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Video modeling to enhance the conversation skills of preschool children who are at-risk for school failure

Lorie Mick

VIDEO MODELING TO ENHANCE THE CONVERSATION SKILLS OF PRESCHOOL CHILDREN WHO ARE AT-RISK FOR SCHOOL FAILURE

By:

Lorie M. Mick

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Abstract

Lorie M. Mick
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Dr. S. Jay Kuder
Master of Arts in Special Education

The purpose of this study was to determine the effects of the video-modeling method on language comprehension skills of preschoolers who are at-risk for school failure. The setting for this research was a preschool classroom in a low socioeconomic school district in southern New Jersey. Baseline data on the amount of comprehension questions the participants answer correctly after a typical storytelling session were compared to the results of the amount of questions they answer correctly after exposure to the intervention. In addition, the students' use of language, including mean length of utterance and vocabulary, was compared prior to and following the video intervention. The intervention consisted of the subjects watching a video model of a story being read aloud in the point-of-view modeling technique. The video also contained a model of two adults answering the comprehension questions in an interview format. The video was viewed by the subjects several times over the course of a few days. The subjects were asked the comprehension questions again and the results were recorded. The results were compared to the baseline. The results indicated that video modeling may have a positive increase on the language comprehension skills of at-risk preschoolers. The results showed an increase in on-task responses and vocabulary used to answer the questions. The implications for teaching and the development of language skills in young children at risk for learning difficulties were discussed.

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Chapter 1

Introduction

The purpose of this study was to a) test the efficacy of the video-modeling method during story time in an early intervention preschool classroom and b) to find out if video-modeling has an effect on the language and comprehension skills of at-risk preschoolers.

Many preschool children are at-risk for school failure. The term "at risk" is applied when one or more risk factors are present in a child's life. Risk factors include: low-socioeconomic backgrounds, such as living in poverty; parents with little to no education; and living in an area of high unemployment (Manning, Homel, & Smith, 2009). High-quality preschool programs, such as New Jersey's Abbott Preschool program have provided opportunities for these students to gain an early start in fighting against the outcomes of these disadvantages. This study will include such at-risk students as more effort is made in making these programs suitable to the many needs of the students served.

Story time is an important activity that provides an opportunity for language development in young children. Children learn language through reciprocal interactions between themselves and in this case, the teller of the story (Zucker, Justice, Piasta, & Kaderavek, 2009). Children's language skills are directly related to their interactions with others (Zucker et al., 2009). Story reading lends itself to rich conversations and interactions between the reader and the listener. While reading a story, interactions often occur between the reader and the listener that go beyond the text of the story and into a complex dialogue. Studies have shown that parents who read to children often score

better on vocabulary tests. Unfortunately, at-risk students are often not exposed to books and the rich interactions that come with storytelling (Wasik & Bond, 2001). According to Zucker et al., there are three main components of interactions that take place during the reading of a story that contribute to language comprehension: the teacher's questioning, the child's responses and the story or text itself. The role of the teacher questioning is crucial to the understanding of the text or story. The most effective questions are those that encourage the student to make predictions, reasoning, and explanations. These types of questions are what the student's will use to increase their comprehension as they become mature readers (Zucker et al., 2009). Secondly, the children's responses are the key to their understanding and development of language and literacy. The child must be an active participant in answering questions about the story and asking their own questions to further understanding. Many at-risk children have difficulty in this area. They simply do not know how to respond to the questions or engage in further conversations about the story. Lastly, the story itself must lend itself to the types of questions and conversations as mentioned above. There must be elements of the story that promote further thinking such as opportunities for making predictions and explanations. There are two different types of language comprehension involved in reading and understanding a story, literal and inferential language. Literal language involves children describing and discussing information they can easily see. Labeling is an example of literal language used during or after story time, "Can you tell me what that animal is?" Inferential language refers to children using language to analyze or infer information. An example of inferential language during a story is "Why do you think that boy was sad?" Developing inferential language in preschool children is essential for

reading comprehension because the authors do not always directly say what they are intending. Evidence shows that young children are capable of inferential thinking, but many need the help of an adult to make the connections. This is true especially with at-risk students who tend to develop inferential language skills more slowly (Zucker et al., 2009). Inferential language skills have been shown to be directly related to an individual's later ability to decode in reading and understand story narratives (Wasik & Bond, 2001). Developing young children's inferential language skills may prevent future reading comprehension problems (Zucker et al., 2009).This study will reflect on both the students' literal and inferential language skills.

Chapter 2

Review of the Literature

The focus of this study is to find an effective method for teaching language and comprehension skills to at-risk preschoolers. Upon evaluation of the literature, this study will use a video-modeling technique during story time to see if gains are made in the student's language and comprehension skills. Video-modeling is a visual learning tool that allows the learner to watch a model of a desired behavior or learning objective and learn through watching the screen. It is becoming more widely used due to the general low cost and the readily available equipment. Equipment used for video modeling is now considered a standard in a wide variety of settings including homes, communities, and schools (Maione & Mirenda, 2006). Video modeling was chosen for this research specifically based on the advantages presented above and the positive results when compared to other types of modeled learning techniques. When compared to "*in vivo*" modeling, or having a live interaction between the model and the learner, studies have shown that video-modeling is just as effective as "*in vivo*" modeling in acquiring target behavior. In a direct comparison of *in vivo* modeling with video modeling, five students with autism were found to meet the accuracy requirements faster than compared to the treatment using *in vivo* modeling. Of particular interest to the current study, one participant showed increased gains in conversational speech skills (Charlop-Christy, Le, & Freeman, 2000). While both techniques were successful in the study, *in vivo* modeling is a very extensive technique that requires much training and consistency on the part of

the modeler (Gena, Couloura, Kymissis, 2005). In contrast, a video model is highly practical in its ability to repeat a target behavior consistently and accurately (Rayner, Denholm, and Sigafoos, 2009). According to the results of the Charlop-Christy study, video modeling exceeded *in vivo* modeling in several key areas; mainly the participants were able to generalize the information only after the video modeling treatments. Generalizing the learned skills is the most important factor of modeled learning. The individual must be able to repeat the results in other settings outside the sessions in order for the treatment to be considered a success. Consider an at-risk preschooler who may be able to answer the questions following the video model, but no improvements are made when asked questions about another story. The treatment will not be considered a success unless generalization occurs. The Charlop-Christy et al. study attributes these results to several factors including: videos have the ability gain and hold the child's attention better than a live model; video modeling is a relatively simple format and presented in a systematic way that cannot be repeated when live models are used; and lastly, video modeling reduces the possible anxiety that a student may have when presented with a live model treatment. Other benefits to video modeling include: being more time and cost effective, depicting natural settings, having more control over the model due to the ability to re-record until the desired effect is shown on the tape, repeated showings of the desired behavior without the need for a live model and possibly the most beneficial aspect of video modeling is that it can be used for more than one child (Charlop-Christy, Le, & Freeman, 2000; Hine & Wolery, 2006). The hope of this research is to create a set of video models that can be widely used within the at-risk preschool community with relatively low-cost and little training needed for implementation.

