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EFFECTIVE INTERVENTIONS FOR PRESCHOOL CHILDREN WITH SPECIFIC LANGUAGE IMPAIRMENT

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LANGUAGE IMPAIRMENT

by

Will Schmidt

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A Research Paper
Submitted in Partial Fulfillment of the Requirements for the
Master of Science

Rehabilitation Institute in the Graduate School
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A Research Paper Submitted in Partial

Fulfillment of the Requirements

for the Degree of

Master of Science

in the field of Communication Disorders and Sciences

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TABLE OF CONTENTS

Introduction

Children with specific language impairment (SLI) are known to exhibit deficits in the areas of phonology, lexical and relational semantics, syntax, morphology, and pragmatics (Fey et al., 2003, p. 3). Interventions designed to improve deficits seen in children with specific language impairment are characterized generally as either rule-based or meaning-based. Although neither approach is used exclusively, much of the speech-pathology community gravitates toward meaning-based interventions. However, rule-based approaches are still widely used. Many speech language pathologists feel that meaning-based interventions are more effective than rule-based interventions because of their generalized nature. In addition they may feel that rule-based therapy may not work to allow underlying language rules to emerge over time. Because of this, some interventions may be viewed as naturally flawed in understanding of approach and results. With regard to syntactic, morphologic, and phonologic deficits seen in children from preschool to age seven, there are certain interventions that may be deemed more effective than others in developing appropriate language skills. These language skills will then translate into better reading and writing technique.

Overall Morphologic and Phonologic Concerns

Morphology and phonology are language areas in which extensive deficits are seen in children with SLI compared to same age peers. Knowing this, these areas should be highly emphasized during intervention. Polite and Leonard (2005) determined that finite verb morphology components were limited for children with SLI. Also, when opposing spontaneous language samples of 28 children were compared for phonological

mean length of utterance (MLU), they showed lower percentages in the morphemes of auxiliary *is, are,* and *am,* as well as regular past *–ed,* and third person singular *–s* (Polite et al., 2005, p. 752). This information makes it apparent that children with SLI perform significantly worse with regard to past tense forms and other morphemes. Therefore, an assumption could be made that interventions should be aimed at past tense actions to alleviate tense marking deficits and to increase agreement. These results could possibly have been skewed due to effects of pre-testing, meaning that the children in the study could have been desensitized to the testing variables. Phonological mean length of utterance is an important factor in helping to make comparisons between target groups. Past tense deficits are an obvious area of emphasis and should be studied further to develop pre-intervention and intervention techniques.

When highlighting the developmental characteristics of children with SLI and appropriate intervention techniques, a basic understanding of differential hypotheses on acquisition and characteristics of SLI must be taken into account in order to gain a picture of deficit specific characteristics and development. Three hypotheses note the importance of a phonological component when attempting to explain the inner workings and development of SLI. A hypothesis proposed by Leonard (1998) stated that children with SLI have deficits in the "shortest and less salient" parts of language due to overall processing deficits. Another hypothesis that is explained from a phonological perspective is that children with SLI maintain deficits in phonological working memory, specifically that SLI is caused by a dysfunction in storing and maintaining language elements in the working memory, thus making it difficult to properly process these elements (Aguilar-Mediavilla et al., 2002, p. 576). A temporal processing deficit has also been proposed,

stating that the larger problem in SLI is that these children cannot temporally perceive quick stimuli, rapid changes in stimuli, or many simultaneous stimuli because they are unable to process them. The final hypothesis is that of missing features of grammar. This hypothesis states that the true problem of children with SLI is that they do not hold syntactic-semantic features to their grammar. This makes these children unable to develop morpho-phonematic rules, specifically reduction of complex syllable structure (Aguilar-Mediavilla et al., 2002 p. 577).

Aguliar-Mediavilla, Sanz-Torrent, & Serra-Raventos (2002) compared the phonological acquisition of children with SLI, LD, and normal development. The goal of this study was to determine if the patterns of development and overall acquisition was similar, atypical, or delayed compared to normal acquisition. The samples in question were made up of four groups of children age 3, with five participants in each group (Aguilar-Mediavilla et al., 2002 p. 577). After undergoing screening procedures, the children who were seen to have language acquisition deficits underwent an evaluation including an interview, as well as lexical syntactic, morphological, and pragmatic analysis. Hearing and overall intelligence was also assessed. After one year of follow up at age 4, the participants were divided into two groups based on language acquisition. This assessment found that seven children had SLI and 13 children were LD (Aguilar-Mediavilla et al., 2002 p. 578). These groups were then matched to typically developing control groups. The subjects participated in different forms of assessment and therapy in order to gain a differential picture of language strengths and weaknesses.

