLP may provide intervention outside or within the classroom specifically to the

individual or identified small group (Case-Smith & Holland, 2009; Whitmire, 2002). Despite

increased caseload size and responsibilities of the school-based SLP, recent surveys imply the

pull-out model continues to be the most commonly used service delivery model in the school setting (ASHA, 1993b, 1995, 2008; Brandel & Loeb, 2011), which will be further discussed in the next section.

There is little research found specifically for language intervention with school-age children. Cirrin and Gillam (2008) conducted a systematic review of language intervention practices for school-age children with spoken language disorders. The researchers identified school-age children with LLD make up the majority of the caseload for school-based SLPs. Cirrin and Gilliam (2008) furthermore stated research-based efficacy of intervention practices are needed to support future guidelines for clinical practice. This systematic review focused on published peer-reviewed articles evaluating outcomes of different intervention practices since 1985. The review yielded only 21 studies out of 593 published articles met the research criteria which indicated these studies themselves had limited prior research evidence guiding their decisions for evidence-based intervention practices. However, ten of the 21 studies focused primarily on preschool children whereas the remaining 11 studies had restricted participants to kindergarten and first grade students. Therefore, none of the studies focused on upper elementary school or secondary school students (Cirrin & Gillam, 2008). In a related study, Cirrin, Schooling, Nelson, Diehl, Flynn, Staskowski, and Adamczyk (2010) conducted an evidence-based systematic review investigating the effects of a variety of service delivery models on intervention outcomes for elementary school-aged children. The researchers compiled a comprehensive overview of the available scientific literature from the past 30 years. The results indicated only five studies met the strict review criteria (Bland & Prelock, 1995; Boyle, McCartney, Forbes, & O'Hare, 2007; Howlin, 1981; Kohl, Wilcox, & Karlan, 1978;

Throneburg, Calvert, Sturm, Paramboukas, & Paul, 2000), with only three specifically attending

to the relationship between service delivery model and treatment outcomes (Bland & Prelock,

1995; Boyle et. al, 2007; Howlin, 1981). Cirrin et al. (2010) stated concern for having only five

studies meet their criteria. This lack of evidence base for the school-based SLP to support

decisions for service delivery choice further supports the argument that there is a need for

more research on efficacy of service delivery models to make informed EBP decisions in

practice. Although the conclusion reached indicated more extensive research is needed, Cirrin

et al. (2010) stated in clinical implications the evidence suggests pull-out intervention efficacy

to be as effective as classroom-based direct speech and language services, depending on the

intervention goals. Furthermore, the researchers stated generalization of newly acquired skills

to other settings may be enabled by intervention in the classroom setting as oppose to the pull-

out therapy setting.

When taking into consideration the research, the reason behind why the school-based

SLP chooses the pull-out service delivery model remains unclear. In 2011, Brandel and Loeb

surveyed 1,897 school-based SLPs across the United States to ascertain what factors influence

treatment recommendations specific to program intensity and service delivery model. Results

demonstrated the SLPs considered three primary factors: (a) the student's disorder; (b)

communication needs in relation to general education curriculum, and (c) student strengths,

weaknesses, and emerging skills. However, the results also indicated SLPs reported little

variation on service delivery model and program intensity. The pull-out model was the most

commonly used service delivery model, and the most common program intensity reported was

one or two times per week for 20-30 minutes (Brandel & Loeb, 2011). Findings suggested the

choice of service delivery model and program intensity was based on caseload size and convenience of scheduling for the SLP. Brandel and Loeb's results are in conflict with the aforementioned three primary factors school-based SLPs indicated they considered. Instead of choosing the pull-out model and low program intensity based on the school-based SLP concern for student-centered care, the number of students the SLP carries on the caseload and scheduling convenience appear to be the primary factors. Such an implication is in direct opposition of mandates such as the revised Individuals with Disabilities Education Act 2004 (Gartin & Murdick, 2005) and ASHA's Evidence-Based Practice (EBP) in Communication Disorders Position Statement (American Speech-Language-Hearing Association [ASHA], 2007, 2010) dictate regarding individualizing intervention from an all-inclusive perspective (Brandel & Loeb, 2011; Whitmire, 2002).

Not only is the selection of service delivery model important for providing individualized, intensive instruction and assessment, but the evidence-based research should also be informing models for additional instruction and assessment of students who are struggling, but may not quality for individualized services. Under the response-to-intervention (RTI) model, methods provide literacy instruction across three levels, or tiers, of intensity (Brown-Chidsey & Steege, 2005). The first level, Tier I, includes universal instruction and assessment. Tier I is the research-based general education curriculum and assessments that are used for all students in the classroom setting. Tier II includes additional instruction and assessment, generally provided in small groups for students identified as at-risk, or below the benchmarks for all students in Tier I. Tier III involves individualized, intensive assessment and intervention for students who do not respond to multiple research-based interventions in Tier

II, along with a comprehensive evaluation to determine whether the student meets the

diagnostic criteria for special services, such as speech-language intervention.

A review of the research shows that more studies are needed to identify the literacy

interventions and the intensity of those interventions that are most effective for students who

are making minimal gains in general education programs (Linan-Thompson & Davis, 2002).

Defining Intensity and Its Components

Intensity is largely defined as the duration of treatment (e.g., minutes or hours per

day/week/months or years). Brandel and Loeb (2011) used the term "program intensity" to

describe intervention intensity as the duration of time for each session (e.g. 20-30 minutes) and

frequency of sessions (e.g., 1 or 2 times per week). This definition may facilitate understanding

for the broader audience (e.g., clinicians, parents, administrators); however, the ambiguity

impedes research claims of optimal intensity for a variety of treatment measures. There are

other components to treatment intensity must be taken into consideration to evaluate the

effects intensity has on treatment efficacy, especially for communication and language

disorders.

Using pharmacologically based terminology, Warren, Fey, and Yoder (2007) defined

intervention intensity and its components of dose, dose form, dose frequency, total

intervention duration, and cumulative intervention intensity for the field of communication and

language disorders (see Table 1). The researchers proposed using this specific terminology and

these definitions to facilitate measuring treatment efficacy for further communication and

language disorders research on intensive interventions. For the purpose of communication and

language intervention, dose is defined as the number of teaching episodes within one single

treatment session. Dosage has three subcomponents that add further complexities to determining effects on treatment efficacy. Those three subcomponents include the individual treatment session length in time (session duration), the number of teaching episodes implemented during each treatment session, and the distribution of those teaching episodes within each individual session (Warren, Fey, & Yoder, 2007). Dose form refers to the method utilized to deliver the teaching episodes, such as articulation drills, conversational speech, or story-telling; whereas dose frequency is defined as the number of sessions delivered across time, such as having intervention three times a week. The total intervention duration is the entire period in which a particular intervention is implemented, for instance, over six weeks. Cumulative intervention intensity is then calculated to depict overall intensity, using the formula: dose x dose frequency x total intervention duration.

Table 1.

Defining Treatment Intensity (Warren, Fey, & Yoder, 2007)

Component	Definition	Example
Dose	the number of times a teaching episode occurs per treatment session and the distribution of teaching episodes across individual treatment session duration	1 visual prompt every 3 minutes during a 30-minute session= 30 trials
Dose Form	type of activity or task used to deliver each teaching episode	Story re-tell, word sorts
Dose Frequency	number of sessions delivered across time	Twice per week
Total Intervention Duration	total period of time the intervention is implemented	Three weeks
Cumulative Intervention Intensity	dose x dose frequency x total intervention duration	30 trials 2x week for 3 weeks=180 trials over three weeks

Complications for Measuring Narrative Language Intervention Intensity

Though efficacy studies of intervention intensity are emerging in some areas of communication intervention (e.g., aphasia), many researchers agree that more research is needed in the area of school-based literacy intervention intensity (Bauman, 2009; Cherney, 2012; Hoffman, 2009; Proctor-Williams, 2009). Scott (2014) stated the vast majority of studies that investigate the effects of intensity on language intervention outcomes for school-aged children have participants six years of age or younger. These findings were similar to that of Cirrin and Gillam (2008), where the 21 studies conducted in the systematic review of language intervention outcomes were for preschoolers, kindergarteners, and first grade students. Therefore, it is reasonable to assume intervention intensity effects on language intervention outcomes are not clearly defined for school-age children after the first grade level. Intervention intensity recommendations must have validating methods in order to show a clear correlation between the intensity measures and the intervention outcome (Scott, 2014; Zeng, Law, & Lindsey, 2012). Future researchers depend on recommendations from previous studies to guide and expand on their own designs. Without evidence-based methods for intensity measures in research for language intervention with school-age children after the first grade level, it is difficult for researchers and clinicians to choose proper evidence-based practice (EBP) procedures for future study or intervention design.

Even with the definitions provided by Warren and colleagues, intensity remains difficult to define for our field of communicative sciences and disorders. The complexities of each component and the interpretation are left up to the researchers to define per their individual study. For example, the definition of intensity within the component of dose frequency varies

across peer-reviewed articles in the form of intensity schedules. As Baker (2012) noted:

whereupon one study's schedule may define intensive treatment as 25 hours of intervention

per week (Hinkley & Carr, 2005), another study may define intensive treatment as 5 hours of

intervention per week (Ramsberger & Marie, 2007). Such a discrepancy in intensity schedules

refutes recommendations for treatment intensity when the methods can be neither compared

nor contrasted for discussion about outcome measures (Baker, 2012; Scott, 2014; Zeng, et al.,

2012).

       Teaching episodes that occur within interventions targeting discrete units of language

are more easily identified than are teaching episodes occurring within interventions targeting

discourse-level language skills (Baumann, 2009; Hoffman, 2009; Proctor-Williams, 2009). For

instance, when a student is being evaluated for language, discrete units found within the rules

of morphology such as the plural -s rule or present progressive -ing are simple to identify,

teach, and production is easily observed during intervention with a student. Whereas, when

discourse-level language skills are being evaluated, a student may have a multitude of errors

within a story-retell at the micro and macro level of language. The micro-level may include

morphological or syntactic errors, however, the macro-level such as organization of story may

be more abstract, therefore identifying, teaching, and taking data becomes more difficult.

