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DYNAMIC ASSESSMENT OF WORD LEARNING STRATEGIES WITH A CHILD WITH ASD

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May 8, 2015

University Honors Program Project

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Abstract

This study compared the use of two different word learning strategies with a child with Autism Spectrum Disorder (ASD): a dynamic assessment approach (i.e., DATMA) and a narrative-based approach. The participant was a child in grade 6 previously diagnosed with ASD and currently receiving speech-language therapy that included addressing vocabulary. The child was taught a set of fourteen words using the two strategies, and then retested on his knowledge of the words a week later. Findings showed that the participant defined words more readily that had been taught using the DATMA approach. He also generalized the strategy to words that had been taught using the narrative-based approach.

Introduction

Children with autism spectrum disorder (ASD) are diagnosed based on deficits in social interaction and communication as well as behavior (American Psychiatric Association, 2013). Many children with ASD demonstrate deficits in communication in the area of receptive language. Kover, McDuffie, Hagerman, and Abbeduto (2013) found evidence of receptive vocabulary delays for boys with ASD, ages four to eleven years, using commonly administered standardized tests (i.e., Peabody Picture Vocabulary Test and Expressive Vocabulary Test). Vocabulary skills, or word knowledge, is often described as an integral component for success in school as well as a predictor of other areas of language growth (e.g., syntax, reading) that relate to overall communication skills (Johnson & Yeates, 2006). In children with ASD, vocabulary deficits are a concern for those children demonstrating difficulty with language and in particular, reading comprehension (Chiang & Lin, 2007).

One assessment strategy that has been utilized for children with language impairments is dynamic assessment. It has been shown particularly useful as an alternative to more traditional assessment tools (Gutiérrez-Clellan & Peña, 2001). Within dynamic assessment strategies, some have focused on learning word meanings through their morphological components. Larsen and Nippold (2006) conducted a dynamic assessment analyzing children's knowledge of derivational morphemes. Derivational morphemes are those suffixes and prefixes that can be added to word roots in order to produce new words. Morphological analysis is the ability to use one's existing knowledge of word roots and any accompanying affixes to determine the meanings of novel words. Children often encounter words they are not familiar with, and in grades 4 through 8, they must use morphological knowledge to figure out the meaning of a novel word. Studies have also shown that children with language disorders typically experience delays in morphological

knowledge, and that this is not something speech-language pathologists seem to examine as part of their routine service delivery.

Larsen and Nippold (2007) cited that dynamic assessments are becoming more widely used because they can provide insight into the type and degree of assistance that a student might require in order to be successful on certain tasks. Unlike a static task that might show that a child knows or does not know a word, a dynamic task could reveal degrees of knowledge. To help with this, Larsen and Nippold created a dynamic assessment that can be used to test a child's knowledge of morphological analysis, titled the Dynamic Assessment Task of Morphological Analysis (DATMA). They developed the assessment protocol using 50 sixth-grade children with typically developing language skills. Each child was asked to explain the meanings of morphologically complex words based on a series of prompts provided by the speech-language pathologist. The DATMA has demonstrated potential as an assessment tool and a learning strategy in the area of receptive vocabulary. However, the DATMA has yet to be applied to children with ASD.

An additional, alternative approach to assessing vocabulary knowledge and addressing word learning deficits is to utilize narrative-based strategies. Utilizing discourse such as narratives, rather than teaching words in isolation, may benefit children with ASD since they have been shown to experience deficits in discourse-level comprehension in addition to word knowledge (Åsberg, 2010). As outlined in an a systematic review of the literature, Johnson and Yeates (2006) cited that the most effective strategy in the use of narratives for word learning included an explanation of words provided to the child while reading a story. Further exploration of this strategy is also warranted for children with ASD.

It is unclear from the cited research evidence what might be the most effective methods for addressing vocabulary acquisition for children with ASD. The present study compared a dynamic assessment strategy (i.e., the DATMA) and a narrative-based word learning strategy to determine each method's efficacy for promoting initial word learning in a child with ASD.

