

Exploring the Efficacy of Verb Intervention for Children with Language Impairment: A Critical Review

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Abstract

This study presents a critical review of research examining the effectiveness of intervention targeting verbs in children with language impairment. The critical review involves an evaluation of 3 articles exploring various methods of verb intervention for children with Specific Language Impairment (SLI). Overall the results of this review suggest a treatment which incorporates multiple models of verb targets trained in different sentence contexts may have an overall language benefit to children with language impairment.

Introduction

Verbs are particularly critical for the development of syntactic length and complexity because verbs provide a “frame” through which larger linguistic forms are constructed (Tomasello, 1992). Thus, it is not surprising that verbs have been the focus of many research studies pertaining to children with language impairment.

Previous research in this area has examined the verb lexicons of children with an unexpected delay in the development of language known as Specific Language Impairment (SLI). Rice and Bode (1993) suggested that children with SLI have a more limited number of verbs in their vocabularies. This has since been disputed with studies suggesting that children with SLI do not differ in their verb lexical diversity (Thordardottir & Ellis Weismer, 2001). Nevertheless, problems with verbs in terms of verb morphology are considered one of the hallmarks of SLI (Bedore & Leonard, 1998). Recently, Dollaghan (2007) suggested that the key difficulty for children with SLI may be in the way they *use* their verb lexicons. That is, Dollaghan suggested that verb systems in children with language impairment are less efficient resulting in shorter and less syntactically complex sentences.

The potential impairment in the verb systems of children with SLI has been addressed in many intervention studies. Research to date has focused on both the training of new verb lexical items, as well as training verbs in syntactic frames. However, it has been suggested that language intervention should focus on increasing the use of the verbs already known by the child to be used in different contexts (Dollaghan, 2007). This not only has the potential to increase length and complexity of language but promotes a more efficient, more organized system. However, evidence of the effectiveness of such an intervention program has not yet been evaluated.

Objectives

The objective of this paper is to review and evaluate existing literature exploring verb intervention for children with language impairment.

Methods

Search Strategy

Online databases (Proquest Nursing & Allied Health, PSYCHINFO, PubMed) were searched using the following terms: (verb) AND ((treatment OR intervention)) AND ((language impairment OR SLI)).

Selection Criteria

Studies included examined the effectiveness of verb intervention programs for children with language impairment. Subjects described in each study were required to have a language impairment not related to comorbid conditions such as hearing loss or intellectual disability.

Data Collection

This literature search generated 3 articles pertaining to verb intervention for children with language impairment including one a randomized control trial (RCT; level 1 research evidence, (Ebbels, van der Lely, & Dockrell 2007), two between groups studies classified (level 2b research evidence (Riches, Tomasello, & Conti-Ramsden, 2005, Riches, Faragher, & Conti-Ramsden 2006).

Results

Riches, Tomasello, & Conti-Ramsden (2005)

This study is a mixed experimental design that explored the effect of frequency and spacing on verb learning in 23 children with SLI (aged 4;7-6;4) and 22 language matched typically developing children in a control group (aged 3;1-4;0). Treatment involved teaching 4

nonsense verbs in play activities where presentations of verbs were manipulated by frequency (12 or 18 presentations) and spacing (exposures in a single day or spread over 4 days). Each child was trained in one of four different treatment schedules that were derived from these parameters. Children's learning of these novel verbs was assessed using both comprehension and production probes post-treatment. Appropriate logistic regression analysis revealed no difference in overall rate of learning between both groups of children. As well, comprehension was more accurate when verbs were presented more frequently and spaced apart for the group with SLI compared to the control group. The authors suggest that this supports the hypothesis that children with SLI can benefit from therapies that provide multiple models of a target form (e.g. *focused stimulation*).

The article described participant inclusion, and assessment and treatment procedures in sufficient detail to allow for replication. One limitation of this study in terms of clinical relevance is that the target forms trained in this study were non-words which cannot carry-over to real-world contexts. However, the use of non-word stimuli could also be viewed as a strength in that it controls for the children's prior exposure to the target forms. This study presents compelling evidence to suggest that children with SLI are more impacted by the frequency in which verbs are modelled, compared to typically developing children.