Defining teaching episodes is an important component to define dose and dose form. This is

particularly problematic for narrative language intervention and since cumulative intervention

intensity is dependent on dose, intensity may not be able to be clearly defined using Warren,

Fey, and Yoder's 2007 model.

Defining teaching episodes. An SLP may find that a narrative language sample is more reliable than a conversational language sample for the analysis of communication skills. Narratives are inherently more predictable than conversations, due to the structure of a narrative (Gillam & Gillam, 2016; Hoffman, 2009; Petersen, 2010). At the discourse story-telling level, analysis may reveal in-depth information about a person's overall language and literacy abilities. From the organization of ideas, linguistic structure, and inclusion of conventional elements of story-telling, a narrative sample can be an advantageous tool for diagnosis and intervention. Additionally, the narrative as a discourse genre is widely used socially, academically, and culturally. Therefore, narrative language sampling plays an important and relevant role in assessing language development and should be used clinically.

Taking into consideration Warren, Fey, and Yoder's model for intervention intensity within the field of speech-language pathology, Hoffman (2009) examined the characteristics specific to narrative language intervention that may affect interpretation of dosage and hence, intervention intensity. She indicated that a clear definition of narrative language intervention intensity is specifically limited due to the ambiguity and variability of the teaching episodes within narrative language intervention sessions. As opposed to articulation therapy, whereupon teaching episodes can be clearly defined and tracked within simple word, phrase, or sentence level data outcomes, the complexity of narrative discourse structure results in teaching episodes that may vary per individual session. As a result, the formulaic proposal for dosage cannot be applied unless teaching episode boundaries are "consistent and discrete" as well as appropriately reported within research literature (Hoffman, 2009). Expanding on the Cirrin and Gillam (2008) systematic review of language intervention practices, Hoffman declared this kind

of formula for dosage is still in development. Thus, more studies focused on defining teaching episodes for narrative language intervention are needed.

Current Study

With current studies demonstrating no evidence base for the conventional pull-out service delivery model and the program intensity regularly given within the school setting, the decrease in evidence base for language interventions provided for late-elementary students and higher, and the negative effects the pull-out model may have on an adolescent student during development of self-perception, the following study was designed to investigate if an alternate service delivery model with increased program intensity may result in significant language and literacy gains for an adolescent who struggles with literacy skills, but who is not eligible to receive individualized Tier III interventions. Pre- and posttest measures of self-perception were also examined for changes after participating in the intensive literacy intervention. The researcher used a single subject (N=1), multiple-baseline design and a pretest-posttest design to assess changes in language and literacy outcomes. This study specifically examined an 11-year-old student who was transitioning from late-elementary to the middle school grade level. Therefore, for the purpose of this pilot study, dose frequency, total intervention duration and the subcomponent of dose—session duration, were tracked as measures of intervention intensity.

Research Questions

1. Will an adolescent who participates in a two-week intensive language-literacy intervention program make significant gains in:

(a) written narrative composition;

(b) complexity and accuracy of sentence composition; and

(c) decoding skills?

It was predicted that significant gains in written narrative composition, complexity and accuracy of sentence composition, and decoding skills would be found over the course of the 2-week intensive intervention as measured by the pretest-posttest of the GORT-4, TOWL-4, and analysis of written narrative samples.

2. Will an adolescent demonstrate an increase in self-perception of literacy skills following participation in a two-week intensive language-literacy intervention program as measured by the Reader Self-Perception Scale (Henk & Melnick, 1997)?

It was predicted that the aspects of overall self-perception of literacy skills, the self-perception of progress of literacy skills, and the self-perception of positive physiological states experienced in relation literacy would increase.

METHOD

Participant

The participant, Charlie (a pseudonym) was a biracial child from a middle socioeconomic status background who just completed fifth grade at the time of the first assessment session. Charlie was 11 years, 6 months old at the time of the study and was a monolingual speaker of English. His parents reported Charlie had an Individualized Education Program (IEP) addressing a learning disability that affected his reading success. However, the IEP was dismissed in the academic fall year prior to this study's summer intervention.

Charlie participated in a two-week (nine days total) intensive language and literacy intervention program, known as Camp CHRONICLE at the University of Montana's DeWit RiteCare Speech, Language, and Hearing Clinic. CHRONICLE is an acronym for *Creating High-quality Renderings and Original Narratives in a Language-rich Environment.* The intensive literacy program consisted of two intervention sessions per day- one 3-hour session in the morning and one 3-hour session in the afternoon. Morning sessions and afternoon sessions continued for nine consecutive business days—nine three-hour morning intervention sessions, and eight three-hour afternoon intervention sessions—for a total of 17 intervention sessions. As the participant engaged in the literacy interventions, he was guided in the creation of an ongoing project—an original comic strip.

Charlie was selected for this study because he met the following inclusion criteria: (a) cognitive skills within normal range for his chronological age; (b) score of at least 1.5 standard deviations below the mean on at least one of the following assessments: *Comprehensive Assessment of Spoken Language* (CASL; Carrow-Woolfolk, 1999), Form A of the *Gray Oral Reading Test- Fourth Edition* (GORT-4; Wiederholt & Bryant, 2001); *Test of Narrative Language* (TNL; Gillam & Pearson, 2004); *Word Identification and Spelling Test* (WIST; Wilson & Felton, 2004); and Form A of the *Test of Written Language- Fourth Edition* (TOWL-4; Hammill & Larsen, 2009); and (c) he attended every session and completed all of the narrative writing tasks (N=20). Results of the initial language evaluation are presented in Table 2.

Table 2.

Standard scores and percentiles obtained on standardized assessments at pretest

Assessment	Quotient or *scaled score*	Percentile rank
CASL-Core Composite	87	19
Antonyms	117	87
Grammatical Morphemes	86	18
Sentence Comprehension	84 *	14
Nonliteral Language	87	19
Pragmatic Judgment	80 *	9
GORT-4- Oral Reading Quotient	79 *	8
Rate	*6 ***	9
Accuracy	*5 ****	5
Fluency	*4 ****	2
Comprehension	*9*	37
TNL-Narrative Language Ability Index	94	35
Narrative Comprehension	*10*	50
Oral Narration	*8*	25
WIST- Fundamental Literacy Ability Index	88	21
Word Identification	90	25
Spelling	91	27
Sound-Symbol Knowledge	85 *	16
TOWL-4- Spontaneous Writing Composite	81 *	10
Contextual Conventions	*7 ***	16
Story Composition	*6 ***	9

*indicates scores ≥ 1 standard deviations below the mean
**indicates scores ≥ 1.5 standard deviations below the mean

Research Design

This study was approved by the University of Montana Institutional Review Board (IRB #157-15) prior to the start of the investigation. A minor consent form and agreement to participate in this investigation was signed by the parents of the participant. To protect the anonymity of the participant, his identifying information was de-identified and coded by the researcher for data collection, merging, and analysis. A single-subject (N=1) multiple-baseline design across behaviors was utilized to examine the effects of intensive language-literacy

treatment on written language skills. A pretest-posttest design was also employed to analyze outcomes with reference to scores on the GORT-4, TOWL-4, and RSPS.

The pretest-posttest design. The following posttest measures were completed following withdrawal of intervention: Form B of the GORT-4 and Form B of the TOWL-4. Additionally, Charlie completed the Reader Self-Perception Scale (RSPS; Henk & Melnick, 1997) before and after intervention. The RSPS is a systematically validated norm-referenced self-evaluation tool that measures overall self-perception and attitudes towards reading. It allows instructors to obtain information about how the general environment of a student affects self-perception in reading by evaluating scores on the total scale (General Perception) and on four individual scales (Progress, Observational Comparison, Social Feedback, Physiological States).

The multiple baselines design. A narrative writing sample was collected during each session for a total of 20 sessions over the course of nine consecutive business days across one participant. The phases of the research were as follows: (1) Baseline Phase- baseline data were collected; (2) Phase A- intervention focused on discourse-level literacy skills; (3) Phase B-intervention focused on sentence-level and discourse-level skills; and (4) Phase C- intervention focused on word/morpheme-level, sentence-level, and discourse-level skills. After withdrawal of intervention by session 19, final posttest data were collected in session 20 to determine results of the study (see Table 3). Charlie did not receive intervention during baseline data collection and was measured only on the outcome variables. Introduction of intervention targets are also represented in Table 3.

All sessions were conducted at the DeWit RiteCare Speech Language and Hearing Clinic at the University of Montana. The researcher obtained the written narrative assessment data.

Table 3.

Description of Intervention Phases, Corresponding Sessions, and Withdrawal of Intervention

Phase	Session	Objective and targeted interventions
Baseline	1, 2	Administered pretest assessments and collected baseline narrative samples
A	3 , 4, 5	Discourse-level intervention targeted and collected narrative samples
B	6, 7, 8	Sentence- and discourse-level interventions and collected narrative samples
C	9 - 19	Word and morpheme-, sentence-, and discourse-level interventions and collected narrative samples
Withdrawal of intervention	20	Administered post-test assessments and collected post-treatment narrative sample

Selection of Intervention Targets

Intervention targets were selected based on analysis of pretest results of standardized assessments and baseline narrative writing samples of the participant. Charlie's baseline narrative writing samples were taken from the pretesting sessions (one and two) as well as the morning of the first day of Phase A prior to the intervention (session three). Charlie's writing revealed overall limited complexity in story composition and linguistic components. Charlie's standardized assessment results indicated mild-to-moderate deficits in the areas of sound-symbol knowledge, oral reading fluency, sentence comprehension, contextual conventions of writing, and written story composition (see Table 2 for test scores). These results indicated the need for intervention at the discourse, sentence, and word level.