Considering the advantages and disadvantages of different modeling techniques, video modeling was also chosen for the benefits of being a visual observation tool. Visual learning is a strength for many young children. Video-modeling emphasizes that strength without bringing attention to possible weaknesses, such as language delays (Thiemann & Goldstein, 2001). Some young children, particularly in the at-risk population struggle with interacting appropriately with adults and peers, a benefit of video modeling is that no social interaction is required for learning to take place (Sherer, Pierce, Paredes, Kisacky, Ingersoll, & Schreibman, 2001). Video modeling also has an advantage because students with difficulty processing verbal descriptions are able to learn through watching the video. There are opportunities with video modeling that lend themselves to high levels of motivation and interest due to the fact that most young children enjoy watching videos (Sherer, 2006). Some of the success of video modeling may also be due to the fact that is it a stimulating change from the normal learning routine and it may increase students' interests because it is a novelty in the learning environment (Charlop-Christy et al., 2000). As previously stated, young children's visual processing abilities are often stronger than their auditory processing skills (Maione & Mirenda, 2006). It will be interesting to see the effect that video-modeling has on story time and the language skills of at-risk preschoolers.

As stated above, story time provides a setting for thriving conversations and interactions between the reader and the listener. If the reader is replaced by a video, what impact will it have on the language skills of preschoolers? This research will test the effects of using a video model to present the story as well as model the appropriate responses to a question and answer session following the story. The concept of learning

through modeling is a technique that has been widely used since the powerful effects were noted by Bandura in the early 1960's (Sherer, 2001). Through technology today, we are able to use this powerful technique in a much more efficient manner by viewing the modeler on a video screen. The learner watches repeated viewings of the target behavior and in theory, will learn to memorize, repeat, and imitate the watched behaviors (Sansosti & Powell-Smith, 2008). Learning through video-modeling allows the watcher to observe the target behavior with the only requirements being to watch the screen. A key point in the video modeling technique is that the participant then has the opportunity to perform the behaviors observed on the video (Macdonald, Sacramone, Mansfield, Wiltz, & Ahearn, 2009). Video modeling equipment allows key points or target behaviors to be zoomed in on, therefore highlighting a specific focus which may never be achieved in a real life setting. The child's focus can be concentrated to the screen instead of multiple areas such as the teacher, the story, or other students (McCoy & Hermansen, 2007). According to Hine & Wolery (2006) a typical video modeling intervention includes: footages of appropriate behaviors to be watched on a screen or monitor; showing the clips repeated times to the observer; practice sessions of the learned behavior; and an assessment of generalization of the skill, or is the skill being used by the observer outside of the training sessions? In this study, the researcher will be looking to see if the students are able to increase the amount of appropriate responses on comprehension questions after the stories viewed on video and in later stories.

Due to the minimal skills needed to participate in video modeling this method has become popular for students with autism spectrum disorders. There have been many

studies done to test this method on students with autism spectrum disorders and many skills have been effectively taught to students through the use of the technique. Video modeling is now considered a "scientifically approved intervention for children with autism" (Nikopoulos & Keenan, 2007). In several studies, the use of video-modeling increased the conversational skills of preschool children with developmental delays and kindergarten children with autism spectrum disorders (Sherer et al., 2010; Buggey, 1995). In the study done by Sherer et al., five young children with autism spectrum disorders were shown two different types of video modeling techniques to enhance their conversational skills, or more specifically, their ability to answer a set of questions when asked. Over time, three out of the five subjects were able to answer the questions with 100% accuracy. This study hopes to replicate these results in that the subjects will be able to answer comprehension questions after hearing and viewing a story on video with 100% accuracy. The study also brought up the issue of echoing in terms of the participants responses. To be sure the student's responses were valid; the researchers slightly altered the responses so that it would be obvious if the participants were merely echoing the modeled responses. For the current study, this method will be repeated to ensure that the results are accurate. The most interesting findings of the study were the relatively small differences in using "other" as a model as opposed to self. Most of the participants did not seem to have a preference which type of video model they watched. Therefore, the results concluded that due to the complexity of creating "self" video models, using the "other" video model is just as effective for teaching conversational skills.

Other studies have shown the positive effects video-modeling can have on the social communication skills and increased interactions of children with autism spectrum disorders (Thiemann & Goldstein, 2001; Maione & Mirenda, 2006; Nikopoulos & Keenan, 2007; Sansosti & Powell-Smith, 2008). Thiemann & Goldstein (2001) were able to increase the social communication skills in several different areas of five students with autism spectrum disorders and other social difficulties. The study used a combination of social stories, pictures, cues, and peer models to engage the students in initiating conversations, making responses and gaining the attention of the peer model. The sessions were taped and later watched by the students to gain feedback on their own interactions. Although it is not known if the results would be the same if the students were treated solely with the other interventions, clearly video feedback is a powerful tool in gaining an understanding of what behavior looks like in a certain situation. Imagine looking in a mirror after a difficult social exchange and being able to see firsthand what improvements could be made for next time. Although video feedback will not be the focus of this study, the treatment sessions will be recorded and possibly used in this manner in later research. In the study by Maione (2006), the social language skills of a Kindergartener with autism spectrum disorders were dramatically increased after completing a video modeling intervention. The most crucial results of this study were that the participant was able to make non-scripted initiations following the intervention. This study hopes to replicate the results of this participant. It is important that a student be able to learn past the videos and be able to transfer the concepts being learned into a real life situation. Also, inferential questioning is often of a subjective nature and the hope is that students will be able to learn from the video examples and not repeat back answers to

open-ended questions. In another study, Sansosti & Powell-Smith (2008) demonstrated that using video modeled social stories was an effective technique in increasing the social communication skills of three male students with high-functioning autism or Asperger's Syndrome. More specifically, the study showed an increase in participants' ability to maintain a conversation and answer the questions of their peers. This study's results show that a video modeling method has been effective in teaching conversational skills to students with disabilities and the expectation is that the current study will be able to repeat these outcomes with at-risk preschool children.