Riches, Faragher, & Conti-Ramsden (2006)

This between groups experiment explores whether children with SLI are able use unfamiliar and novel verbs that are trained in one syntactic context, in another. Two groups of children (24 with SLI (mean age: 5;6) and 24 language matched controls (aged 3;0-4;0)) were trained in therapy sessions using unfamiliar verbs in one of two sentence frames. The children were taught six verbs which were presented 12 times each across three therapy sessions. Post-treatment assessment consisted of training children with two novel verbs in intransitive frames and encouraging child to produce verb in the untrained transitive form. Logistic regression analysis revealed no generalization of the use of transitive forms to novel verbs for either group, and that children with SLI required more frequent input before learning the verb. Based on the findings of this study, the authors suggest that children have difficulty generalizing transitive frames and that therapy approaches for children with SLI should consider frequency dependence.

The authors did not conduct any analysis to determine whether there was a statistically significant difference

between children who use the target verb in trained sentence frames and those who generalized the use of the target verb. Thus, it is unclear whether the claim that children were not generalizing the verb is important, or whether the children were just not using target verb in any context. Also, information regarding the length and spacing of treatment sessions was not reported making replication of this treatment difficult. However, this study reports compelling evidence supporting the notion that children with SLI require more frequent presentations of stimuli to learn a target form.

Ebbels, van der Lely, & Dockrell (2007)

These authors conducted an RCT with blind assessment to explore the effectiveness of treatment programs aimed at improving the use of verb argument structure in 27 older children with SLI (aged 11;0-16;1). Children were assigned to one of three treatment groups: syntactic-semantic, semantic and control. The treatment programs were well described and took place during 9-30 minute sessions in a school setting. The children in both verb treatment groups were trained with verbs that were assumed to be known by the participants and which have a variety of possible argument structures. Appropriate use of ANOVA revealed a significant increase in their use of argument structure in both trained and untrained verbs post-therapy for both treatment groups relative to the controls. However, the two treatment groups did not differ. Based on their results, the authors suggest that ill-formed lexical representations may be related to children with SLI having difficulty in this area and that these children take more time to develop these representations.

One limitation to this study is that the authors did not describe the criteria for determining that the target verbs were "known" by the children. However, the study did show that children were able to generalize the treatment beyond the verbs directly targeted and maintained the gains made at 3-months post-treatment. The study provides compelling evidence to suggest that targeting verbs through the use of training argument structure is a valid means of treatment.

Discussion

These studies provide evidence that children with SLI are more susceptible to the effects of frequency in that they require more presentations in order to learn a new form. There is also suggestive evidence that children need to be explicitly presented with a verb in a specific sentence structure in order use the particular structure. Taken together, these studies suggest a treatment framework for targeting verbs in syntactic contexts and incorporating frequent exemplars of the target.

In related work, Dollaghan examined the verb systems of preschool with SLI and age-matched typically developing peers qualitatively. Results revealed that a child's most frequent verbs were used less frequently in multiword utterances by the SLI than control groups. Consistent with this notion Nyhout, Skarakis-Doyle, and Scott (2012) found that children with SLI deploy their verbs in different syntactic and semantic contexts from typically developing children, and used their most frequent verbs in fewer contexts. Based on her findings, Dollaghan suggested the concept of verb "hubs" facilitating connections between other units of language. She borrows the idea of "hubs" from other complex networks in which a relatively small number of units conduct the majority of the work. She explains that complex systems follow an "80/20 rule" with 80% of the work conducted by 20% of the system. Further, Dollaghan suggested that rather than teaching children with SLI new lexical items, it is more beneficial to facilitate the child's ability to *make connections between* lexical items and for examiners to explore the status of verbs as "hubs" in the child's language system.

Dollaghan's suggestion that verbs act as "hubs" may lead to a more efficient language system has yet to be explored in treatment. Thus, training children with language impairment to use verbs they already know in more diverse contexts may lead to an overall impact on the length and complexity of their grammatical systems.

Conclusion

The studies reviewed suggest treatment programs which target verbs in syntactic and semantic contexts, as well, as which provide frequent exemplars of target forms. However, future research is needed to determine the efficacy of this type of treatment.

Clinical Implications

Due to importance of verbs in the language system, an approach which targets verb efficiency and the use of verbs may lead to improvements in a child's syntactic system. Although future research is required, a program of targeting diversity of verb frames could be implemented on a trial basis to evaluate its effectiveness on children with language impairment. Focused stimulation may be an effective approach as it provides for maximal exposure to target forms while placing minimal demand on the child. Thus, this approach enables the child, regardless of comorbid conditions or reluctance to communicate, to participate in therapy. Finally, single-subject designs are a practical means of evaluating treatment efficacy in clinical settings and

also allow for treatment to be altered in order to provide maximal benefit to the child.

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