Generating the Written Narratives

Generation of the written narratives throughout the baseline phase, intervention phases, and after the final intervention session were modeled after previous research on

eliciting narrative samples from children. Wordless comic strips and wordless picture books

have been used in past studies to successfully assist in the organization and generation of an

episodic story (Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004; Gillam & Pearson, 2004;

Ukrainetz & Gillam, 2009). Charlie was presented with a wordless comic strip and was

instructed to write a story about the strip. A total of 20 written narrative samples were

collected: three prior to intervention, 16 during intervention, and one following withdrawal of

intervention. The 16 narratives collected during the nine-day intervention period were

completed during a "warm-up" narrative every morning upon arrival and another "cool-down"

narrative at the close of each day (N= 16).

Analysis of Written Narratives

Each written narrative was scored using the Narrative Scoring Scheme (NSS), an

assessment tool available in the Systematic Analysis of Language Transcripts (SALT, Version 8; J.

F. Miller & Chapman, 2005) software program. The NSS has been used in previous studies for

the assessment of a participant's ability to produce an effective narrative (Heilmann, Miller,

Nockerts, & Dunaway, 2010; Rollins, 2014). The narratives were analyzed using the NSS Scoring

Rubric (see Appendix A). Each narrative was scored according to distinct characteristics across

seven categories based on Story Grammar Elements: Introduction, Character Development,

Mental States, Referencing, Conflict-Resolution, Cohesion, and Conclusion. To create an

objective scoring system, the NSS established specific examples for scoring criteria. These

categories are scored using a 0-5 point scale with the higher scores representing more

advanced usage of the narrative characteristics. Scoring for each of the seven characteristics

can be independently analyzed or combined to create a total composite score with 35 as the

highest possible score. The researcher entered NSS scores into SALT for analysis.

SALT was used for further analysis of sentence complexity, and literate vocabulary

usage. Each written narrative was coded following the language sampling guidelines and tasks

outlined by Nippold (2010). Sentences were first coded for simple-complete, simple-

incomplete, complex-complete, and complex-incomplete sentence structure. Further

investigation into sentence complexity continued with examination and coding of the narratives

for the three main types of subordinate clauses: adverbial, relative, and nominal. Charlie's

production of multisyllabic words (any word with three or more syllables) was analyzed, since

this is a commonly used measure for assessing mature vocabulary usage (Gansle et al., 2002;

Grobe, 1981). Finally, Charlie's use of abstract nouns and metacognitive and metalinguistic

verbs (also known as "meta verbs") as part of his literate lexicon, were examined. Definitions of

abstract nouns and meta verbs were derived from Sun and Nippold's (2012) study on narrative

writing in children and adolescents.

Baseline Data Collection

To answer research question one: will an adolescent who participates in a two-week

intensive language-literacy intervention program make significant gains in (a) written narrative

composition, (b) complexity and accuracy of sentence composition, and (c) decoding skills, the

investigator collected three narrative language samples from the participant before

interventions were introduced. These samples were analyzed using the techniques described

above to determine baseline narrative writing skills.

Literacy Skills Targeted During Intervention Phases

The intervention sessions were organized into three phases: (1) Phase A targeted discourse-level language-literacy skills (e.g., story grammar elements, graphic organizers, pre-writing activities); (2) Phase B targeted sentence-level language-literacy skills (e.g., increasing sentence complexity through sentence-combining) and; (3) Phase C targeted word and morpheme-level language-literacy skills (e.g., vocabulary expansion, word study/morphological instruction, instruction in the six basic syllable types, and more advanced spelling rules).

Phase A: discourse-level literacy skills. Phase A intervention (sessions three, four, and five) focused on the narrative discourse-level of language and literacy skills. Intervention targeted story grammar elements. In this intervention phase, the clinicians built awareness of nine story grammar elements, the prewriting brainstorm technique, and character development. The clinicians modeled, identified, and used the method of compare and contrast to analyze a well-structured story verses a poorly constructed story. Using an age-appropriate graphic novel, *Flora & Ulysses: The Illuminated Adventures* (DiCamillo, 2013), the participant identified story grammar elements within the first chapter. The story grammar element of "character" was expanded to include instruction on attributes and a brainstorm of what positive and negative attributes can be used for character development.

Visual supports. A graphic organizer outlining the nine story grammar elements (character, canonical event/typical day, setting, time, event, character thought, attempt, reaction, consequence) and corresponding visual icons representing the elements, was available at all times to Charlie. The application of pictography, or picture writing, shown to

improve written narratives was used throughout the intervention sessions (Ukrainetz, 1998).

The pictographs were sketched by Charlie and he used a six-panel comic strip template.

  Phase B: sentence-level literacy skills. Phase B intervention (sessions six, seven, eight)

focused on sentence-level literacy skills with the recommended discrete skills approaches of

modeling and sentence combining embedded within engaging and meaningful intervention

activities (Ukrainetz, 2007). Intervention targeted use of conjunctions (coordinating and

subordinating) and sentence variation (simple verses complex sentences). In this intervention

phase, clinicians used the methods of contrastive modeling and imitation (Cleave & Fey, 1997)

sentence expanding (Gould, 2001; Killgallon, 1998) and sentence combining (Scott, 1995;

Strong, 1986; Westby & Clauser, 1999). Coordinating and subordinating conjunctions were

introduced through a sentence combining activity. The clinicians had ten predetermined

complex sentences taken from the text of chapter one in the graphic novel that was read during

Phase A. Then the 10 complex sentences were each separated into two simple sentences with a

cloze procedure (Ukrainetz, 2007). Charlie then had six additional sentences to combine

independently.

  Phase C: word and morpheme-level literacy skills. Phase C intervention (sessions nine

through 19) focused on word and morpheme-level literacy skills with an emphasis on

instruction in the six basic syllable types for orthographic pattern awareness. It is important to

note that although Phase C contained the most sessions, the intervention targets from Phase A

and Phase B were still a part of daily instruction throughout the Phase C sessions. Phase C

intervention also included activities targeting phonemic and morphological awareness as well

as the orthographic rules.

Because deficits in orthographic knowledge are thought to contribute to poor encoding and decoding abilities (Apel & Masterson, 2001; Kelman & Apel, 2004; Scott, 2000; Treiman & Bourassa, 2000), the six basic syllable types (open syllable, closed syllable, r-controlled syllable, vowel combination syllable, silent E syllable, and consonant + LE syllable) were taught throughout sessions nine through 19. The spelling rules governing the pronunciation of "g" as either /g/ or /ʤ/ and "c" as either /k/ or /s/, commonly known as the hard or soft G and the hard or soft C rules, were also taught. Intervention instruction included word sorts, word hunts, identification of correct and incorrect spellings, and encoding and decoding of nonsense words. Word sorts allow for a "self-discovery approach" to improve encoding abilities (Apel & Masterson, 2001). Word hunts entailed looking for specific words in the natural environment (i.e. on signs, within books) which followed the explicit rules being taught. This activity increased print awareness in the form of environmental print, print seen within functional and situational contexts. Print referencing embedded within intervention activities allows continued support for more naturalistic and purposeful delivery with repeated opportunities (Justice, Skibbe, & Ezell, 2007, p. 408-418). Following these decoding and encoding exercises each session, Charlie also practiced these newly learned skills during authentic writing while he composed the narrative for his comic.

Clinician Training and Treatment Fidelity

The researcher in this experiment had completed both a course relevant to language intervention for school-age children and a course focused on diagnosis of speech and language disorders. This researcher was also supervised by a licensed, certified speech-language pathologist throughout the duration of the experiment. This supervisor provided continual

support and guidance throughout to ensure that all assessment and intervention tasks were

completed appropriately. All narrative writing samples coded and analyzed for NSS and SALT

were unanimously agreed upon by the researcher, a trained undergraduate assistant, and the

master clinician.

Results

Effects on Written Narrative Composition

The first research question addressed whether or not an adolescent who participated in

a two-week intensive language-literacy intervention program would make significant gains in

written narrative composition. The NSS from SALT was used to assess the subject's ability to

compose a coherent narrative. An independent samples t-test was conducted to compare the

participant's NSS scores during baseline (samples 1-3) and intervention (samples 4-19). There

was a significant difference in scores during the baseline phase (M = 11.33, SD = 9.61) and

phases A-C (M = 26.50, SD = 3.65; t (17) = -5.07, p = .0001, two-tailed). The magnitude of the

difference in the means (mean differences = -15.17, 95% CI: -21.48 to -8.85) was mild-to-

moderate (eta squared = .059), d = -0.72.