There have also been studies to show how video-modeling has increased the reciprocal play of preschool children with autism spectrum disorders (Hine & Wolery, 2006; MacDonald et al., 2009). Most of the studies referenced thus far have used video modeling along with another type of intervention or procedure for producing the desired effect. The current study will be conducted solely on the basis of the video modeling technique; no other treatments or procedures will be used. There have been studies to show that no other intervention is needed beyond the viewing of the video for reinforcement of the behavior to occur (Macdonald et al., 2009). In a study by MacDonald et al., two students with autism were taught reciprocal pretend play strategies when interacting with a typically developing peer. The verbal interactions increased with using adult video modeling alone as the technique. The give and take nature of the verbal interactions in this study leads the current researcher to believe that positive results for the current study will also occur. The study also notes that even the typically developing peers that participated showed an increase in their verbal interactions and play skills. It is clear from the evidence of these studies that video modeling has been used to teach many

different skills across many different domains. Rayner et al. (2005) summarized that video based interventions have been used for increasing and improving social interactions, the use of language and communication, functional skills, and reducing problem behaviors in individuals with autism spectrum disorders and other developmental disorders. For the purposes of this study, the focus will be on the research effects of video modeling on language and communication skills.

Within the concept of the video modeling technique, there are many different options for presenting a video-model. The question that arises is what kind of model and perspective should be used in this study? The various types of models currently used in the video modeling technique are: adult models, peer models, video self modeling and point of view modeling. In adult modeling, the observer watches an adult perform the targeted behavior. Peer models are typical students, same age and gender as the observer. Self-modeling is when the observer watches themselves on video. And finally, point of view modeling is when the observer watches a clip as it would be seen to them, for example looking down at hands performing the targeted task (McCoy & Hermansen, 2007). In the study done by Sherer et al., results concluded that the differences in viewing techniques; i.e. whether a student watches themselves on video or others as a model are minimal. For the purposes of this study, adult modeling will be combined with point of view modeling as the focus techniques.

Point of view modeling allows the observer to view each step of the targeted behavior from their own visual perspective. They see exactly what they are supposed to

see at eye level from beginning to end. The technique of point of view modeling has been shown to increase visual comprehension while increasing the familiarity of the setting. It also provides a picture of the completed task from their vantage point that cannot be achieved while using peer models or self-modeling techniques (Shukla-Mehta, Miller, and Callahan, 2010). Point of view modeling eliminates the need for recording staged performances as is required when recording "others" as a model. It also eliminates the need for editing footage as is required when "self" is used as the model (Hine & Wolery, 2006). There have been several studies that have had success using point-of-view video modeling to teach self-help skills and functional living tasks to students with developmental disabilities (McCoy & Hermensen, 2007). In a study done by Hine & Wolery, two preschool children with autism were taught to use play skills in the classroom after watching several point of view video clips. To date there have been no studies which use this technique to increase language communication skills. In relation to this study, point of view modeling may help at-risk children understand the structure of a story better if it is seen from their vantage point, therefore, potentially increasing their ability to answer questions regarding the story.

The technique of video modeling was chosen for this study due to the similarities between students with autism spectrum disorders and at-risk preschool children. Although there is no way to predict if video modeling will work for all individuals (Rayner et al. 2009), as stated in this review there is evidence that the technique has been able to increase the social and communication skills of individuals with autism spectrum disorders. The expectation is that the results will transfer to at-risk preschoolers as well. At-risk preschoolers, like individuals with autism spectrum disorders, often have

difficulties paying attention and attending to a story in its entirety. Preschool children are often just learning how to communicate and use social skills appropriately. Children with autism have impairments in verbal and non-verbal communication that result in characteristics such as not asking questions, not offering information, and not making spontaneous comments in an academic setting (Maione & Mirenda, 2006). Moreover, the main characteristic of autism spectrum disorders is the lack of making proper social interactions including listening and responding to teachers and peers (Sansosti & Powell-Smith, 2008). This seems to be the case for at-risk preschoolers. They simply do not have the proper skills to be able to give appropriate responses in a question and answer scenario such as story time. Many at-risk preschoolers are later identified with language disorders. The language, attentional, and social similarities between at-risk preschool students and students with autism spectrum disorders lead this researcher to believe that the success of the video-modeling technique will transfer across settings. To date there have been no studies to test if the powerful effects of the video modeling technique transfer to story time and language comprehension skills in an at-risk preschool classroom.

In conclusion, preschoolers that come from low socio-economic backgrounds and other factors as previously discussed are at at-risk for language disorders and are often not exposed to opportunities for language enrichment. For many low-income children, exposure to reading takes place outside of the home. Therefore, daily story time is a crucial language piece in the preschool curriculum. Using literal and inferential language, predictions are made before the story is read, key vocabulary is pointed out while the story is being read and simple comprehension questions are asked once the story has

finished. Early intervention preschoolers often struggle with answering the comprehension questions that are asked during or after the story. This may be due to difficulties with receptive and expressive language skills, issues with memory or attending to the story. This study will test to see if watching a video-modeled version of the story will increase the amount of correct responses to the comprehension questions asked after the story is told. Implementing a successful language and literacy intervention that can be used readily in the preschool classroom would have a significant impact on the language and literacy development of at-risk children.

Chapter 3

Description of Procedures

The purpose of this research was to determine the effects of video-modeling on the language comprehension skills of preschoolers who are at-risk for school failure. The setting for this research was a preschool classroom in the Abbott funded preschool program in Vineland, New Jersey. The community surrounding the school is predominantly urban with many children coming from low socio-economic backgrounds. In New Jersey, areas classified as urban in the lowest socio-economic status are eligible to receive funding for full day preschool for all 3 and 4 year old children in those areas under the New Jersey Supreme Court decision, "Abbott vs. Burke". The preschool program closes the learning gap for disadvantaged children who are far behind their peers in language and other skills necessary for school success. The school has seven preschool classrooms with each classroom containing fifteen children between the ages of 3 and 5 years. Of the children attending the preschool 57% are of Hispanic descent, 25% are of Caucasian descent, 15% are of African American descent, and 3% are of Asian descent. The two subjects for this study were chosen based on having demonstrated below average scores on the ESI preschool screen and the COR observation instrument in the area of language development. The Early Screening Inventory (ESI) is a developmental screening administered to each preschool child within six weeks of entering the program to identify children that might be at risk for learning problems or delays. Based on the combined range of scores and the child's age, the child is placed into one of three different categories: "OK" indicates there is no evidence of learning

problems or delay, “Re-screen” indicates the results were not conclusive and the child will be re-screened again after six weeks to make sure the results were accurate. The final category is “refer”, meaning the child may be at-risk for learning problems and more assessments are needed. If after the second screening a child still falls into the “re-screen” category, they are placed into the “refer” category. The Child Observation Record (COR) is an observation-based assessment tool that measures the growth of preschool children in many different areas, including language. The COR is based on levels, level 0 being the lowest – the child has not yet demonstrated the skill, and level 5 being the highest – the child has mastered the skill.