Methods

Participant

The participant was a sixth grader who was diagnosed with moderate to severe autism and was receiving speech-language therapy services at the time of the study. The child was addressing vocabulary deficits as part of his educational program.

Procedure

The two strategies for world learning were presented during one 60-minute speech-language therapy session in a clinic setting. Present during the session was the child's graduate student clinician who had been working with him for a period of two months as well as the examiner. The child had prior experience with the examiner as a provider of in-home behavioral therapy and respite services.

The first technique used was the dynamic assessment strategy (i.e., DATMA). The participant was asked to define seven words with various morphological endings. If he was unable to define the word, the examiner went through a series of prompts designed by Larson and Nippold (2007) with the child until he was able to correctly answer (see Appendix A for an example). The examiner recorded how many prompts were required for the child to answer correctly (i.e., provide the word's meaning).

The child was given a break to play a game following the DATMA for approximately 5-10 minutes. Then the examiner presented the second technique, the narrative-based word

learning strategy. The examiner read a short story to the child and he was given a copy to follow along. The story was created for this task using to utilize the target words. The event, a birthday party, was selected as a familiar event for the child and the language was at a level of overall complexity within his discourse comprehension abilities (see Appendix B for the story). The examiner paused reading aloud at previously determined target words during the story, gave a brief definition of the word, and then continued reading the story aloud. The child's version did not contain any markings of which words were the target words or definitions of the words. The child was not given any demands other than to sit and listen to the story. There were seven target words in this method.

One week later during speech-language therapy, the graduate student clinician conducted a follow-up session as a post-test for the two learning strategies. The graduate student clinician was blind to the research questions so served as a non-biased examiner. The child was asked to give the definitions of the fourteen target words, presented in random order. He was asked to define the word, tell how he learned the word, and use the word in a sentence. The session was video recorded and the researcher gathered results from the video. Data was collected on whether the child knew the word and if he referenced a teaching strategy when telling how he learned that word.

Results

During the initial session, the child correctly stated the definitions for two out of the seven words when using the dynamic assessment strategy (i.e., DATMA). He was not asked to give any definitions for the narrative-based word learning strategy. During the post-test, the participant correctly defined 5 out of the 7 words he learned using the DATMA strategy. He referenced the individual morphemes once when explaining how he knew the answer. The

participant correctly defined 2 out of the 7 words learned during the narrative strategy. He did not reference the narrative strategy when explaining how he knew the answer. However, he referenced the smaller word parts twice, a strategy presented to him in the DATMA. The participant used his own words when defining the words rather than giving the definition verbatim. For example, when explaining how he knew the definition of *sparkly*, he referenced the root word, *sparkle*. The child referenced the dynamic assessment strategy (DATMA) three times and the narrative-based strategy zero times.

Discussion

These results indicated that the dynamic assessment strategy (i.e., DATMA) was more effective in promoting initial word learning in a child with ASD. Even when the child was tested on words he learned in the narrative context, he referenced the morphological components when describing how he knew the definition. The child was able to use the knowledge he gained in the dynamic assessment and apply it to words not previously taught using that method. This finding may help guide speech-language pathologists towards a word learning strategy to use with children with ASD. The robustness of the DATMA strategy for this child demonstrates that this may be a potential initial strategy to use for novel word learning for children in middle school. Then the use of a narrative-based strategy, in which the words have additional context to aid the formulation of a richer representation of meaning, might be more effective

Dynamic assessments are becoming more widely used and the results show they are effective. Although this study only examined one participant, the results indicate that further studies are warranted to determine evidence-based practice for children with ASD and vocabulary learning.

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Appendix A

Example of DATMA approach for the word, *beastly*

Prompt #1:

"Tell me what the word beastly means."

A. If the child answers correctly, the examiner goes to Prompt #2.

B. If the child does not respond or answers incorrectly, the examiner goes to Prompt #3.

Prompt #2:

"How did you know that?"

A. If the child's explanation refers to the individual morphemes, the examiner goes to the next word.

B. If the child's explanation does not refer to the individual morphemes, the examiner goes to Prompt #3.

Prompt #3:

"Does the word beastly have any smaller parts?"