Descriptive statistic results demonstrated positive trends for six of the seven elements,

with overall improvement of story grammar elements demonstrated by the NSS composite
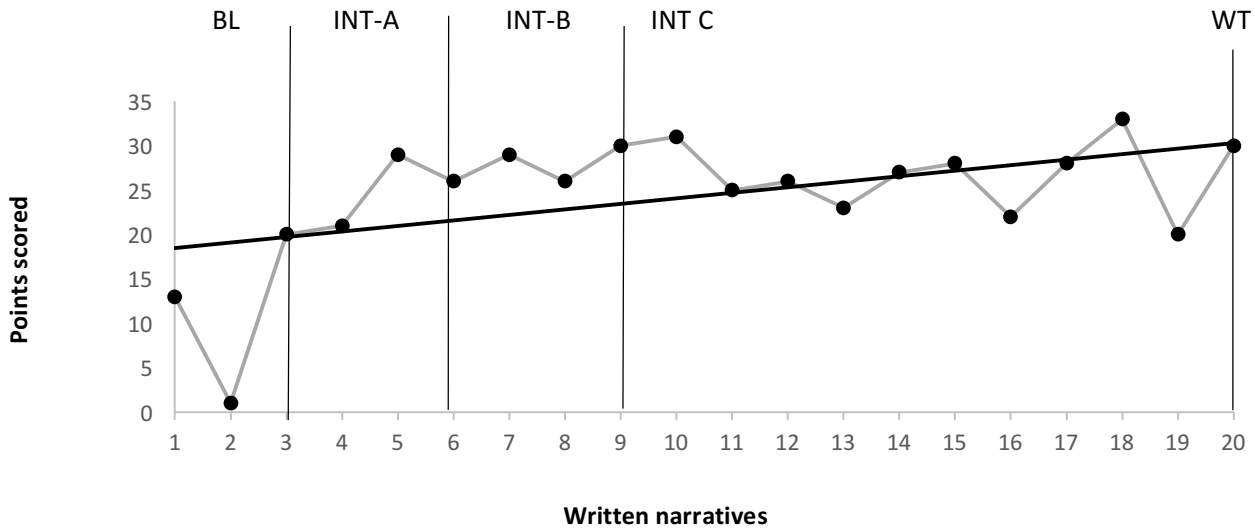
score results (see Figure 1.0).

Figure 1.0. Narrative Scoring Scheme Total Composite Score Results. BL= baseline; INT-A= intervention phase A; INT-B= intervention phase B; INT-C= intervention phase C; WT= withdrawal of intervention

Each story grammar element was scored using the NSS scoring rubric with a scale of 0-5

for individual elements and a total score out of 35 (see Appendix A). The multiple-baseline

results generated by the NSS analysis of the 20 written narrative samples are displayed in

Figures 1.0 through 1.4 In summary, the outcomes depicted within the graphical and statistical

outcomes demonstrated an overall positive effect of the intervention for written narrative
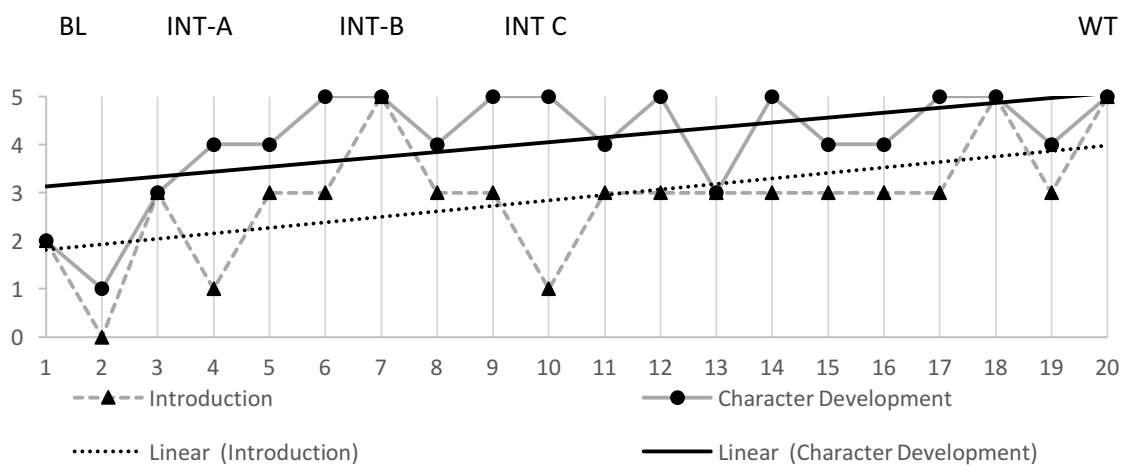
composition.

Figure 1.1. Narrative Scoring Scheme Results for Introduction and Character Development. BL= baseline; INT-A= intervention phase A; INT-B= intervention phase B; INT-C= intervention phase C; WT= withdrawal of intervention

Figure 1.2. Narrative Scoring Scheme Results for Mental State and Referencing. BL= baseline; INT-A= intervention phase A; INT-B= intervention phase B; INT-C= intervention phase C; WT= withdrawal of intervention

Figure 1.3. Narrative Scoring Scheme Results for Introduction and Character Development. BL= baseline; INT-A= intervention phase A; INT-B= intervention phase B; INT-C= intervention phase C; WT= withdrawal of intervention
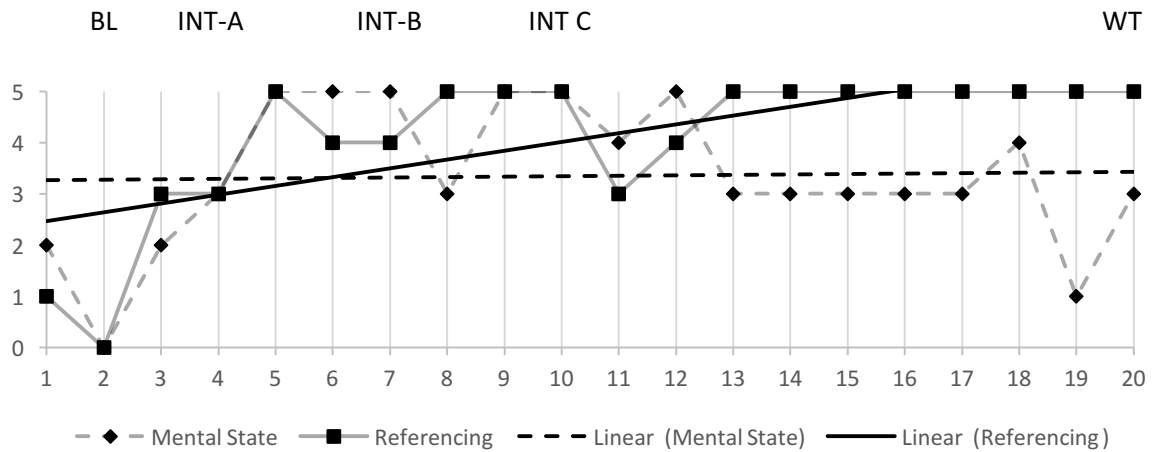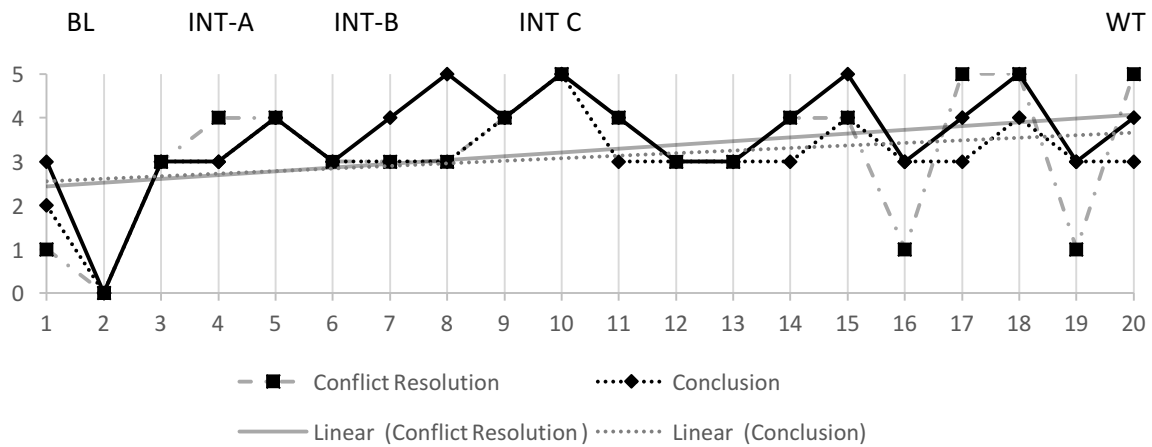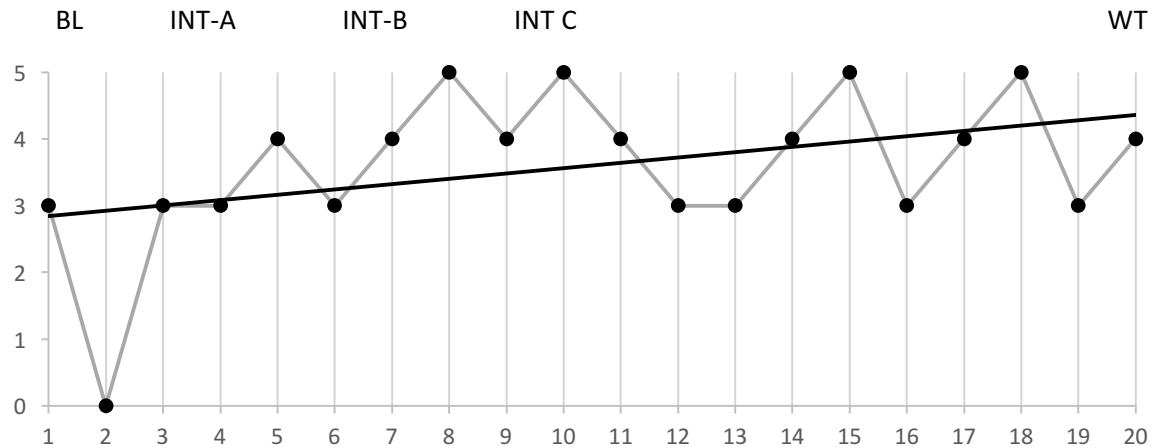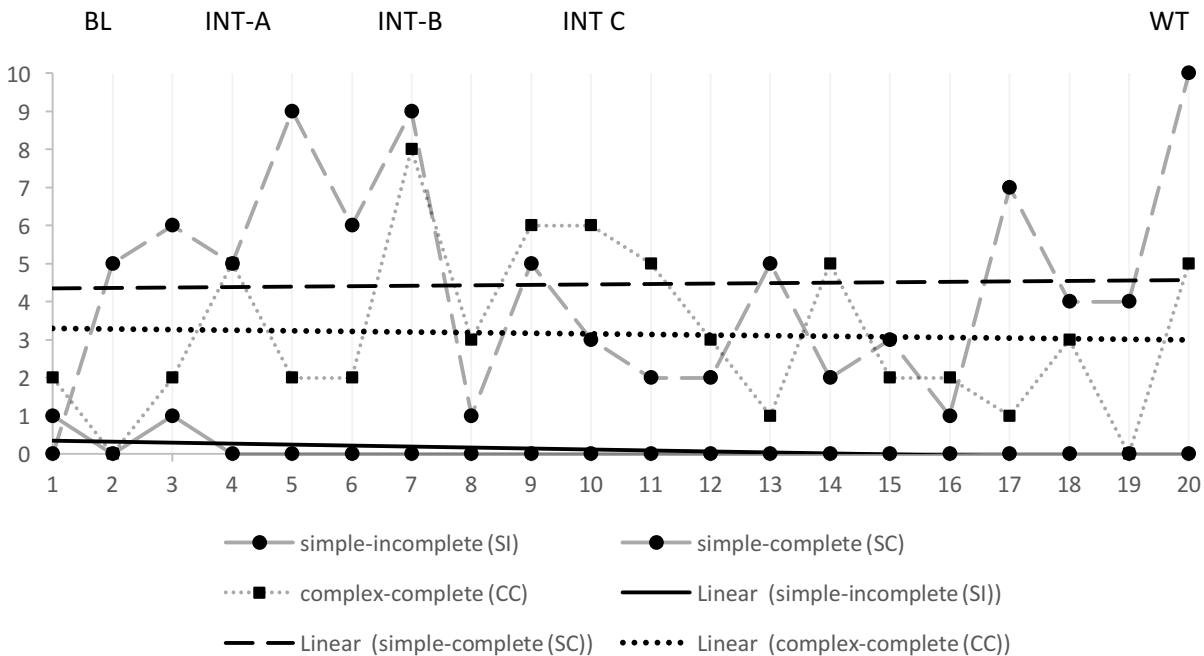
Figure 1.4. Narrative Scoring Scheme Results for Cohesion. BL= baseline; INT-A= intervention phase A; INT-B= intervention phase B; INT-C= intervention phase C; WT= withdrawal of intervention