The first participant in this research was a 3 year old preschooler of mixed race descent (African American and Hispanic) currently in the first year of the preschool program. The results of the child’s ESI score showed a placement in the lower ranges of the areas of language and cognition, particularly verbal expression. However, the total ESI score was in the normal or “OK” range. The child’s average level in the COR area of language is 2. The second participant was a 4 year old preschooler of Hispanic descent who is currently in the second and final year of the preschool program. Upon the initial ESI screen completed in the first year of the preschool program, the child fell into the “Re-screen” category. After six weeks, the screen was re-administered and the child still scored in the “re-screen” range, indicating that further assessment and observations were necessary to determine if a learning problem exists. In the child’s first year, the average COR level in the area of language was a 1. Currently, the child’s average COR level is 3.5 in the area of language.

The method for this research was to collect baseline data on the responses given by the participants in regards to comprehension questions asked immediately following a typical storytelling session. The baseline data was compared to the results of the responses recorded following the intervention. A single subject research experiment was the design of this study.

The procedure for this research was to read the story, "Where's Home, Little Pip?" to the subjects. The story is about a penguin that gets lost. The baseline story was heard twice; the first reading was aloud for the purpose of enjoyment and the second reading was aloud with the purpose of answering comprehension questions following the story. The comprehension questions asked were based on Bloom's taxonomy. Bloom's taxonomy is a set of strategies for asking questions to students. The questions are in six levels starting with the most basic knowledge and ending with the highest level of understanding. For the purposes of this research and in consideration of the age range of the participants, the first four levels of the taxonomy were used. The levels used in this research are 1) knowledge, which is memorizing the facts; 2) comprehension, or being able to understand facts and state them in your own words; 3) application, or using information in a concrete way or problem-solving; 4) analysis, or breaking down facts and coming to your own conclusions. The responses given by the students in each level was recorded as the baseline data. The data was analyzed for the length of utterances in a response, vocabulary used, and the context of the responses i.e. did the responses make sense according to the story? The length of utterances was measured by the average number of words used in a sentence. Type-token ratio was used to measure how varied the vocabulary was for the responses. Type-token ratio is the type of words used divided

by the amount of words used, which can detect increases in speech and vocabulary. The context was determined by the percentage of responses that made logical sense for the question being asked.

The second story, "Lost and Found" was read aloud for enjoyment. This story was chosen for its similarities to the baseline story; it is also about a lost penguin. The following day, for the second reading, instead of hearing the story aloud the participants watched a video model of the story being read in the point-of-view modeling technique. The point-of-view modeling technique allows the viewer to see the story as they would see it as if it was being read directly in front of them. The video was recorded with an "over the shoulder" view of the book. Immediately following the story, video also contained a model of an adult answering the comprehension questions in an interview format. Each participant viewed the entire video wearing headphones at a computer station in the classroom. The participants viewed the video once again over the next two days in the same way. After the third viewing which occurred on day three of the intervention, the participants were each asked the comprehension questions from the video model and their responses were recorded. The results were compared to the baseline data to see if there were any changes to the responses in terms of length of utterance, vocabulary used, and on-topic responses.

Chapter 4

Data Collection and Analysis

The purpose of this study was to a) test the efficacy of the video-modeling method during story time in an early intervention preschool class and b) to find out if video-modeling has an effect on the language at-risk preschoolers use to answer comprehension questions.

The data collected for this research was a compilation of responses from both participants during the baseline phase of research (see table 1) and following the intervention phase of research (see table 2). The design for this research was a single subject study with multiple baselines.

Table 1: Compilation of baseline responses for participants 1 and 2.

Questions asked following story: Where is Home, Little Pip?	Reponses: Baseline Student #1 – Age 4	Responses: Baseline Student #2 – Age 3	Acceptable Responses:
#1: Knowledge - What is the name of this animal?	A whale.	A whale.	A whale.
#2: Knowledge - What happened when Pip chased the feather?	It flew away. He chased it.	It was under the sea. It was swimming away.	She got lost. She went far away. She was not at home.
#3: Comprehension - The whale said he was at home. How do you know the whale was at home?	Because the penguin don't wanna go in that. Cause he don't wanna go in the water.	He was diving down.	Because whales live in the ocean. He was in the water.
#4: Application - Have you ever been lost? Tell me about it... If no, what do you think being lost feels like? Draw a picture and explain.	Yeah, because I lost my frisa. (a security blanket) Child drew a picture of the frisa.	Yes, I have. I was in Atlantic City and I said, "Mom I want to go to Atlantic City". (The picture he described was about spiders and aliens).	Child draws a picture and makes an explanation that relates to the topic of being lost.
#5: Analysis - What do you think happens next in the story?	Now, he lost the home.	I just robbed it and I killed it. Then, I was trying to walk to Atlantic City and there was a spider in Atlantic City.	Pip and her parents go home. Pip stays close to home from now on…

Table 2: Compilation of post-intervention responses for participants 1 and 2.

Questions Asked:	Student #1 (age 4) Responses:	Student #2 (age 3) Responses:	Acceptable (On-task) Responses
#1: Knowledge: What is this animal called?	A Penguin	A Penguin	A Penguin
#2: Knowledge: Why did the boy think the penguin might be lost?	Because it's not his home. He's sad.	Because he's sad. Sad, alright.	The penguin looked sad. He was alone.
#3: Comprehension: What happened when the boy dropped the penguin off at the South Pole?	Because he was sad again.	Uh, he was lonely.	He was lonely and sad again because the boy left.
#4: Application - Have you ever felt lonely? Tell me about when you felt lonely…(draw a picture)	Yeah, I stayed home. Yeah, I was sad again. (drew a picture of a house and a sad face)	Yeah. (Prompted: What happened?) I was sad. (Prompted: Why?) Because the boy take me to the ice. Um, and his voice was too loud. He go to the farmers. (Drew a self-portrait with a sad face).	I felt lonely when I was lost at the beach.
#5: Analysis - What do you think happens next in the story?	They rowed the boat home.	Uh, they rowed the boat. (Prompted: Where?) Home, they don't have a garage at home. They just have one already. (Prompted: How do you know?) Because they have an umbrella. (pointed to the umbrella in the story, noticed the pattern of colors) "Yellow, red, yellow, red."	They rowed the boat home.

The data was analyzed for the length of utterances or the average number of words used in a sentence for each of the participants responses at the baseline level compared to the length of utterances used following the intervention. Table 3 and Figure 1 represent the data analyzed for participant 1. Table 4 and Figure 2 represent the data analyzed for participant 2.