This study found that the children with SLI were "significantly less accurate in their production of vowel sounds than were their age and MLU-W controls," (Aguilar-

Mediavilla et al., 2002 p. 582). With regard to overall use of speech sounds, children with SLI were less accurate than the typically developing group in their use of laterals, nasals, and stops. The children with SLI also showed significant differences than the other groups in acquisition of simple syllable structures, i.e. CV (Aguilar-Mediavilla et al., 2002 p. 582). The SLI group also showed a higher percentage of phonological process usage compared to their peers. Affrication, lateralization, cluster reduction, and deletion were frequently present in the SLI group. This study showed that children with SLI present with delays in phonological acquisition (Aguilar-Mediavilla et al., 2002 p. 588). The conclusions drawn from this study support Leonard's hypothesis that children with SLI have slow processing, as the children in this study appeared to present with more difficulties when producing shorter and less salient utterances (Aguilar-Mediavilla et al., 2002 p. 591). This study helps to shed light onto the overall issue of processing when developing interventions for children with SLI. By keeping in mind that these children may hear and subsequently process language at a slower rate than their peers, and also present with deficits involving shorter utterances, clinicians and other service professionals can ultimately develop treatment plans that involve these aspects.

Because children with specific language impairment display extensive problems with morphology, specifically decreases in overall volume of morpheme production and past-present tense forms, useful intervention practices should address these areas from a standpoint of MLU increase and past-tense repetition. Leonard, Deevy, Miller, Charest, Kurtz and Rauf (2003) found that preschoolers with SLI, when compared with typically developing children on task performance of past progressive, present progressive, third person singular, and modal use of the article *can,* were observed to use the forms *is/are,*

was/were, and *can* with significantly lower percentages, and the word final *–ing* was not used as an unmarked present tense form in many cases (Leonard et al., 2003, p. 769). Forty-five children participated in this study. Fifteen exhibited SLI, ages 4;6 to 6;7 and 15 were typically developing, ages 4;4 to 6;8 and 2;8 to 4;11 (Leonard et al., 2003, p. 778). Tasks were selected for each morpheme of interest, and 16 verbs were selected. The actions were then described with specific interest on the verb tense forms, and the responses were scored (Leonard et al., 2003, p. 779). This study is helpful in singling out past tense morphemes that are problematic for children with SLI, and to describe what type of intervention practices can be developed to target improper aspect, modality, and tense use. Concerns in this study could include participant selection problems or testing effects of repetition, including non-representative samples and overall desensitization to testing variables. These data and observations can be assessed to understand where more specific tense and word final problems arise. Intervention practices should include pre-testing areas of a calculated MLU across spontaneous language samples, and increase repetition of problematic forms across time.

The issue of past tense deficits is ever present when working with and studying children with SLI. The idea of improper verb conjugation in novel verbs is a factor that should be kept at the forefront of any intervention plan. All children progress through a period of development where past tense forms are inconsistent, but children with SLI stay in this period of development longer (Leonard et al., 2007, p. 747). Leonard et al. made clear that the inconsistencies that children with SLI exhibit with regards to past tense forms, and many other forms related to tense and agreement, can by explained by the child's inability to acquire that tense is a requirement in main clauses. These children

rarely use these aspects of grammar in the appropriate way (Leonard et al., 2007, p. 748). This information aligns with the theory that children with SLI do not develop the principal that tense forms are required in different clauses. Research conducted by Leonard, Davis, & Deevy (2007) focused on a sample of 30 children, 10 of which had been diagnosed as language impaired (SLI) whose ages ranged from 4;6 to 6;6 and MLUs in words ranged from 3.44-5.08. A second group of 10 children were classified as typically developing and were on average, 2 years younger than the children classified as language impaired. MLUs in this group ranged from 3.59-5.08. The final group of 10 children was comparable to the SLI group in terms of chronological age and was found to be developing normally (Leonard et al., 2007, p. 750). Twelve novel verb stems were developed to be used in research activities, six classified as high phonotactic probability non-words, and six as low phonotactic probability non-words. Each child was seen by two experimenters. The child was introduced to three toy characters: Pooh, Tigger, and Eeyore. The participants were instructed that Tigger and Eeyore wanted to show them different actions that had funny names. Pooh wanted to watch these actions but sometimes forgot to pay attention, so the children would need to help Pooh (Leonard et al., 2007, p. 752). The experimenter would then say the novel verb three times and perform the action. The other experimenter would then reiterate that Pooh had not seen what had happened and ask the child to help. This request required the use of the verb inflected with –*ed*. Example:

Eeyore: Now I think I want to [riθ]. Sometimes it's nice to [riθ]. Watch me [riθ]!