Effects on Complexity and Accuracy of Sentence Composition

The first research question also addressed whether or not an adolescent who

participated in a two-week intensive language-literacy intervention program would make

significant gains in complexity and accuracy of sentence production. Three independent

samples t-tests with Bonferroni correction were conducted to compare the participant's

production of incomplete simple sentences, simple complete sentences, and complex complete

sentences. during baseline (samples 1-6) and intervention (samples 7-19). There was no

significant difference in incomplete simple sentence production during the baseline phase (*M*

=.33, *SD* = .52) and phases A-C (*M* = 0.0, *SD* = 0.0; *t* (17) = 2.41, *p* = .027, two-tailed). The

magnitude of the difference in the means (mean differences = .33, 99.83% *CI*: -.18 to .85) was

mild-to-moderate (eta squared = .059). There was no significant difference in complete simple

sentence production during the baseline phase (*M* = 5.17, *SD* = 2.93) and phases A-C (*M* = 3.69,

SD = 2.36; *t* (17) = 1.18, *p* = .310, two-tailed). The magnitude of the difference in the means

(mean differences = 1.47, 99.83% *CI*: -3.19 to 6.14) was moderate (eta squared = .06). There

was no significant difference in complete complex sentence production during the baseline

phase (*M* = 2.17, *SD* = 1.60) and phases A-C (*M* = 3.46, *SD* = 2.37; *t* (17) = -1.21, *p* = .111, two-tailed). The magnitude of the difference in the means (mean differences = -1.30, 99.83% *CI*: -5.28 to 2.69) was moderate (eta squared = .06).

The multiple-baseline results generated by SALT analysis of simple-incomplete, simple-complete, complex-incomplete, and complex-complete sentences are displayed in Figure 2. Results demonstrated relative stability for overall sentence complexity performance measuring simple vs. complex sentence structure (see Figure 2). In summary, graphical and statistical outcomes showed overall little significant effect of the intervention for this data set.

Written narratives

Figure 2. Multiple-baseline results for simple verses complex sentence structure. BL= baseline; INT-A= intervention phase A; INT-B= intervention phase B; INT-C= intervention phase C; WT= withdrawal of intervention

Multiple-baseline results generated by SALT analysis of subordinate clauses are displayed in Figure 3. Charlie demonstrated an overall decline in adverbial and relative clause usage and relative stability in nominal clause usage from baseline to withdrawal. Visual

inspection of the data revealed an interesting pattern. Charlie demonstrated increases in all subordinate clause usage until the introduction of the Phase C, when word- and phoneme-level interventions were introduced (see Figure 3).

An independent samples t-test was conducted to compare the participant's subordinate clause production during baseline (samples 1-6) and intervention (samples 7-19). There was not a significant difference in scores during the baseline phase (*M* = 3.17, *SD* = 2.32) and phases A-C (*M* = 3.62, *SD* = 2.33; *t* (17) = -.61, *p* = .523, two-tailed). The magnitude of the difference in the means (mean differences = -.83, 95% *CI*: -4.07 to 2.4) was mild-to-moderate (eta squared = -.14).

Because visual inspection of the data revealed two separate patterns in subordinate clause production, an additional analysis was warranted. An independent samples t-test was conducted to compare the participant's subordinate clause production during baseline (samples 1-6) and intervention Phase B only (samples 7-9). Although visual inspection revealed a positive trend, there was not a significant difference in scores during the baseline phase (*M* = 3.17, *SD* = 2.32) and phases A-C (*M* = 3.62, *SD* = 2.33; *t* (7) = -.39, *p* = .704, two-tailed). The magnitude of the difference in the means (mean differences = -.45, 95% *CI*: -2.87 to 1.97) was moderate (eta squared = .06).
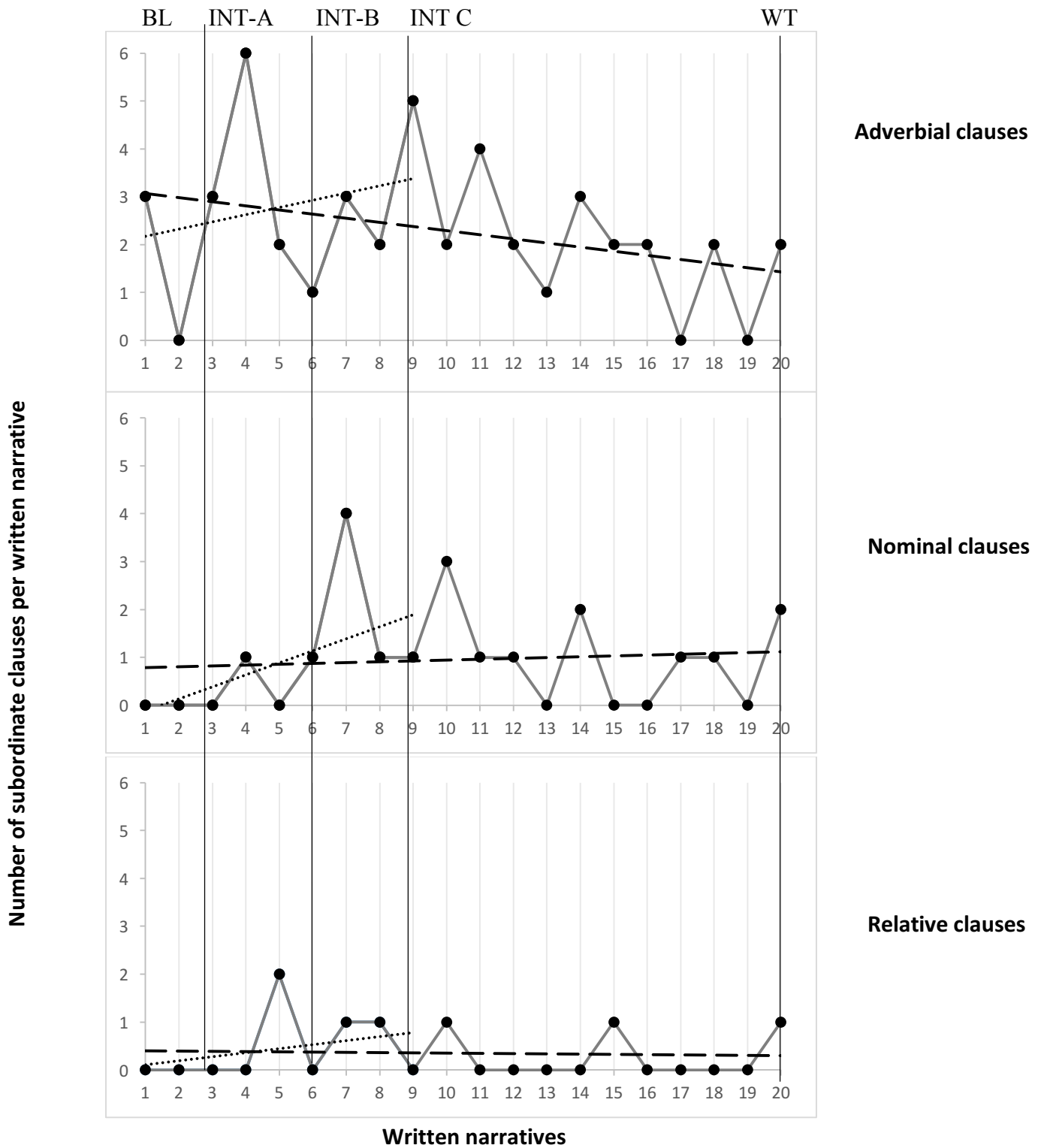
Figure 3. Multiple-baseline results for subordinate clauses. BL= baseline; INT-A= intervention phase A; INT-B= intervention phase B; INT-C= intervention phase C; WT= withdrawal of intervention

Multiple-baseline results generated by SALT analysis of multisyllabic words and two

components of literate vocabulary: abstract nouns and metalinguistic verbs are displayed in

Figure 4. Visual inspection of the data revealed an overall decline in production of abstract

nouns and multisyllabic words; however, further inspection of the data revealed two different

trends. Charlie demonstrated steady increases in his production of abstract nouns and

multisyllabic words from baseline to Phase B. It was not until the introduction of Phase C, when

word- and phoneme-level interventions were introduced, that his production of abstract nouns

and multisyllabic words began to decline. Metalinguistic verb usage remained relatively stable

throughout all phases.