Table 3: Average number of words in a sentence comparison results – Participant #1, age 4

Question:	Average Number of Words in a Sentence: Baseline	Average Number of Words in a Sentence: Post-intervention
#1 Knowledge	2	2
#2 Knowledge	3	3.5
#3 Comprehension	8	5
#4 Application	6	4.5
#5 Analysis	5	5

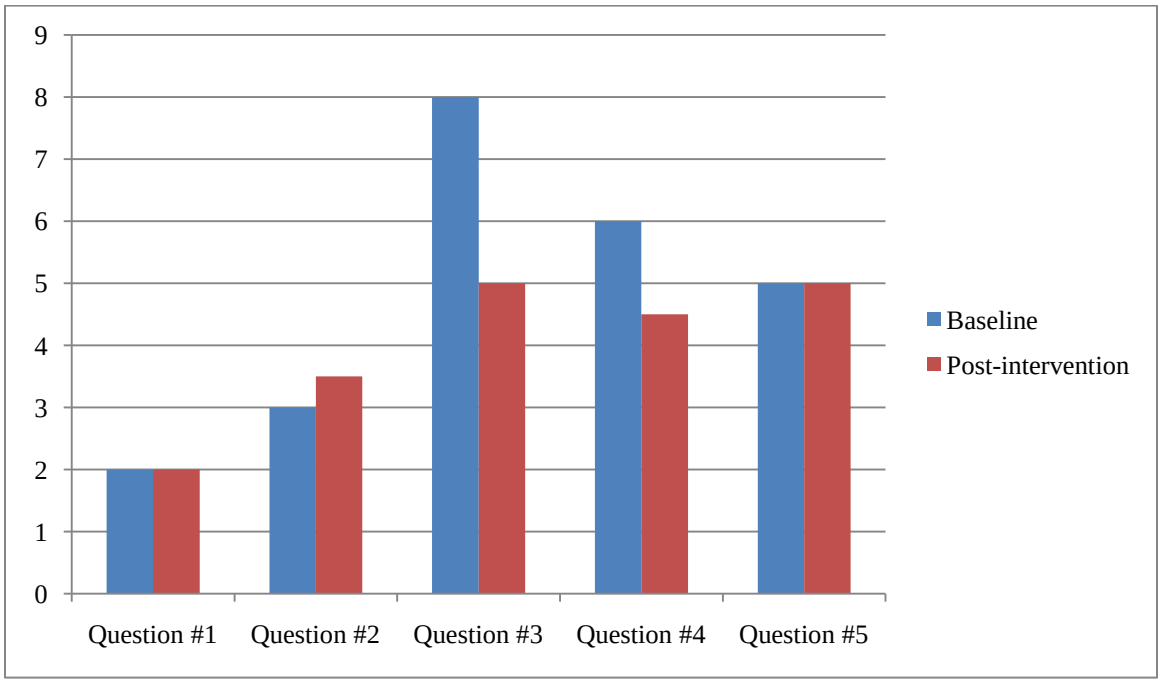

Figure 1: Average length of utterances results - participant #1, age 4

The average number of words used in a sentence stayed approximately the same for participant 1 in the knowledge category of questioning. In the categories that require a higher level of thought, comprehension and application the average length of utterances was higher at baseline. The average for the analysis category stayed the same.

The following Table 4 and Figure 2 represent the data analyzed for participant 2 for length of utterances and the average number of words used in a sentence.

Table 4: Average number of words in a sentence comparison results – Participant #2, age 3

Question:	Average Number of Words in a Sentence: Baseline	Average Number of Words in a Sentence: Post-intervention
#1 Knowledge	2	2
#2 Knowledge	4.5	3
#3 Comprehension	4	3
#4 Application	9.5	5.5
#5 Analysis	12.5	5.5

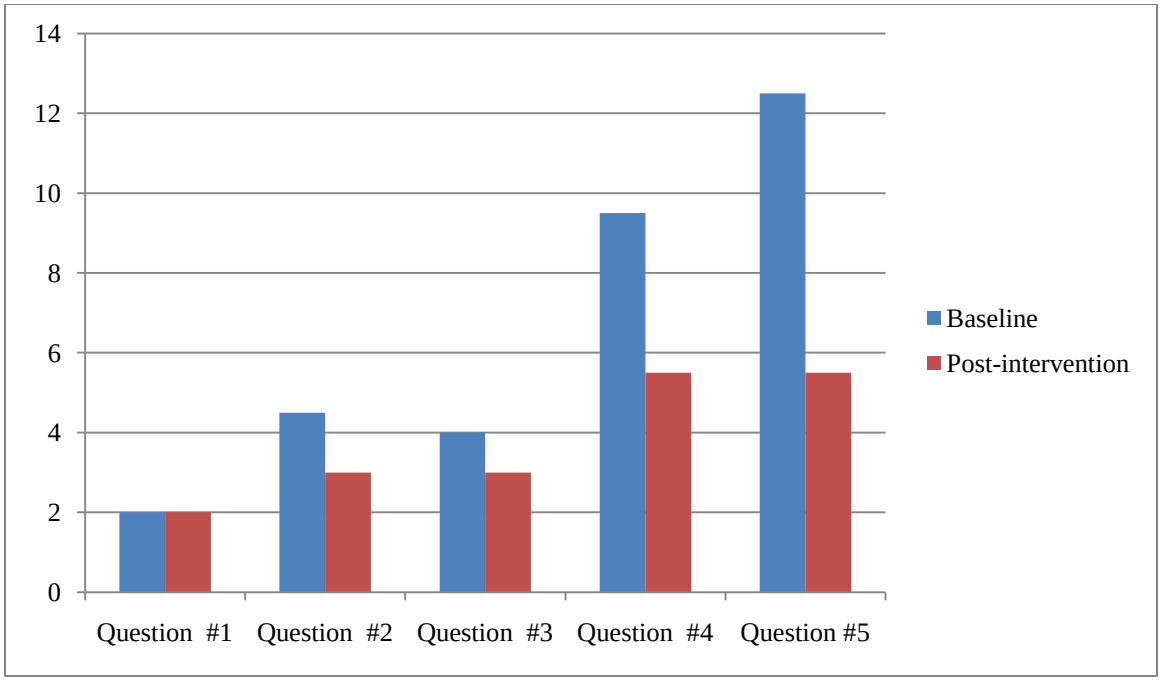

Figure 2: Average length of utterances results – participant 2, age 3

The average number of words used in a sentence for participant 2 was higher at baseline in all categories except for the first category, knowledge, where the average stayed the same.

The data was analyzed for the variety of vocabulary used during each phase of the research. The following tables (see table 5 and table 6) show the results of the type-token ratio during the baseline and following the intervention phase for participant 1. Table 7 and 8 show the results of the type-token ratio during the baseline and following the intervention phase for participant 2.