(Eeyore then hangs by his ears and rocks back and forth)

Pooh: Uh-oh…I didn't see what happened. What did he just do?

Experimenter 1: He…

Child: [riθt]

After two practice items involving familiar novel verbs were completed, 15 verbs were

presented to the child. Twelve were the actions of interest, and three were familiar actions

given as the 3rd, 7th, and 11th items (Leonard et al., 2007, p. 752). This study showed that

the children with SLI were less likely to include past tense –*ed* when using novel verbs

than younger typically developing children and typically developing same age peers. The

children in the SLI group were less likely to use the inflection with novel verbs that are

classified as low phonotactic probability than with verbs of high phonotactic probability

(Leonard et al., 2007, p. 754). These results indicate that children with SLI have greater

difficulty in acquiring and using past tense forms than typically developing peers. This is

of concern to clinicians because it must be taken into account for any form of

intervention to take place. By assessing the implications of the study by Leonard et al.,

one can better determine specific intervention techniques that incorporate novel verbs

with regard to overall phonotactic probability.

The effects of deficits in the use of tense/agreement morphemes must be taken

into account due to the affect that morphological processing deficits may have on

sentence processing and production. Leonard, Miller, and Finneran (2009), investigated

children with SLI's response times to grammatically incorrect sentences. The participants

of this study were 178 16 year-olds who were representative of a larger group of subjects

who participated in an earlier longitudinal study by Tomblin, Records, Buckwalter,

Zhang, Smith, and O'Brien (1997). This larger sample of children was first screened at 5

years old, and those children that met the criteria for language impairment were invited to

participate in the study. These children were followed for 8 years, with diagnostic testing performed every 2 years until age 14 (Leonard et al., 2009, p. 457). The results of further diagnostics found that 106 participants were typically developing, 47 exhibited SLI, and 25 showed nonspecific language impairment (NLI) (Leonard et al., 2009, p. 458). Eighty-four sentence pairs were constructed for use in this study. Each pair included a fully formed grammatically correct sentence, as well as an almost identical sentence containing one error. Each sentence error occurred immediately before a specific target word in each sentence. Example:

1.) I put a nail in my neighbor's *wall* to hang his painting

I put a nail in my neighbor_ *wall* to hang his painting

This specific example shows an omission of the possessive *'s*. Sentence errors range from omissions involving possessive *'s,* progressive *–ing,* third person singular *–s*, past tense *–ed*, to inappropriate inclusions of third person singular *–s*, and past tens *–ed* (Leonard et al., 2009, p. 460). These sentences were professionally recorded for use in audio playback (Leonard et al., 2009, p. 461). While at the computer, the participants were instructed to listen to the sentence pairs and listen carefully for the specific target word, and as soon as they heard the word, they should press the previously indicated button. The participants' responses were recorded by the tester (Leonard et al., 2009, p. 463). This study found that the SLI and NLI groups displayed similar response times for the grammatical and ungrammatical sentence groups, and the typically developing group showed the expected faster responses (Leonard et al., 2009, p. 469). These results emphasize the overall processing deficits seen in children with SLI that are sometimes overlooked when

planning appropriate interventions. While obvious word finding and production deficits are targeted when planning intervention approaches for children with SLI, the idea of processing on a word and sentence level should also be taken into account. By incorporating these goals and objectives into treatment plans, SLPs can provide more comprehensive services for children with SLI.

Intervention Approaches

In the large scope of practical interventions, the meaning-based approach is a more significant approach because of its encompassing nature and should be a staple in preschool language intervention. Thordardottir stated that:

Intervention approaches vary as well in the breadth of their focus. Thus, approaches may target language skills broadly or may be designed to target specific sets of skills with the assumption that these are directly linked to success in language learning, for example, aspects of auditory processing (Tallal, Miller, Bedi, Byma, Wang, Nagarajan, et al., 1998).