"What are those parts?"

A. If the child answers correctly, the examiner asks, "Now can you tell me what the word means?"

B. If the child does not respond or answers incorrectly, the examiner goes to Prompt #4.

Prompt #4:

"The smaller parts in this word are beast and ly.

Now can you tell me what the word means?"

A. If the child answers correctly, continue to the next word.

B. If the child does not respond or answers incorrectly, the examiner goes to Prompt #5.

Prompt #5:

"Listen to this sentence and then tell me what beastly means:

"Jan tried to scare her brother by dressing up and acting beastly."

A. If the child answers correctly, continue to the next word.

B. If the child does not respond or answers incorrectly, the examiner goes to Prompt #6.

Prompt #6:

"Which of these choices gives the meaning of the word beastly?"

a) like an animal; b) like a plant; c) like a clown"

Appendix B

Story used for the narrative-based approach, titled "The Birthday Party"

Over the weekend, Jimmy had a birthday party at his house for his 13th birthday. His parents had said he could invite 10 friends over and that they could also have a sleepover for anyone who wanted to stay the night. Jimmy was so excited for the entire week before his party. It was all he could talk about! He was really in a celebratory mood.

It was just a few days before the party so Jimmy and his mom decided to pick up decorations. Jimmy told his mom that he wanted balloons and a special tablecloth. At the store, there was an entire aisle of table decorations. His mom picked up one package but Jimmy didn't like it. He said he didn't want anything too flowery. Then they found a perfect choice – a tablecloth with blue and green balloons on it. They went and picked out blue and green balloons to match. They even found matching cups, plates, and forks to use with his birthday cake.

The next stop was to go to the store to pick out his birthday cake. This year, Jimmy's mom said they could order a special cake at the new bakery. Jimmy knew he wanted a chocolate cake with blue frosting. They opened the door to the bakery expecting to smell delicious cakes and pastries. But it was so odorous, Jimmy had to plug his nose. Something had burned in one of the ovens in the kitchen and they were still airing out the smell. Luckily, Jimmy saw a cake in the case that was exactly what they wanted so they put in the order and got out of there quickly.

On the day of the party, Jimmy's parents helped decorate the house. They put up sparkly signs that said, "Happy Birthday Jimmy!" in giant letters. They even put a special shiny blue collar on Jimmy's dog, Duke. At about 1:00, Jimmy's friends started to arrive. They put presents on the table to be opened at the end of the party and went in the backyard to play.

Jimmy's dad had set up bases so they could play whiffle ball. After all of Jimmy's friends arrived, the game began. Everyone had a great time hitting and running the bases. Jimmy's team was winning by 3 runs but when the other team went up to bat they were able to equalize the score. The game ended with a tie!

Then it was time to go inside for cake. Jimmy was so excited to show his friends the cake he had picked out. His mom had lit the candles and all of his friends sang Happy Birthday as loud as they could. With one big breath, Jimmy blew out all of the candles. They each got a big piece of cake and it was delicious. Jimmy and his friends were having a great time. They put on some music and everyone was dancing and singing along to their favorite songs.

At last, it was time to open presents. The first present was a weird shape. Everyone looked at it in puzzlement. What could it be? Jimmy tore off the wrapping paper and it was a Lego kit with an extra Lego character attached to the top. It was just want Jimmy wanted! He was so excited and gave his friend a big hug.

The next present was shaped like a ball. Everyone guessed right even before Jimmy opened it. It was a new soccer ball. But Jimmy didn't even play soccer so he wasn't very excited about this gift. He went to pick up the next present when he saw his mom give him a corrective look. Jimmy remembered he should thank his friend even if it wasn't a present that he was hoping for. He thanked his friend for the ball and then opened the rest of his presents. He remembered to thank each person for their gift.

Some of his friends were getting picked up by their parents but three were staying for the sleepover. They decided to order a pizza and watch the Lego movie. Jimmy and his friends had a great time. That night as he went to sleep, Jimmy thought, "This was the best 13th birthday. I can't wait until next year to do it all again!"