Table 5: Baseline type-token ratio data – participant 1, age 4

Rank	Word	Frequency	Rank	Word	Frequency
1	*he*	3	13	*flew*	1
2	*because*	3	14	*that*	1
3	*the*	3	15	*away*	1
4	*don't*	2	16	*water*	1
5	*wanna*	2	17	*yeah*	1
6	*go*	2	18	*I*	1
7	*in*	2	19	*chased*	1
8	*lost*	2	20	*my*	1
9	*it*	2	21	*frisa*	1
10	*penguin*	1	22	*now*	1
11	*a*	1	23	*home*	1
12	*whale*	1			

23 types of words Total: 35 tokens or words spoken

Type-Token Ratio = 65.7%

Table 6: Post-intervention type-token ratio data – participant 1, age 4

Rank	Word	Frequency	Rank	Word	Frequency
1	*home*	3	13	*he's*	1
2	*sad*	3	14	*he*	1
3	*because*	2	15	*stayed*	1
4	*was*	2	16	*they*	1
5	*again*	2	17	*rowed*	1
6	*yeah*	2	18	*the*	1
7	*I*	2	19	*boat*	1
8	*a*	1			
9	*penguin*	1			
10	*it's*	1			
11	*not*	1			
12	*his*	1			

19 types of words Total: 28 tokens or words spoken

Type-Token Ratio = 67.8%

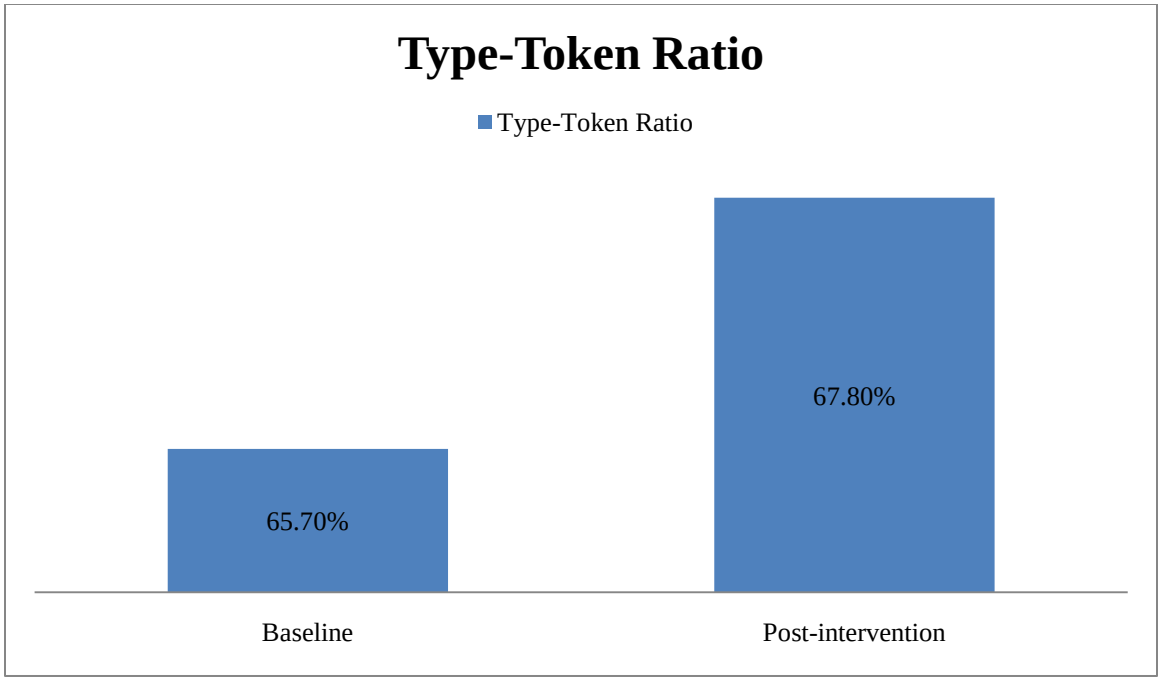

Figure 3: Type-token ratio comparison results – participant 1, age 4

The type-token ratio for participant 1 increased from 65.70% at baseline to 67.80% following the intervention.

Table 7 and 8 show the results of the type-token ratio during the baseline and following the intervention phase for participant 2.

Table 7: Baseline type-token ratio data – participant #2, age 3

Rank	Word	Frequency	Rank	Word	Frequency
1	*I*	7	17	*diving*	1
2	*was*	6	18	*down*	1
3	*it*	4	19	*yes*	1
4	*Atlantic*	4	20	*have*	1
5	*City*	4	21	*said*	1
6	*to*	4	22	*mom*	1
7	*and*	3	23	*want*	1
8	*a*	2	24	*go*	1
9	*in*	2	25	*just*	1
10	*whale*	1	26	*robbed*	1
11	*under*	1	27	*killed*	1
12	*the*	1	28	*then*	1
13	*sea*	1	29	*trying*	1
14	*swimming*	1	30	*walk*	1
15	*away*	1	31	*there*	1
16	*he*	1	32	*spider*	1

32 types of words Total: 57 tokens or words spoken

Type-Token Ratio = 56.1%

Table 8: Post-intervention type-token ratio data – participant #2, age 3

Rank	Word	Frequency	Rank	Word	Frequency
1	*the*	4	21	*me*	1
2	*they*	4	22	*ice*	1
3	*because*	3	23	*and*	1
4	*sad*	3	24	*his*	1
5	*was*	3	25	*voice*	1
6	*have*	3	26	*too*	1
7	*a*	2	27	*loud*	1
8	*he*	2	28	*go*	1
9	*to*	2	29	*farmers*	1
10	*home*	2	30	*rowed*	1
11	*yellow*	2	31	*boat*	1
12	*red*	2	32	*don't*	1
13	*penguin*	1	33	*garage*	1
14	*he's*	1	34	*at*	1
15	*alright*	1	35	*just*	1
16	*lonely*	1	36	*one*	1
17	*yeah*	1	37	*already*	1
18	*I*	1	38	*an*	1
19	*boy*	1	39	*umbrella*	1
20	*take*	1			