An independent samples t-test was conducted to compare the participant's multisyllabic

word production during baseline (samples 1-9) and intervention (samples 10-19). There was not

a significant difference in scores during the baseline phase (M = 1.56, SD = 1.51) and

intervention (M = .50, SD = .71; t (17) = 1.99, p = .063, two-tailed). The magnitude of the

difference in the means (mean differences = 1.06, 95% CI: -.07 to 2.18) was moderate (eta

squared = .06).

Because visual inspection of the data revealed a positive trend in multisyllabic

vocabulary production prior to introduction of Phase C, an additional analysis was warranted.

An independent samples t-test was conducted to compare the participant's multisyllabic word

production during baseline (samples 1-3) and intervention Phases A and B only (samples 4-9).

There was a significant difference in scores during the baseline phase (M = .33, SD = .58) and

phases A-B (M = 2.17, SD = 1.47; t (7) = -2.02, p = .0.32, two-tailed). The magnitude of the
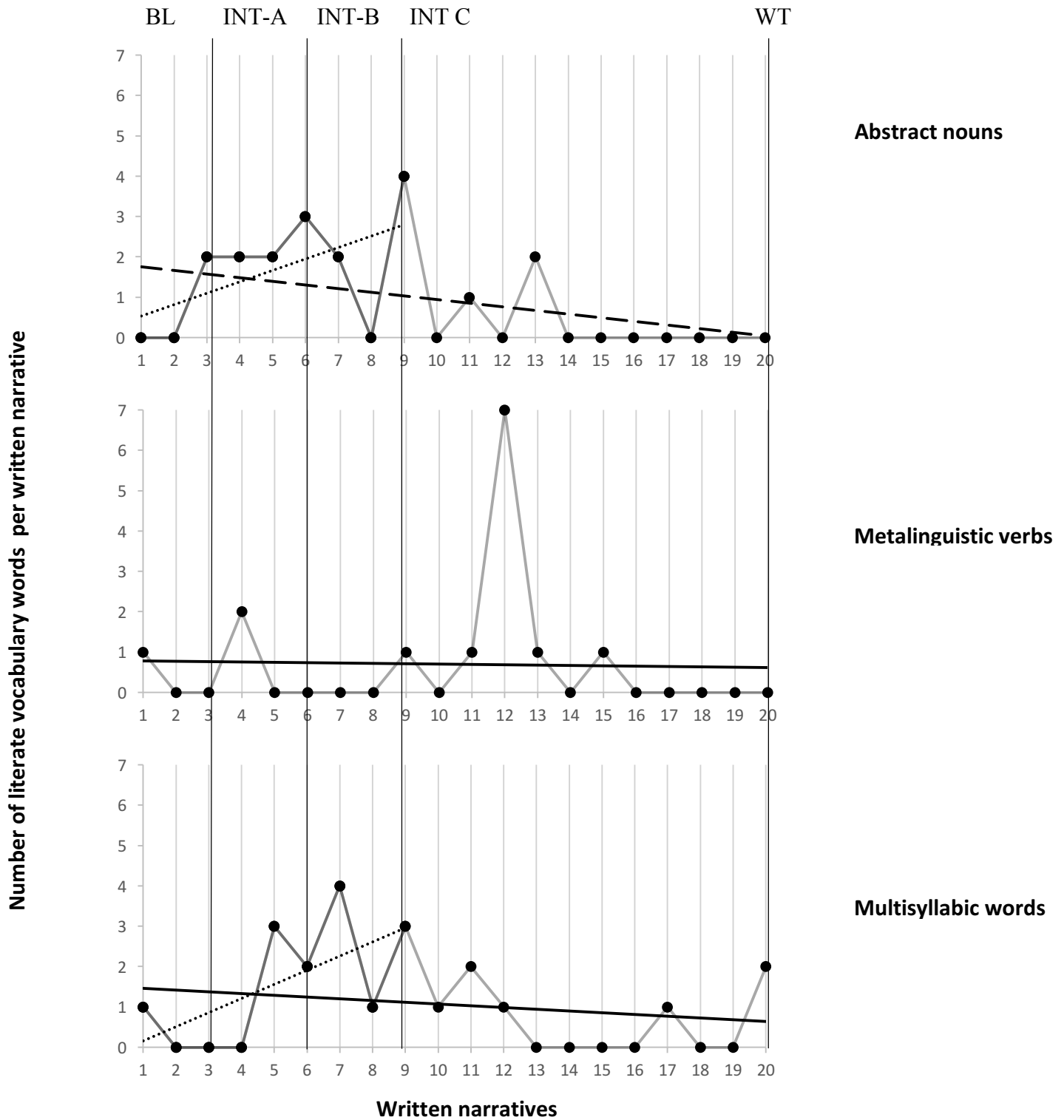
Figure 4. Multiple-baseline results for abstract nouns, metalinguistic verbs, and multisyllabic word production BL= baseline; INT-A= intervention phase A; INT-B= intervention phase B; INT-C= intervention phase C; WT= withdrawal of intervention

difference in the means (mean differences = -1.83, 95% *CI*: -3.97 to .31) was large (eta squared

= .14), d = .64.

An independent samples t-test was conducted to compare the participant's literate

vocabulary production during baseline (samples 1-9) and intervention (samples 10-19). There

was not a significant difference in scores during the baseline phase (*M* = 2.11, *SD* = 1.69) and

intervention (*M* = 1.30, *SD* = 2.26; *t* (17) = .876, *p* = .386, two-tailed). The magnitude of the

difference in the means (mean differences = .81, 95% *CI*: -1.14 to 2.76) was moderate (eta

squared = .06). In fact, visual inspection of the data supports the suggestion of a decline in

literate vocabulary production once word-level interventions were introduced in Phase C.

In summary, the graphical and statistical outcomes showed the largest and most reliable

treatment effect from the intervention was within the participant's use of multisyllabic word

production during baseline (sample 1-3) and intervention Phases A and B only (samples 4-9).

Effects on Composition and Decoding

Written language pre-posttest results. Charlie was administered Form B of the GORT-4

and Form B of the Contextual Conventions and Story Composition subtests of the TOWL-4

following withdrawal of the interventions. Noted gains were observed in area assessed (see

Table 4).

Table 4.

Posttest Results for Charlie after Withdrawal of Treatment Session 19 of Formal Assessments

Assessment	Quotient or *scaled score*	Percentile rank
GORT-4- Oral Reading Quotient	94	34
Rate	*7*	16
Accuracy	*9*	37
Fluency	*8*	25
Comprehension	*10*	50
TOWL-4- Spontaneous Writing Composite	125	95
Contextual Conventions	*11*	84
Story Composition	*16*	98

Standard scores were examined for non-overlapping standard error of measurement

(SEM). The SEM denotes a range of possible performance, so pre- and post-intervention SEM

that do not overlap are representative of substantial change in performance (Apel &

Masterson, 2001). Standardized test scores with non-overlapping SEM include the Accuracy

and Fluency subtests scores of the GORT-4 as well as the Oral Reading Quotient. Additionally,

the Contextual Conventions and Story Composition subtests as well as the Spontaneous Writing

Composite of the TOWL-4 demonstrated no overlap in SEM from pretest to posttest. Although

gains in scores were noted in the Rate and Comprehension subtests of the GORT-4, SEM did

overlap, so reliability of these gains should be interpreted with caution (see Table 5). The CASL,

the WIST, and the TNL were not administered at posttest since none of the participant's scores

fell substantially below expected levels at pretest.

Table 5.

Gain scores in GORT-4 and TOWL-4

Assessment	Pretest Quotient Score	Pretest Scaled Score	SEM	Posttest Quotient Score	Posttest Scaled Score	SEM	Gain
GORT-4- Oral Reading Quotient	79		76-82	94		91-97	**+15***
Rate		6	5-7		7	6-8	+1
Accuracy		5	4-6		9	8-10	**+4***
Fluency		4	3-5		8	7-9	**+4***
Comprehension		9	8-10		10	9-11	+1
TOWL-4- Spontaneous Writing Composite	81		75-87	125		119-131	**+44***
Contextual Conventions		7	6-8		11	10-12	**+4***
Story Composition		6	4-8		16	14-18	**+10***

indicates no overlapping SEM

Self-perception of reading results. Pretest and posttest comparison of scores given by

Charlie's self-report to the researcher administering the RSPS (see Table 6) demonstrated

Charlie demonstrated gains in his general perception of himself as a reader directly following

intervention. Charlie also had improvement in his self-perception of progress made as a reader,

with a gain of six points from pre-to-posttest, and improvement to his physiological states when

reading, with a gain of 10 points. Other scales evaluated had a one to two-point gain from pre-

to-post. See Appendix B for more information on statements associated with the RSPS.

Table 6.

Pre-posttest Results, Comparison, and Percent Improvement of RSPS

Scale	Total Score Possible	Pretest Results	Posttest Results	Pretest Score Description	Posttest Score Description	Gain
*General Perception	5	3	4	Undecided	Agree	+1
Progress	45	32	38	Low	Average	+6
Observational Comparison	30	18	19	Average	Average	+1
Social Feedback	45	30	32	Average	Average	+2
Physiological States	40	25	35	Low	Average	+10

*based on question "I am a good reader"

Discussion

The purpose of the current study was to investigate the effects of a brief, but intensive language-literacy intervention for an adolescent with LLD and examine the subsequent language and literacy outcomes alongside the effects of the intervention on an adolescent's self-perception and attitudes towards reading.