Thordardottir explained that underlying language rules will emerge when a meaning-based approach to language intervention is applied. If interventions are developed to target meaningful uses of the language areas of morphology, phonology, and syntax, a preschooler with SLI will develop better conversational skills, as well as literacy and speech. She also reported that a large area of intervention falls under the rule-based approach, in which explicit teaching is applied to language rules in the hopes that they will be learned over time. While neither approach is fundamentally wrong, meaning-

based interventions can help to better a child's understanding of speech in a breadth of different areas, including morphology, phonology, syntax, and pragmatics.

Appropriate interventions may also fall under a clinician-controlled or child-centered approach. In the context of this research, a child-centered approach is meaning based and works to incorporate meaningful naturalistic items into intervention that will help to build language use and rules. These different aspects can help clinicians to identify target behaviors and develop a better approach for each specific child using meaning-based activities in a child-centered environment (Thordardottir, 2007, p.2).

Effective interventions for preschoolers with SLI should include literacy activities in a goal oriented structure in order to increase underlying language abilities. Fey, Long and Finestack (2003) indicate that an intervention that involves literacy materials and activities in a goal oriented way will help children to develop grammatical models and target areas of social and conversational weakness. A whole-language approach is a concept that receives attention throughout the study in question. Fey et al. make clear that the overall goal of intervention must be tailored to four steps. Intervention must:

> …examine the child's existing speech and language patterns, evaluate the linguistic knowledge presumed to underlie those patterns, evaluate the impact of these patterns on the child's current social-behavioral-cognitive performance, and evaluate the potential impact of the child's existing speech and language problems on future deficits in language, social, academic, and cognitive development, and behavioral adjustment. (Fey et al., 2003, p. 4)

The more specific goal of a whole-language approach to intervention is to develop greater use of syntax and morphology in the context of narration and conversation using

"textual genres." This approach stays true to the previously discussed meaning-based nature in which forms emerge naturally. Those who support a whole-language system wish to develop relevant textual areas such as orally delivered stories and narratives (Fey et al., 2003, p. 5).

These materials can be very useful in helping a child to learn phonological and grammatical models of language. Within the clinical focus of the principles for intervention and grammar facilitation, the information that has been presented can help clinicians to cover many areas during the course of each intervention session.

Interventions that target SLI need to address morphological output through narrative and spontaneous language use. A longitudinal study by Rice, Smolik, Perpich, Thompson, Rytting, and Blossom (2010) found that children with SLI showed a lower level of performance in mean length of utterance words and morphemes, when spontaneous language samples of 306 typically developing and impaired children age 2;6 to 9 years were analyzed for frequency of occurrence and then compared to unaffected children and siblings and cousins of the children with SLI (Rice et al., 2010, p. 337). This study explored the idea that mean length of utterance can be an appropriate and reliable index of language acquisition and also a benchmark for intervention results. Spontaneous language samples were taken at 6-month intervals through play and conversational interactions. Mean length of utterances were calculated and used as a measure of overall development (Rice et al., 2010, p. 339-40). The study found that children with SLI have a lower level of morpheme production than do typically developing children. The amount of morpheme production increased over time, but became more difficult as the children got older (Rice et al., 2010, p. 343). The results of this study should take into account the

longitudinal nature of the experimentation, which can account for errors over time. It is evident that maturational and experimental mortality were large factors in the outcome of this study over the time period that it was being conducted, due to the development of subjects and loss of members of comparison groups over time. Knowing that mean lengths of utterance are lower in children with SLI, interventions should work to target morphological output through narratives and spontaneous language use. By using these techniques, preschoolers with SLI may develop better syntactic abilities and conversational skills. It is evident that children with SLI are at a disadvantage for the number of speech sounds that can be developed, and a proper pre-assessment measure should be highlighted, which is mean length of utterance. Mean length of utterance is an important factor when assessing children with SLI. An accurate report of mean length of utterance allows one to compare the semantic diversity of a child with SLI across norms of typically developing peers, providing an accurate assessment of speech development.