39 types of words Total: 59 tokens or words spoken

Type-Token Ratio = 66.1%

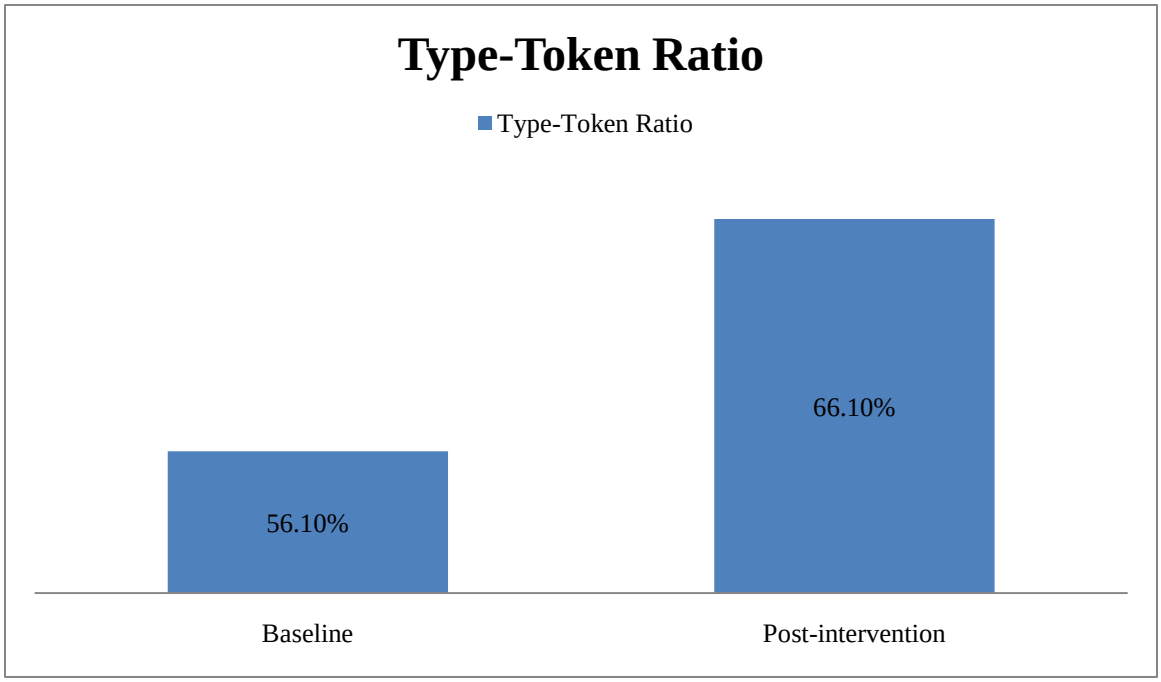

Figure 4: Type-token ratio comparison results – participant 2, age 3

The type-token ratio for participant 2 increased from 56.10% at baseline to 66.10% following the intervention.

The data was then analyzed to see how often the participant's responses were on-task or how often the response made logical sense according to the story. Table 9 and Figure 5 represent the results for participant 1. Table 10 and Figure 6 represent the results for participant 2.

Table 9: On-task analysis – participant 1, age 4

Questions asked by category	Baseline phase	Post-intervention phase
#1 Knowledge	On-task	On-task
#2 Knowledge	On-task	On-task
#3 Comprehension	On-task	On-task
#4 Application	Off-task	On-task
#5 Analysis	Off-task	On-task

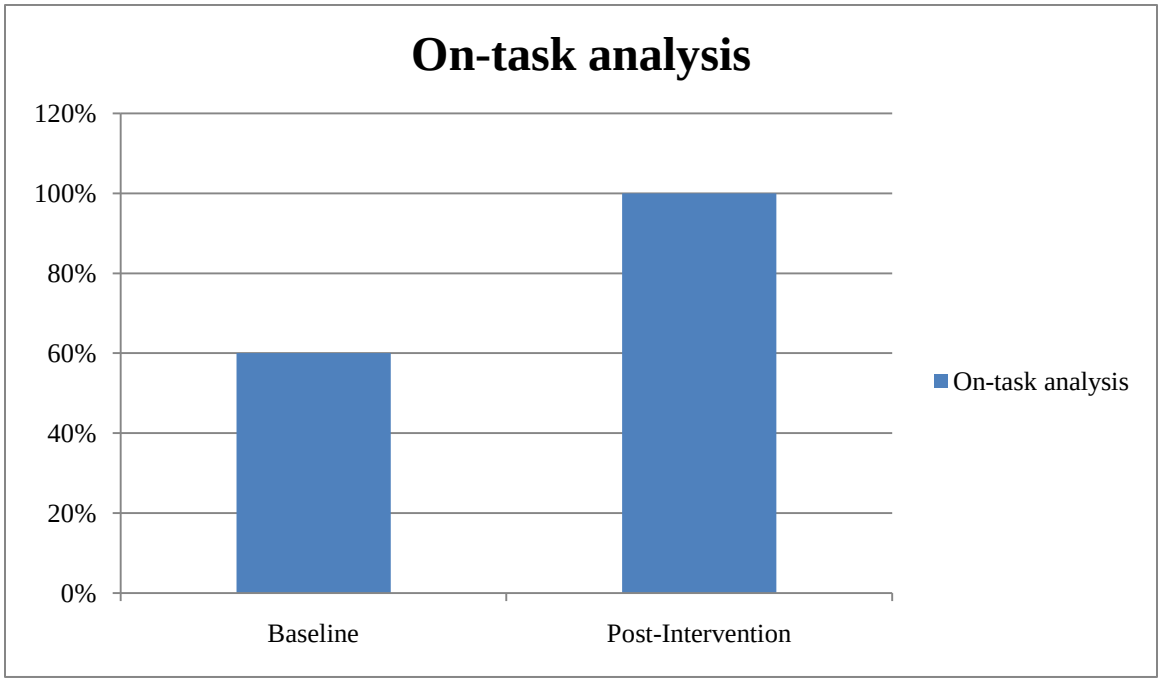

Figure 5: On-task analysis comparison results – participant 1, age 4

Participant 1 was on-task 60% of the time during the baseline phase, increasing to 100% following the intervention.

The following Table 10 and Figure 6 represent the results of the on-task analysis for participant 2.

Table 10: On-task analysis – participant 2, age 3

Questions asked by category	Baseline phase	Post-intervention phase
#1 Knowledge	On-task	On-task
#2 Knowledge	Off-task	On-task
#3 Comprehension	On-task	On-task
#4Application	Off-task	Off-task
#5 Analysis	Off-task	On-task