The first research question proposed for the study questioned whether an adolescent who participated in a two-week intensive language-literacy intervention program would make significant gains in: (a) written narrative composition; (b) complexity and accuracy of sentence composition; and (c) decoding skills. It was predicted that significant gains would be found over the course of a two-week intensive intervention. The first question was answered using the results of the pretest and posttest standardized assessment findings from the GORT-4 and the TOWL-4, as well as the findings derived from the SALT analysis of the written narratives.

Visual inspection of the data revealed steady increases in all discourse-level measures and improvement in discourse-level abilities was also observed in the TOWL-4 results. Charlie

demonstrated substantial gains in his TOWL-4 scores. The Contextual Conventions subtest is

used to examine ability to spell words correctly, use accurate punctuation, and create

grammatically correct and complex sentences. At pretest, Charlie's writing sample was

characterized by run-on sentences, multiple spelling errors, word omissions, and inappropriate

use of conjunctions. At posttest his writing sample was characterized by improved sentence

composition and increased use of compound sentences, use of an introductory clause/phrase,

no fragmented sentences, significantly fewer spelling errors, and appropriate use of

punctuation. The Story Composition subtest is used to examine the ability to write in a logical,

organized fashion, to create a specific theme or plot for the story with appropriate story

grammar elements (e.g., character development and concluding statements) in an engaging

manner for the reader, and to use age-appropriate vocabulary. At pretest, Charlie's writing

sample was characterized by simple vocabulary usage, poor plot development, poor character

development, and an overall uninteresting story. At posttest his writing sample was

characterized by a significant increase in his use of complex vocabulary, story grammar

elements that also expanded character development to include names and feelings, as well as

overall increase in elaborate storytelling. It is hypothesized that these gains were observed

because as Charlie increased the speed and accuracy with which he was encoding, resulting in

an overall improvement in writing skills. With greater automaticity with spelling, increased

discourse-level writing fluency was observed and Charlie demonstrated fewer sentence

fragments and omitted words, as well as increasing his ability to write in a logically organized

fashion. It is also hypothesized Charlie's increased ability to encode allowed him to focus more

on story development, as revealed by the increase of story grammar elements in his posttest writing sample.

When analyzing the results of the subordinate clause usage, visual inspection of the data revealed an overall decline in adverbial and relative clause usage and an overall stability in nominal clause usage. However, upon further inspection of the data, an interesting pattern emerged. Steady increases in all subordinate clause usage was observed when intervention focused on discourse-level and sentence-level instruction, yet Charlie demonstrated decline in usage when the focus of intervention was at the word and morpheme level. This is notable when reflecting on informal observation of Charlie during intervention that he appeared to learn and implement discourse-level and sentence-level literacy strategies easily and readily. He demonstrated much more difficulty with word- and phoneme-level skills. It was observed, for example, that he required numerous repetitions of a spelling rule before he could independently encode and decode words to which that rule was applied. It is suspected that Charlie devoted more attention to word-level strategies because he found them to be difficult, leaving fewer attentional resources available to devote to sentence-level and discourse-level writing skills. Charlie exhibited a very similar pattern in his production of abstract nouns and multisyllabic words. He appeared to exhibit an overall decline in production, but when production was analyzed from baseline through Phase B, where the focus of intervention was on sentence-level and discourse-level strategies, Charlie again demonstrated notable gains.

Improvements in word and morpheme-level abilities were observed in the GORT-4 results. Charlie demonstrated improvements in his GORT-4 scores and significant improvements in overall reading ability. The subtest of Comprehension is indicated by response

to five multiple choice comprehension questions after the reading of a passage. At pretest,

Charlie demonstrated strength in his reading comprehension ability and at posttest, he

demonstrated relative stability in his score, with a gain of one point for posttest results. The

Rate subtest is used to examine the time in seconds taken to read a passage. At pretest, Charlie

demonstrated below average rate of reading. His rate of reading was affected by consistent

revisions and repetitions of words and sentences while reading. Though his posttest score for

Rate remained in the below average description, with a gain of one point from the pretest

score, it was observed that Charlie's rate of reading contained a decrease in self-corrections

that were previously observed in his pretest rate of reading. The Accuracy subtest is used to

measure the number of words correctly pronounced within the reading passage. At pretest,

Charlie demonstrated poor accuracy while reading, often mispronouncing words that follow

orthographic patterns. At posttest, Charlie's reading accuracy improved significantly, reflecting

a score at the average reading ability as compared to same-aged peers. The Fluency subtest is

calculated by combining Rate and Accuracy scores. At pretest, Charlie had a description of poor

reading fluency, whereas at posttest, Charlie had a description of average reading fluency as

compared to same-aged peers. It is hypothesized that these significant gains were due to

Charlie's increased awareness of orthographic patterns and rules (i.e. the six basic syllable

types, hard and soft "C" and "G" rules). Having awareness of such patterns and rules may also

have strengthened Charlie's confidence to read aloud with fewer self-corrections.

Finally, the second question proposed that an adolescent participating in this

intervention would demonstrate an increase in self-perception of attitudes towards reading.

Charlie demonstrated an improvement in his self-perception and attitudes towards reading on

the total scale (General Perception) and on the four individual scales (Progress, Observational

Comparison, Social Feedback, and Physiological States), with the most significant improvement

in the scales of Progress and Physiological States. The scale of Progress is defined as the child's

perception of present reading performance as compared to past reading performances, while

the scale of Physiological States is defined as the internal emotional state experienced when

reading (Henk & Melnick, 1995). The scale of Social Feedback included statements such as *I can

tell my teacher likes to listen to me read* and *My classmates like to listen to me* read; while the

scale of Observational Comparison included statements such as *I read better than other kids in

my class* and *I read faster than* other kids. Given the short duration of intervention and

limitation of relationship building to both peers and clinicians, significant improvements on

these two scales was not expected.

    At pretest, Charlie indicated uncertainty on 19 of the 33 statements. He appeared

hesitant and indecisive. At posttest, Charlie indicated uncertainty on seven of the 33 questions

and appeared more confident to agree or strongly agree with the statements asked. This

change in self-perception and attitudes towards reading is especially noteworthy because of

the impact this will have on Charlie's developing academic self-concept. There is good reason to

expect that if Charlie has shown a positive increase in attitude towards reading, he will be more

likely to approach reading within other environments (i.e., school, home) with a similar positive

attitude, thereby increasing his opportunities to continue to improve his reading abilities. For

example, because Charlie has had a positive experience with reading and writing within this

intervention, he may be more motivated to attempt reading and writing outside of the

intervention, whether it be at school or at home (Henk & Melnick, 1995; Margolis & McCabe,

2006). The fact that Charlie's attitudes towards reading and self-perception of progress were changed in just nine days is an important factor to consider when thinking of other adolescents who struggle with similar LLD deficits. A brief but intensive intervention that also strengthens self-perception, motivation, and academic self-concept, may be helpful for a student to attend prior to the start of the school year or perhaps even during winter, spring, and summer breaks.

Clinical Implications

This current study is a preliminary examination of a potential alternative or supplemental service delivery model and program intensity outside of the school setting for an adolescent student with LLD. Using a brief but intensive language-literacy intervention with higher dosage over the course of nine consecutive business days, the researcher saw significant gains in literacy skills and the participant's self-perception and attitudes towards reading. The clinical implications of such positive outcomes are important to note.

An adolescent is particularly vulnerable to academic strife due to the physical and psychological changes occurring during the adolescent period; this in turn impacts the developing self-perception which then impacts developing academic self-concept (Gans et al., 2003; Heyman, 1990; Margolis & McCabe, 2006; McKenna et al., 1995; Thomas et al., 2011). The current service delivery model traditionally used within the school setting perpetuates the adolescent-prone social stigma associated with being different from the norm (Causton-Theoharis & Theoharis, 2008; Ehren, 2002) and has low program intensity. With past studies reporting individual or group therapy session schedules to be only once or twice a week for 20-30 minutes (Brandel & Loeb, 2011; Mullen & Schooling, 2010), such limited intensity may not allow for as much improvement in intervention outcomes as an intensive intervention. A brief

but intensive intervention that allows an adolescent student to be instructed in a setting outside of school with an emphasis on program intensity and boosting self-perception through motivating intervention activities may circumvent the detrimental impacts of a pull-out service delivery model with low program intensity could be avoided altogether.

Additionally, the findings of this study demonstrated the gains in language and literacy skills acquired by an adolescent student who struggled with LLD but may not necessarily have qualified for individualized services within the school-setting. This study demonstrated the need for such an intervention which corresponds with the RTI model Tier II, providing intervention in small groups for students identified as at-risk but not responding to literacy instruction at Tier I. It is unlikely that Charlie would have qualified for school-based SLP services based on his language and literacy assessment scores at pretest, yet he was clearly struggling with reading and writing based on parent, teacher, and self-report. Following nine days of intensive intervention, Charlie demonstrated substantial gains in his literacy skills, showing that he was not reaching his potential prior to intervention.

Finally, this current study identified the intensity components of dose frequency, total intervention duration, and session duration as measures of intervention intensity. In order to create optimal intervention intensity for future studies of narrative language intervention, it will be necessary to clearly define teaching episodes throughout the intervention so that dosage can be accurately calculated. Clinical implications for future studies due to limitations of this current study are discussed further in the following two sections.

Limitations of Current Study

This current study provides preliminary evidence of the effects a brief, but intensive language-literacy intervention can have on an adolescent student. Despite the significant literacy gains reflected in the results which support such a brief, but intensive intervention, this study had limitations that future studies should seek to overcome.