Recently, a different type of intervention has been developed that uses various types of activities to improve language and phonological awareness in preschoolers with SLI. Hybrid interventions that put emphasis on oral narrative, storybook reading, and drill-based games are an increasingly effective form of SLI intervention due to their comprehensive use and nature. In a study by Munro, Lee, and Baker (2008), 17 children (4 girls, 13 boys) ages 4 years, 8 months to 6 years, 5 months were assessed at pre-intervention and then studied in individual intervention sessions that took place once a week for a six-week period (Munro et al., 2008, p. 671). Each of the intervention sessions utilized a scripted oral narrative using picture-based stories, followed by a card or board game. The parents were given follow-up activities to be used at home; after the six

sessions were completed, the children were tested using the same techniques as the pre-intervention assessment (Munro et al., 2008, p. 672). The results showed a significant improvement in language and phonological awareness measures when assessed at post-intervention. The children also made improvements in rate and accuracy of expressive vocabulary labeling and rhyme, alliteration awareness, and listening comprehension/oral narration. These results could have been skewed by maturation as well as the Hawthorne effect simply because of the length of the study and the fact that many of the children could have known that they were being tested (Munro et al., 2008, p. 677). Pre-testing and reactive arrangements could also have been an issue of external validity because of desensitization of variables through assessment at pre-intervention and reactive testing in a non-generalized setting. The study in question could be improved upon by adding elements to its hybrid design, such as morphological areas. If the children assessed at pre-intervention displayed deficits in past tense usage, narratives could focus on past tense storybooks or picture-based readings.

A treatment study undertaken by Leonard, Camarata, Brown, and Camarata (2004) falls into the category of increasing morphological output, and looked to answer the following questions, "(a) whether intervention centered on select tense/agreement morphemes would lead to gains in the use of these morphemes by children with SLI and (b) whether other, nontreated tense/agreement morphemes would also show gains that could be attributed to the intervention." (Leonard et al., 2004, p. 1364). By specifically focusing on the known morphological deficits in tense/agreement morphemes initially, and then transition into intervention in a narrative structure, clinicians may develop interventions to children with SLI produce grammatical morphemes such as third-person

singular *–s, is* and *are,* and past *–ed* (Leonard et al., 2004, p. 1364). Thirty-one children,

ranging in age from 3;0 to 4;4 and also diagnosed with SLI participated in this study

(Leonard et al., 2004, p. 1365). A variety of criteria needed to be met in order to

participate in this study including passing a hearing screening, scoring appropriately on

the Childhood Autism Rating Scale. An accurate score on a screening of word-final /s/,

/z/, /t/, and /d/ in monomorphemic words was also necessary in order to show that failure

to apply grammatical morphemes was not due to limitations in phonology. Below age

level expressive language skill was also a key criteria (Leonard et al., 2004, p. 1366).

MLU was collected prior to the study, and the participants averaged 2.43, or .75 SD

below the mean (Leonard et al., 2004, p. 1367). Several tasks assessed the proper use of

grammatical morphemes, and progress in interventions. The tasks were established to

elicit the grammatical morphemes of third-person singular *–s,* auxiliary *is/are/was*, past *–*

ed, infinitival complementizer *to*, and nonthematic *of*. Each task was centered on the

participants viewing enactments with different toys, and asking them to describe the

activities specific to the different grammatical morphemes (Leonard et al., 2004, p.

1367). Example:

> Ernie: Here's my bathtub. Every time I'm in my bathtub, I sing. (Demonstrates)
>
> Egbert: Oh-oh, I didn't see. What does Ernie always do in his bathtub?
>
> Experimenter 2: He _____

This specific example illustrates how the clinicians work to elicit the third person

singular *–s* through use of enactments. This structure was also applied to the remaining

grammatical morphemes in order to practice use. Each grammatical morpheme probe was

administered before treatment began as well as after 48 treatment sessions in order to

gauge improvement; all of the children were unable to properly use third-person singular

–*s*, auxiliary *is/are/was*, and past –*ed* (Leonard et al., 2004, p. 1368).

Each treatment session was divided into two types of activities. One activity was

centered on stimulation through a story read by the clinician, and the other activity used

"conversational recasting" when playing with the child. Sessions began with the reading

of a different short story while acting out the story with toys. In each story, the specified

target form appeared 12 times (Leonard et al., 2004, p. 1369). The stories also included a

purposeful error by the clinician; errors were immediately corrected in order to

demonstrate the essential aspects of various morphemes. After the story was completed,

the child was allowed to play with the toys used in the story. As play took place, the

clinician produced other toys and props to give the child materials to talk about. During

the period of play, the clinician would give 12 conversationally appropriate recasts using

the target morpheme (Leonard et al., 2004, p. 1370). After 48 sessions, the children

displayed greater use of target forms when compared with no use prior to the

implementation of intervention, which can be seen as a successful intervention practice