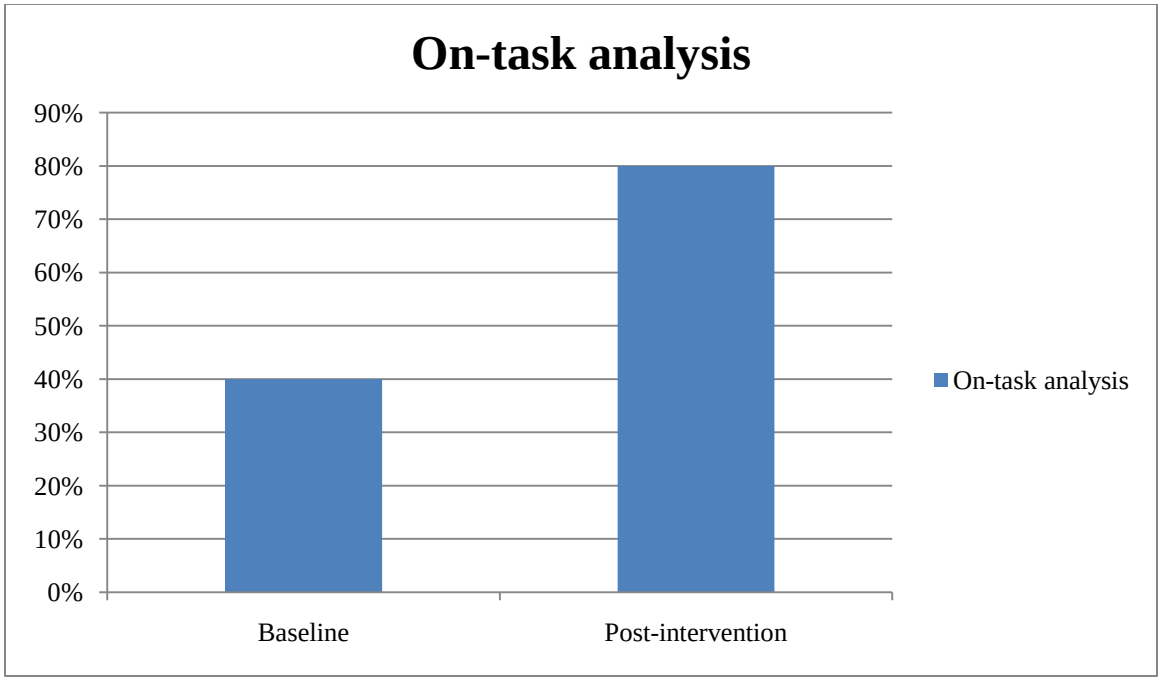

Figure 6: On-task analysis comparison results – participant 2, age 3

Participant 2 was on-task 40% of the time during the baseline phase, increasing to 80% following the intervention.

Chapter 5

Discussion

The purpose of this study was to see if video modeling had an effect on the responses at-risk preschoolers gave to answer comprehension questions asked after story time. The hypothesis was that video modeling would have an increase in the variety of language used for the responses. The responses were analyzed in several ways. First, the responses were analyzed for the length of utterances used in a sentence for each response. The responses were then analyzed for type-token ratio which determines the variety of vocabulary used in the responses. Finally, the results were analyzed for context relating to the story. In order for changes in the length of utterance and type-token ratio to be valid, the response must make sense in context of the story and the question being asked.

Participant 1 showed a slight decrease in the average length of words in a sentence from baseline to following the intervention. However, the on-task analysis increased from 60% at baseline to 100% following the intervention. This means the participant stayed completely on-topic after the intervention. Interestingly, the responses where the average number of words in a sentence decreased are also the responses that were off-task during the baseline phase. In other words, the participant was using an increased number of words in a sentence but the context of the response did not make logical sense according to the story. It must also be noted that the off-task responses occurred at a higher category of questioning. According to Bloom's taxonomy, each level of questioning requires a deeper understanding of the content. After viewing the video model, the participant was able to respond to all questions according to the story, even at

the higher levels of questioning. The type-token ratio increased from 65.7% at baseline to 67.8% following the intervention. This may show that watching the video model increases the variety of vocabulary used in the responses.

Participant 2 also showed a decrease in the average length of words in a sentence from baseline to following the intervention. When viewing the results as discussed previously, participant 2's responses were also on average longer in length when they were not on-task. It seems as though the participant was responding with more words at baseline, however, the responses were not logical for the story or the question being asked. Also, the vocabulary became more varied following the intervention. The type-token ratio increased from 56.1% at baseline to 66.1% following the intervention. It seems as though the same pattern occurred for both of the participants responses. The average number of words in a sentence decreased from baseline to post-intervention, however the responses were more on-task according to the story and questions being asked.

In this study, video modeling had an effect on the responses at-risk preschoolers gave to answer comprehension questions asked after hearing a story. The responses following the intervention increased in vocabulary according to the type-token ratios for each participant. The length of utterances decreased following the intervention, but the results of the on-task analysis show that this may mean even though the responses following the intervention were shorter, they were more on-task and logical to the story.

According to previous research, Zucker et al. (2009) determined that the child's responses to comprehension questions and the quality of the questions themselves is the

key for children to begin to understand and develop language and literacy. As shown in the baseline data of this study, many at-risk children do not know how to respond appropriately to questions or engage in further conversation about the story. After viewing the video model, the participants seemed to have a better grasp on the content and the results show they were able to remain on-task even at the higher level of questioning involving more inferential thinking. Video modeling appears to be an effective method for teaching language and comprehension skills to at-risk preschoolers, similar to the results described in the study by Charlop-Christy et al. (2000) where a student with disabilities showed an increase in conversational speech skills.

The implications of these results suggest that video modeling may be of value in a classroom that serves at-risk preschoolers. During story time, a teacher reads a story aloud to several students, mostly in a large group setting. It may be very difficult for a teacher to ascertain whether or not all the students comprehended the story to the fullest degree. Using a video model of the story, by itself, or as a supplement to the read aloud would have some benefit in increasing the comprehension and language of the students. According to Zucker et al. developing comprehension skills may prevent future reading problems for students. This is especially important when applied to an at-risk classroom where poor reading and low comprehension factors are already present.

There were some limitations to this study that could have an effect on the results. This study used a very small sample of participants. It would be interesting to see if a larger scale study would produce the same results. This study also took place in a classroom with outside distractions such as other students and adults present in the room. This caused some distractions for the participants that may not have been present if the

study was conducted in a more secluded setting. Books on tape are a staple in preschool classrooms. A future study could compare the results of comprehension questions asked following hearing a book on tape and following viewing the book as a video model. The results could potentially replace books on tape with the more visual oriented video models of books.

In conclusion, the purpose of this study was to determine the effects of the video-modeling method on language comprehension skills of preschoolers who are at-risk for school failure. The setting for this research was a preschool classroom in a low socioeconomic school district in southern New Jersey. Students are placed in the preschool program because they are at risk for school failure. Baseline data on the amount of comprehension questions the participants answer correctly after a typical storytelling session were compared to the results of the amount of questions they answer correctly after exposure to the intervention. In addition, the students' use of language, including mean length of utterance and vocabulary, was compared prior to and following the video intervention. The intervention consisted of the subjects watching a video model of a story being read aloud in the point-of-view modeling technique. The video also contained a model of two adults answering the comprehension questions in an interview format. The video was viewed by the subjects several times over the course of a few days. The subjects were asked the comprehension questions again and the results were recorded. The results were compared to the baseline. The results indicated that video modeling may have a positive increase on the language comprehension skills of at-risk preschoolers. The results showed an increase in on-task responses and vocabulary used to

answer the questions. The implications for teaching and the development of language skills in young children at risk for learning difficulties were discussed.

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