First, the question of measuring intensity for narrative language interventions specifically in the ambiguity of dose and dosage within teaching episodes, play an important role in determining whether gains in language-literacy skills are a result of a brief but intensive intervention. As Hoffman (2009) pointed out, teaching episodes within narrative language intervention cannot be easily defined due to the complexity of narrative discourse structure. In this intervention, the challenge of defining teaching episodes noted were consistent with Hoffman's observations.

Second, there was only one narrative sample taken from the subject shortly after withdrawal of intervention. The collection of two more narrative samples was scheduled for one week and two week intervals respectively after withdrawal of intervention. However, due to unforeseen circumstances, the subject was unable to complete these follow-up narratives. With only one post-test narrative taken directly after the completion of intervention, maintenance or generalization of literacy skills could not be accurately measured.

Finally, a smaller than anticipated sample size resulted in the single-subject design across one participant. This N=1 design limited the statistical analysis of outcome measures. Without correlation across multiple data points, the changes tracked cannot be verified as statistically significant.

Call for Additional Research

This preliminary study suggests that further investigation is warranted. Future single-subject, multiple-baseline design studies could be used to examine language-literacy results from a similar brief, but intensive intervention. Future studies call for a larger sample size of participants to increase statistical validity, as well as manipulation of the intensity of the intervention. Increasing intervention duration, such as having three weeks of intervention instead of nine days, creating a stricter protocol for clinicians leading teaching episodes, thereby clarifying teaching episode boundaries, and examining maintenance of skills acquired after withdrawal of intervention to prove generalization, could all contribute to the efficacy of future studies.

Conclusion

The current study illustrated that a brief, but intensive language-literacy intervention for an adolescent resulted in significant language and literacy gains as well as improvement in overall self-perception and attitudes towards reading. The findings indicated that this type of study can provide future evidence for the use of an alternative or supplemental means for an adolescent to increase overall literacy skills outside of the traditional school-setting. The findings also indicated that this type of program may increase an adolescent's self-perception and attitudes towards reading by providing the adolescent with a positive language-literacy experience through highly motivational activities. For the adolescents struggling with reading and writing and consequently, experience a negative academic self-concept within the school-setting, it is necessary to determine alternative or supplemental interventions. The results of this current study suggest intervention resulted in significant improvements in reading and

overall self-perception. Future research is needed to provide further empirical evidence of such

an intervention.

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Appendix A

NSS Scoring Rubric

NSS SCORING RUBRIC

Characteristic	Proficient	Emerging	Minimal/Immature
Introduction	**1) Setting:** - States general place and provides some detail about the setting (e.g., reference to the time of the setting, daytime, bedtime, season). - Setting elements are stated at appropriate place in story. **2) Characters:** - Main characters are introduced with some description or detail provided.	**1) Setting:** - States general setting but provides no detail. - Description or elements of setting are given intermittently through story. - May provide description of specific element of setting (e.g., the frog is in the jar). **2) Characters:** - Characters of story are mentioned with no detail or description.	- Launches into story with no attempt to provide the setting.
Character Development	- Main character(s) and <u>all</u> supporting character(s) are mentioned. - Throughout story it is clear child can discriminate between main and supporting characters (e.g., more description of, emphasis upon main character(s)). - Child narrates in first person using character voice (e.g., "You get out of my tree", said the owl.).	- Both main and active supporting characters are mentioned. - Main characters are not clearly distinguished from supporting characters.	- Inconsistent mention of involved or active characters. - Character(s) necessary for advancing the plot are not present.
Mental States	- Mental states of main and supporting characters are expressed when necessary for plot development and advancement. - A variety of mental state words are used.	- Some use of evident mental state words to develop character(s).	- No use of mental state words to develop character(s).
Referencing	- Provides necessary antecedents to pronouns. - References are clear throughout story.	- Inconsistent use of referents/antecedents.	- Excessive use of pronouns. - No verbal clarifiers used. - Child is unaware listener is confused.
Conflict Resolution	- Clearly states all conflicts and resolutions critical to advancing the plot of the story.	- Under developed description of conflicts and resolutions critical to advancing the plot of the story. **OR** - Not all conflicts and resolutions critical to advancing the plot are present	- Random resolution(s) stated with no mention of cause or conflict. **OR** - Conflict mentioned without resolution. **OR** - Many conflicts and resolutions critical to advancing the plot are not present.
Cohesion	- Events follow a logical order. - Critical events are included while less emphasis is placed on minor events. - Smooth transitions are provided between events.	- Events follow a logical order. - Excessive detail or emphasis provided on minor events leading the listener astray. **OR** - Transitions to next event unclear. **OR** - Minimal detail given for critical events. **OR** - Equal emphasis on all events.	- No use of smooth transitions.
Conclusion	- Story is clearly wrapped up using general concluding statements such as "and they were together again happy as could be".	- Specific event is concluded, but no general statement made as to the conclusion of the whole story.	- Stops narrating and listener may need to ask if that is the end.

Scoring: Each characteristic receives a scaled score 0-5. Proficient characteristics=5, Emerging=3, Minimal/ Immature=1. Scores in between (e.g., 2, 4) are undefined, use judgement. Scores of 0, NA are defined below. A composite is scored by adding the total of the characteristic scores. Highest score=35.
A score of 0 is given for Child Errors (i.e., telling the wrong story, conversing with examiner, not completing/refusing task, using wrong language creating inability of scorer to comprehend story in target language, abandoned utterances, unintelligibility, poor performance, components of rubric are in imitation-only).
A score of NA (non-applicable) is given for Mechanical/Examiner/Operator Errors (i.e., interference from background noise, issues with recording (cut-offs, interruptions), examiner quitting before child does, examiner not following protocol, examiner asking overly specific or leading questions rather than open-ended questions or prompts).

Appendix B

Reader Self-Perception Scale

READER SELF-PERCEPTION SCALE

Listed below are statements about reading. Please read each statement carefully. Then circle the letters that show how much
you agree or disagree with the statement. Use the following scale:

SA = Strongly Agree   A = Agree   U = Undecided   D = Disagree   SD = Strongly Disagree

Example: **I think pizza with pepperoni is the best.**   SA   A   U   D   SD
If you are *really positive* that pepperoni is the best, circle SA (Strongly Agree).
If you *think* that it is good but maybe not great, circle A (Agree).
If you *can't decide* whether or not it is best, circle U (Undecided).
If you *think* that pepperoni pizza is not all that good, circle D (Disagree).
If you are *really positive* that pepperoni pizza is not very good, circle SD (Strongly Disagree).

		SA	A	U	D	SD
	1. I think I am a good reader.	SA	A	U	D	SD
[PS]	2. I like to read aloud.	SA	A	U	D	SD
[PS]	3. I feel good inside when I read.	SA	A	U	D	SD
[PR]	4. When I read, I don't have to try as hard as I used to.	SA	A	U	D	SD
[PR]	5. I am getting better at reading.	SA	A	U	D	SD
[PR]	6. When I read, I need less help than I used to.	SA	A	U	D	SD
[PS]	7. Reading makes me feel happy inside.	SA	A	U	D	SD
[PR]	8. Reading is easier for me than it used to be.	SA	A	U	D	SD
[PR]	9. I read faster than I could before.	SA	A	U	D	SD
[PS]	10. I feel calm when I read.	SA	A	U	D	SD
[PR]	11. I understand what I read better than I could before.	SA	A	U	D	SD
[PR]	12. I can figure out words better than I could before.	SA	A	U	D	SD
[PS]	13. I feel comfortable when I read.	SA	A	U	D	SD
[PS]	14. I think reading is relaxing.	SA	A	U	D	SD
[PR]	15. I read better now than I could before.	SA	A	U	D	SD
[PR]	16. When I read, I recognize more words than I used to.	SA	A	U	D	SD
[PS]	17. Reading makes me feel good.	SA	A	U	D	SD
[PS]	18. I enjoy reading.	SA	A	U	D	SD

Source: Henk, W.A., & Melnick, S.A. (1995). The Reader Self-Perception Scale (RSPS): A new tool for measuring how
children feel about themselves as readers. *The Reading Teacher*, 48, 470-482.

READER SELF-PERCEPTION SCALE (continued)

SCORING SHEET

Student Name _____

Teacher _____

Grade _____   Date _____

Scoring key: 5 = Strongly Agree (SA)
                4 = Agree (A)
                3 = Undecided (U)
                2 = Disagree (D)

Guided Comprehension: A Teaching Model for Grades 3-8 by Maureen McLaughlin and Mary Beth Allen ©2002.
Newark, DE: International Reading Association. May be copies for classroom use.

1 = Strongly Disagree (SD)

Scales

General Perception	Progress	Observational Comparison	Social Feedback	Physiological States
1. _____	10. _____	4. _____	2. _____	5. _____
	13. _____	6. _____	3. _____	8. _____
	15. _____	11. _____	7. _____	16. _____
	18. _____	14. _____	9. _____	21. _____
	19. _____	20. _____	12. _____	25. _____
	23. _____	22. _____	17. _____	26. _____
	24. _____		30. _____	29. _____
	27. _____		31. _____	32. _____
	28. _____		33. _____	
Raw Score	_____ of 45	_____ of 30	_____ of 45	_____ of 40

Score interpretation				
High	44+	26+	38+	37+
Average	39	21	33	31
Low	34	16	27	25

Source: Bottomley, D.M., Henk, W.A., & Melnick, S.A. (1997/1998). Assessing children's views about themselves as writers using the Writer Self-Perception Scale. *The Reading Teacher*, 51, 286-296.

Appendix C

Reader Questionnaire Response Sheet

Reader Questionnaire Response Sheet

| Strongly Agree | Agree | Not Sure | Disagree | Strongly Disagree |