for children with SLI (Leonard et al., 2004, p. 1373). Variables that may have accounted

for these gains in use of target forms may have been the inclusion of "late bloomers" in

the target group of children, and the children's overall readiness to acquire the specific

target morphemes (Leonard et al., 2004, p. 1374-75). An area to consider when looking at

this study of effective SLI intervention is that it was not longitudinal in nature. This is a

concern because it is important to look at the development of the subjects over an

extended period of time in order to see improvements or regressions. It would be

efficacious to follow-up with the participants to see if the type and frequency of

intervention was sufficient in order to foster continuing language development. This meaning/rule based intervention study highlights the idea that narrative based treatment can be quite satisfactory when working to resolve morpheme level errors.

Swanson, Fey, Mills, and Hood (2005) delved deeper into the underlying benefits of hybrid intervention through narratives with an intervention plan called Narrative-Based Language Intervention (NBLI). This study was conducted with the goal of determining whether interventions that are based around story retelling and generation are beneficial to children with SLI. Characteristically, children with SLI produce narratives that lack word variety, contain limited total words, have syntactic errors, and have less story grammar content than typically developing peers. Although many of these children may simply "grow out of it" by early adolescence, overall performance on tasks of a narrative nature may still be weak (Swanson et al., 2005, p. 131). The goal of Swanson et al. was to help build development of "complex, cohesive narratives in children with language impairments," while addressing the grammatical deficits of the subjects through the implementation of NBLI (Swanson et al., 2005, p. 132). NBLI works to remediate both grammatical and narrative abilities in order to build expressive and receptive narrative abilities and can possibly be used as a "stand-alone" language intervention. Participants in this study were 10 children age 6;11 to 8;9 with SLI. Preexperimental assessments took place which required the children to generate two oral narratives based on several sets of pictures, while outcomes included narrative quality (NQ), the amount of different words (NDW) that the child produced during the narratives, the grammatical outcomes seen, and a subtest of the CELF-3 employed due to its syntactic similarity to those items seen in NBLI (Swanson et al., 2005, p. 133).

Twenty-six stories were developed with the intent of targeting "upper level morphosyntactic/discourse targets." From these 26 narratives, 18 were used with the children. Each participant was seen for 50 minutes, 3 times per week over a 6-week period. Intervention sessions were recorded, and verbal and tangible reinforcements were given as needed (Swanson et al., 2005, p. 134). Warm-up activities that required the child to simply retell a story that they had previously practiced were administered at the beginning of sessions. These activities allowed the child to have immediate success with no corrections by the clinician (Swanson et al., 2005, p. 134). Two tasks were employed during intervention sessions: a story retell-imitation task and a story generation task. During the story retell-imitation task, the child was expected to retell a narrative that made use of many examples of morphosyntactic or discourse-level target forms. Before the story was told, the clinician highlighted the main themes of the story in order to pique the children's interest and keep them engaged while listening. The clinician then read the story using grand inflections at a high intensity level, and after the first reading, the story was read one more time component by component. As the child was retelling these stories, corresponding color pictures were shown. If errors were made in target forms, the clinician modeled the sentence again, or completely recast the child's utterance. The child was then introduced to a short imitation task where the child imitated 10-12 sentence pairs containing models of the target forms (Swanson et al., 2005, p. 135). The story generation task required the child to select a picture of a scene from a group of two or more. The child was then asked to describe the characters and setting and the clinician then retold the child's statements while including missing information. A prompt was then given to the child that elicited an initiating event from the child. The clinician then

presented the "problem" and gave a prompt with the goal of eliciting a resolution. The child then gave a resolution and the clinician restated the problem/resolution pairing. If the child was unable to present with an initiating event, the clinician gave options to begin co-construction of the story. After the first story generation task, the clinician drew simple stick drawings of the plot in a story. The child was then prompted to tell the story again using the storybook to guide the narrative. At completion of the session, the child was given a copy of the story and drawings to practice at home. Conversational and narrative samples, and nonword productions were transcribed and scored for NDW and NQ rating (Swanson et al., 2005, p. 135). The idea behind Swanson et al. was not to determine the overall efficacy of NBLI, but to develop insights into the potential for NBLI to produce positive changes in the language of children with SLI. Eight of the 10 children that took part in the study "exceeded the clinically significant improvement criterion for NQ." (Swanson et al., 2005, p. 137). The fact that the participants showed improvement in the overall quality of their narratives is a strong indicator of the overall efficacy that NBLI can provide to children with speech and language deficits (Swanson et al., 2005, p. 137). While gains were not made in the number of different words used and syntactic and working memory, significant gains were observed in the overall self-confidence of the participants (Swanson et al., 2005, p. 138). As the children developed their own narratives, they began to learn that they could create entertaining stories for the clinicians. This increase in self-confidence helped to foster louder talking, increased initiation, and better eye contact among the participants. Two of the children were also able to point out when another person's narrative was missing a problem, characters, or a separate element of grammar (Swanson et al., 2005, p. 139). There are a number of

limitations to this study by Swanson et al. The fact that there was no control group makes it difficult to determine the overall efficacy of NBLI. This study was defined as a "feasibility study" which gives a picture of positive outcomes that should be tested further. The number of children was also small and heterogeneous, with a short 6-week intervention period. Follow-up data was not collected which could have been useful in determining the gains made by the participants. (Swanson et al., 2005, p. 139). NBLI, although not proven to be completely efficacious, can be a very helpful intervention method for children with SLI. The children in Swanson et al. made improvements in the overall quality of their narratives, as well as increased their self-confidence in communicating with others. Hopefully in the future, NBLI may be studied further in order to provide a complete picture of efficacy.

Future Directions

Looking forward in the field of SLI research, certain steps can be taken to advance the overall knowledge of effective understanding of deficits and intervention practices. Certain studies that may yield information as to how interventions may be developed further include lengthier studies focusing on complete efficacy of hybrid interventions and how they may yield results over a slightly longer period of time. As there is limited research on the relatively new topic of hybrid language intervention, a longitudinal study focusing specifically on intervention results would be important in supporting the development of different hybrid language interventions by clinicians and researchers. This type of study would provide evidence of true efficacy of an intervention program over time.

Another study that may yield important results for the use and efficacy of hybrid language interventions would be a study that focuses directly on the morphological aspects of language through when employing a hybrid language intervention. It is known that morphological deficits are a main concern with children with SLI, and by implementing a morphologically centered hybrid language intervention study, researchers and clinicians can better understand morphological improvements and drawbacks.

As hybrid language interventions continue to grow in popularity and use, a study that would prove effective in highlighting overall efficacy would be a study that strictly focuses on specific use of narratives to increase morphological output. A study of this structure would improve upon the narrative aspects of the previously reviewed studies by producing results that either confirm or deny the idea that narrative use is important in hybrid language intervention.

A study that may prove effective in remediating language deficits seen in children with SLI could have children develop many short narratives with appropriate structure. This type of study would help to squeeze many narratives into a short amount of time while addressing past tense, future tense, and present progressive forms. By studying shorter, higher volumes of narrative discourse in condensed amount of time, researchers and clinicians may better understand how to provide appropriate interventions.

The final study that can be feasible in promoting remediation of deficits consistent with SLI would focus on one specific area of deficit such as past tense *–ed* or present progressive *–ing*. By strictly focusing on one of these areas, clinicians may tailor individualized intervention plans to meet areas of deficit. This form of research procedure

can have profound effects on overall areas of SLI intervention and development of treatment materials.

Conclusion

Hybrid language interventions are the new standard for SLI intervention and can be built upon for years to come. Munro et al. (2008) maintained that:

Whole-language interventions emphasize contextualized meaning rather than the specific components of spoken language (e.g., Norris & Hoffman, 1993). Whilst researchers have advocated for and against both component and whole-language approaches (Paul, 2001), there is no agreement about which approach is the most effective for spoken language intervention (p. 663).

Although neither approach is widely seen as the "best" form of therapy, multi-dimensional intervention is an increasingly useful form of therapy that can cover many different types of language deficits. Munro et al. showed that many children show significant improvement in one type of language skill, but may not show as dramatic an improvement in another. This can be helpful for future development of hybrid intervention practices. Practice may soon be tailored and individualized to meet the unique needs of each child involved in the program (Munro et al., 2008, p. 678). Hybrid language interventions support the decrease of morphologic, phonologic, and syntactic deficits, and in the future may completely cover all problematic areas.

By taking each of these intervention approaches into account when developing care plans and goals for children with specific language impairment clinicians may provide comprehensive therapy for all aspects of SLI including past tense morphemes,

narrative quality, and mean length of utterance. One can see through use of broad, meaning-based intervention techniques, underlying language rules can be learned and built upon over time.

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